

School of Economics & Finance

**Institutions, Colonisation and the Economic Development of Western
Australia and South Australia, 1829 to 1900**

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**This thesis is presented for the Degree of
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of
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Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any tertiary institution and to the best of my knowledge and belief, the thesis contains no material previously published or written by another person, except when the reference is made in the text of the thesis.

Signed

A handwritten signature in blue ink that reads "O'Connell". The signature is written in a cursive style and is underlined with a single horizontal stroke.

Darren Christopher O'Connell

Acknowledgments

“There is no greater agony than bearing an untold story inside you”

Maya Angelou

My own personal experience of (de)colonisation occurred in March 1979 when I witnessed Britain’s Royal Navy evacuating Valetta Harbour in Malta (Figure 1) following the expiry of the Anglo-Maltese defence treaty fifteen years after independence. I’ve also, as an adult, travelled to, and explored, many former colonies in various parts of the world, good and bad. History is a wonderful living phenomenon.

The number of debts I have acquired in researching and writing this thesis beggars my ability to repay them adequately. There will be many who don’t get mentioned in this section, due to space limitations, but they will be, or have already, been thanked in person.

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Figure 1: Spot the Author!



Source: Author’s private collection

bridging as it did the transition from undergraduate to PhD studies. Felix reawakened my love affair with mathematics during this “gap year” and I became determined to conquer my fear of statistical and econometric analysis. My professional life has certainly benefitted immeasurably from the experience.

Barry O’Grady walked me through the experience of thesis and journal writing during my Honours year (2007). Although this beast is totally different from my earlier

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Advance Australia Fair!

Institutions, Colonisation and the Economic Development of Western Australia and South Australia to 1900

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Abstract

This thesis adopts Douglass North's institutional framework to explain why Western Australia and South Australia, established in 1829 and 1836 respectively as the only two non-convict colonies, had considerable disparities in economic growth up to 1900. Both colonies were established under different modes of organisation (colonisation). The method adopted for WA harked back to Mercantilism, famously condemned by Adam Smith because it led to under-investment in, and over-exploitation of, colonial assets. SA on the other hand was the product of a radical new theory in colonisation proposed by Edward Gibbon Wakefield whereby land, instead of being given away as in WA, was sold at a fixed price with the proceeds being used to subsidise gender-balanced immigration. Outcomes suggest that SA's method of "systematic colonisation" introduced a better institutional matrix, compared to the initial institutions seeded in WA, allowing SA's economy to develop sooner and at a higher rate of growth. However, once the detrimental effects of its method of foundation were eliminated, occurring on the eve of one of the largest gold discoveries of modern times, WA's institutions finally provided the necessary incentives to effectively develop its economy such that by 1900, both colonies had an almost equal level of economic output.

Keywords: Institutions, institutional evolution, path dependency, economic development, economic history, colonisation.

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Chronology of Principal Events

Western Australia

- 1826: Occupancy of King George Sound by convicts from Sydney under Major Lockyer.
- 1827: Examination of Swan River by Captain Stirling in H.M.S. *Success*.
- 1828: Syndicate formed in London for colonisation of Swan River.
Decision of British Government to found colony.
Captain Fremantle in H.M.S. *Challenger* dispatched to take formal possession of Swan River.
Captain Stirling appointed Lieutenant-Governor.
- 1829: *Parmelia* leaves England with officials and first settlers, arrives in June.
Formal possession of New Holland taken by Captain Fremantle.
Foundation of Perth and Fremantle.
- 1830: Legislative Council constituted by Order in Council.
Executive Council constituted by Instructions under Sign Manual.
- 1831: Agricultural Society established and first newspaper issued.
- 1832: Executive Council, Legislative Council, Civil Court established.
- 1833: First issue of *Perth Gazette* now *The West Australian*.
- 1834: First definite petition for convicts (from Albany).
- 1837: Bank of Western Australia established.
- 1837: Lieutenant Grey begins four years of explorations.
- 1840: Western Australian Company constituted to form settlement at Australind.
- 1841: Eyre's overland journey to King George's Sound.
Bank of Western Australia amalgamated with Bank of Australasia.
Western Australian Bank founded.
- 1845 to 1848:
A.C. Gregory's expeditions.
Discovery of coal, lead and copper.
- 1843 to 1849:
Petition for the introduction of convicts.
- 1849: Western Australia constituted a penal settlement.
- 1850: Arrival of first convicts.
- 1851: Commencement of pearling industry.
- 1854: Austin's expedition to the Murchison.
- 1856: A.C. Gregory's expedition from the Northern Territory to Victoria Plains.
Anglican Bishopric established.
- 1857 to 1858:
F.T. Gregory's survey of the Murchison and exploration of Gascoyne.

1861 to 1868:

F.T. Gregory's expedition to the north and settlement of the North-West.

1864: Roebuck Bay Pastoral Association.

Camden Harbour Pastoral Association.

1865: Denison Plains Association.

1866: Hunt's expedition to Hampton Plains.

1868: Cessation of transportation.

1869: First telegraph line erected.

John Forrest's expedition in search of Leichhardt.

1870: Representative Government established.

John Forrest's overland journey to Adelaide.

1871: Municipalities Act passed.

Elementary Education Act passed.

First railway built.

Alexander Forrest's journey to Esperance.

1872 to 1873:

Expeditions of Giles, Gosse, and Warburton.

1874: John Forrest's expedition to the north.

1875: Giles' overland expeditions.

1879: Exploration of Kimberley district by A. Forrest.

1880: Kimberley district opened up.

1885: Federal Council Act passed.

1886: Kimberley Goldfield proclaimed.

1888: Yilgarn and Pilbara Goldfield proclaimed.

1889: Great Southern Railway opened (built on land-grant system).

1890: Imperial Act conferring Responsible Government passed.

Responsible Government inaugurated.

First ministry appointed, John Forrest Premier.

1891: Murchison Goldfield proclaimed.

1892: Coolgardie Goldfield discovered.

Fremantle Harbour commenced.

1893: Hannans (Kalgoorlie) Goldfield discovered.

1894: Menzies Goldfield discovered.

Midland Railway opened (land-grant railway).

1896: Great Southern Railway purchased by Government.

1899: Goldfields Water Supply commenced (completed January 1903).

1900: July: Federal referendum taken.

1901: Commonwealth of Australia inaugurated 1 January.

South Australia

- 1830: Captain Charles Sturt travels to the mouth of the Murray River in a whaling boat.
- 1831: Captain Collet Barker explores the Adelaide Plains and climbs to the summit of Mount Lofty.
- 1836: SA proclaimed by Governor John Hindmarsh on 28 December at Glenelg.
Site for Adelaide chosen by Colonel William Light beside the River Torrens.
- 1837: Colonel Light completes survey of Adelaide city centre and designs the city's grid layout. Allotments of 1 acre (0.40 ha) are made.
First regional town of Gawler is founded north of Adelaide.
- 1838: Overlanders Joseph Hawdon and Charles Bonney arrive in Adelaide from New South Wales with 300 head of cattle.
First German immigrants arrive and settle in Adelaide and surrounds.
- 1839: Colonel Light dies at Thebarton.
The first road in South Australia, Port Road, is opened.
Edward John Eyre begins his explorations of the Flinders Ranges and beyond.
- 1840: The Corporation of Adelaide is founded as the first municipal authority in Australia.
- 1841: Adelaide Hospital (later Royal) opened.
- 1842: Copper is discovered at Kapunda.
- 1843: The first Legislative Council building opens on North Terrace.
- 1844: The colonial Government takes control of the Corporation of Adelaide.
- 1845: Copper is discovered at Burra.
- 1847: St Peter's College established.
- 1848: Pulteney Grammar School established.
- 1852: The Corporation of Adelaide is reconstituted.
First transport of gold overland arrived in Adelaide.
- 1854: The township of Port Augusta at the head of Spencer Gulf is surveyed, and Mount Gambier is founded in the South East.
- 1856: First telegraph line and steam railway between Adelaide and Port Adelaide opened.
South Australia enacts the Secret Ballot.
- 1858: Melbourne-Adelaide telegraph line opened.
The first edition of *The Advertiser* newspaper is published.
- 1860: Thorndon Park Reservoir supplied water through new reticulation system.
- 1861: Copper discovered at Moonta, on the Yorke Peninsula.
- 1863: First gas supplied to city.
John McDouall Stuart successfully crosses the continent from north to south on his sixth attempt.

- 1865: Bank of Adelaide founded.
- 1866: First oil exploration in Australia at Alfred Flat near Salt Creek, along the Coorong.
- 1869: Prince Alfred College established.
- 1872: The General Post Office opened. Adelaide became first Australian capital linked to Imperial London with completion of the Overland Telegraph.
- 1874: The University of Adelaide founded.
- 1875: Adelaide Steamship Company founded.
- 1877: Copper mines at Burra and Kapunda close.
- 1878: First horse-drawn trams in Australia commenced operations in the city.
- 1880: Telephone introduced in South Australia.
- 1881: Torrens Lake created following the construction of weir.
Drought ruins thousands of farmers on marginal land in the Mid North and Goyder's Line is recognised as the limit to agricultural settlement.
- 1882: First water-borne sewerage service in Australia commenced.
- 1887: Express train services between Adelaide and Melbourne commence.
Stock Exchange of Adelaide forms.
- 1889: School of Mines and Industries opens on North Terrace.
Lead smelters built at Port Pirie.
- 1894: The world's second Act granting women suffrage passed in Parliament House on North Terrace.
- 1896: Happy Valley Reservoir opened.
- 1897: Constitutional Convention on Federation held in Adelaide.
- 1899: State Referendum on Federation: South Australia votes "Yes" (70.2 per cent).
- 1901: Adelaide became a state capital upon the establishment of the Commonwealth of Australia on 1 January. The Duke and Duchess of York visit.

Glossary

The following table provides a listing of the most common abbreviations and acronyms used throughout this thesis.

ABS:	Australian Bureau of Statistics
CBR:	Crude Birth Rate
CDR:	Crude Death Rate
CMR:	Crude Marriage Rate
CO:	Colonial Office
CPI:	Consumer Price Index
CWT:	Centum Weight
GBP:	Great British Pounds or Pounds Sterling
GDP:	Gross Domestic Product
IR:	Industrial Revolution
LMM:	London Money Market
NCE:	Neoclassical Economics
NIE:	New Institutional Economics
NSW:	New South Wales – established in 1788
NT:	Northern Territory established in 1824 by NSW, transferred to SA in 1863 and relinquished to the Commonwealth in 1911
NZ:	New Zealand established in 1841 under the principles of “Systematic Colonisation”
OIE:	Old Institutional Economics
QLD:	Queensland established in 1859 as a separate colony but was a convict offshoot of NSW
RN:	Royal Navy
SA:	The Province of South Australia established in 1836
SRC:	Swan River Colony established in 1829. Its name was changed to Colony of Western Australia in 1831
TAS:	Tasmania – the former name of Van Diemen’s Land (see VDL)
TCE:	Transaction Cost Economics
UK:	United Kingdom
US:	United States of America
VDL:	Van Diemen’s Land established in 1803, became a separate colony in 1825 and changed its name to Tasmania (TAS) in 1856
VIC:	Victoria established in 1850 but founded in 1835 became a convict offshoot of NSW
WA:	Colony of Western Australia established in 1829

Chapter 1: Introduction

“Human institutions seldom possess that perfection in themselves, which gives permanence to their existence”

Lord Castlereagh, 1791

Preface

Did institutions affect the performance of the colonial economies of Western Australia (WA) and South Australia (SA) prior to 1901? In his examination of the rise and fall of the manorial system, and later Mercantilism, North (1990) concludes that institutions matter because economic interaction is characterised by collective choice problems, contracting issues and information asymmetry such that prices do not always incorporate all the data about the transaction. Institutions may reduce these imbalances and lower the cost of acquiring all the information needed to transact within the economy, and are therefore important to economic analysis (Haita, 2006).

Acemoglu, Johnson and Robinson (2001), Lange, Mahoney and vom Hau (2005), and Prados de la Escosura and Smits (2007), among others, have examined various aspects of British and Spanish colonialism and the roles that institutions played, and all conclude that institutions exerted a significant influence on the economic formation and development of colonial economies, and that they also applied a measurable effect during the post-colonial period. Inevitably these studies tend to contrast the approaches taken by different European colonisers, such as “Mercantilist” Spain as compared with “Liberal” Britain, and how these different approaches affected economic development.

This thesis takes an alternative approach to examining the role of institutions in colonial economic development. Specifically, it focuses on two British colonies – Western Australia and South Australia – and examines how the institutional matrix that applied to each affected their economic performance in the nineteenth century through the process of colonisation. The contrasting approach to colonising WA and SA is perhaps one of only a handful of natural experiments available (i.e. comparing natural situations differing with respect to variables of interest) where the economic consequences of alternative institutional matrices can be studied. This research examines the influence that institutions had on the colonial economic development over the study period using a significant amount of unpublished data. The approach taken is to construct measures, using the original source material, that highlight the effect that institutions had on economic growth.

At Federation, in 1901, the two colonies of WA and SA were almost equal in terms of economic performance (GDP) but the route taken to reach that point was very different. The respective charts of economic growth reveal that WA's growth shows an unusually low level of activity for the first 60 years before rapidly accelerating from the mid-1880s, while SA's economy from 1837¹ grew rapidly in the first two-thirds of its life before tapering off as the century ended.

This thesis explores the possible role played by institutions in explaining the contrasting economic performance of both colonies through to 1900. North (1990, 3) defines institutions as the humanly devised constraints that shape human interaction, whether they be by formal rules or informal codes of conduct. The institutions of colonial WA and SA were transferred from Britain but had distinct characteristics. In WA's case, the method of settlement was based on the Mercantilist principle, in which colonial assets were granted, or gifted, by the Crown as the primary means of incentivising settlers develop their colonies. In SA's case, colonial assets were sold by the Crown to settlers. Both methods had important implications for institutional transfer of property rights, capital markets, government and culture as well as economic growth.

This thesis examines how the specification of colonisation affected the early economic performance of WA and SA. The broad conclusions are that the specification of colonisation did indeed affect institutional transfer as well as the incentives for colonists to engage in economic activity. WA's institutional matrix was poorly specified and took the majority of the nineteenth century to correct before sustainable economic growth could occur. In contrast, SA's institutions were better designed at foundation and enabled rapid economic formation (though they were far from ideal). Additionally, these institutions can be seen to have influenced the exploitation of natural resources, the growth and character of the labour force, and the development of transportation and communications infrastructure.

The Key Analytical Framework

As hinted on the previous page, institutional economics is the key analytical framework employed in this thesis to guide the examination of the early economic development of colonial WA and SA. Over the last thirty years or so, a substantial corpus of work has been devoted to the role that institutions play in facilitating economic growth between nations and a large amount of this work has been undertaken by Nobel Laureate Douglass North. As will be shown in Chapter 2, institutions can be classified in a number of different ways but North (1990, 97) categorises them into two main groups: formal

¹ The first colonists arrived at the present-day site of Adelaide on 26 December 1836 and economic records began the following year.

rules (e.g. constitutions, laws and property rights) and informal constraints (e.g. customs, norms and taboos).

North is often described as a new institutional economist (Lloyd, n.d., 2). New institutional economics (NIE) emphasises the functionality of institutions as both designed and efficient solutions to coordination problems. This contrasts with the old institutional (OIE) approach in which “the individual is socially and institutionally constituted [that is] moulded by cultural or institutional circumstances” (Hodgson 2000, 327). In this view, downward causation from the social world and institutions can significantly alter and shape human behaviour (Hodgson 2000, 318). Whilst North’s early work (e.g. North and Davis, 1971) tended to emphasise the economic functionality of institutions, his later writing (e.g. from North, 1981 onward) gave prominence to how institutions shape economic activity and how they can, potentially, be barriers to economic progress. North’s later work (e.g. North, 1990) links together history (time), economics, political science, sociology, and other social sciences and promotes the importance norms and beliefs, which is a central tenet of OIE.

A theme that runs through all of North’s (1990, 97) work is that institutions form the incentive structure and define the choice set for individuals, which therefore determines the profitability and feasibility of engaging in different types of economic activity. Trade promoting institutions mobilise resources (e.g. capital), and address collective choice and information asymmetry problems (i.e. conflict) that make it difficult for individuals to solve contracting problems (North 1990, 100).

In North’s analysis, institutions also help determine transaction and production costs, and in so doing, influence whether the potential gains from trade are realisable (North, 1990). For example, laws and codes of conduct in product markets help to reduce the opportunity for collusion and can increase confidence in the reliability/quality of commodities. However, poorly constructed institutions raise transaction costs, increase information asymmetry and uncertainty, and reduce the potential for and likelihood of trade and exchange.

This raises the question of what factors result in some economies developing formal and informal institutions that promote trade and exchange. North (1990) explains that institutions evolve through the continuous interaction of institutions and organisations. The most fundamental long-run source of institutions and institutional change is a society’s collective learning process: the ‘bit-by-bit’ acquisition of knowledge gained from a process that North calls “learning by doing” (1990, 74). The process can be thought of as starting with belief structures, which are the internal representations that individual cognitive systems create to interpret their environment. These get

transformed into formal rules and informal behavioural norms (that is, institutions) and they are subsequently reflected in societal and economic structures (North 1994, 363). Institutional change is thus a slow process, described by North (1990, 98-9) and others as “path dependent”, with current institutions having long-term, dynamic effects on economic behaviour in a given society.

This thesis adopts North’s concepts to examine the role of institutions in explaining the different economic performance of colonial WA and SA in the nineteenth century. Those institutions expected to be significant in explaining the disparity in economic performance are property rights, capital markets, governance structures, and cultural attitudes. The examination comprises a number of key steps. First, the types of institutions relevant to economic performance are identified. Second, the nature and source of difference in the institutional matrix applying to colonial SA and WA are examined. Third, evidence on the possible links between the institutions of the two colonies and their economic performance is reviewed. Fourth, the possibility that other factors, such as climate and geography, were responsible for observed differences in economic performance is considered.

Motivations for Study

There are three principal motivating factors for applying North’s institutional framework to the study of WA’s and SA’s colonial experience: the relative lack of attention to WA and SA in the wider writing on the economic history of Australia; the seeming acceptance that WA’s slow colonial economic development was due to nature, resulting in a lack of serious consideration to the role that institutions played in the state’s economic history; and an opportunity that the colonies’ histories provide for a natural experiment of the effect of different institutional frameworks.

Many economic histories of Australia focus on the contribution of the eastern colonies to the nation as a whole. Crowley (1966, 83) observed that there was a dearth of economic studies on SA:

The standard economic histories of Australia are so distinctly orientated towards the eastern and south-eastern corners of the Continent that they mostly omit to discuss the economic development of South Australia, except to mention, in passing, the history of its copper mines and its early success with dry-farming and rural mechanisation.

And nothing much has changed. The main secondary sources employed in this thesis concerning SA history specifically are Gibbs (1984) and Aplin, Foster and McKernan (1987), but these are essentially social histories. M. Shanahan (personal communication, October 2, 2011) noted that there was an attempt to publish an economic history of SA in 1986 to coincide with the 150th anniversary of SA’s foundation

but this did not eventuate due to lack of funding and interested personnel². The same criticism can be applied to WA whose contribution to overall Australian economic history typically makes up only a chapter of some of the more eminent works and is usually condensed to a few main points: the exaggerated promotion of the Swan River Colony³ (Blainey, 1980), the unsuitability of the land (Keneally, 2009), the inappropriateness of the colonists (Molony, 1988), the lack of capital (Barnard, 1986), the excessive size of land grants (Clark, 1993), convict labour (Hughes, 1987), and gold discoveries and self-government in the 1890s (Blainey, 1994). The remaining chapters of such works are almost exclusively devoted to the development of the eastern colonies particularly New South Wales (NSW), Victoria (VIC) and Van Diemen's Land (VDL later Tasmania).

The lack of detail on the institutional environment of WA and SA in studies of Australian economic history could reflect a presumption that the institutional environments of the Australian colonies were alike (C. Lloyd, personal communication March 2, 2011). However, while it is true to say that all the Australian colonies had the same institutional choice set, it is also important to acknowledge that they existed autonomously within Britain's Imperial framework and they tended to develop their economies and institutions independently (Darwin, 2012). Furthermore, there were at least three modes of colonisation that influenced the transfer of institutions from Britain to its Australian colonies. NSW was a convict settlement with distinct penal institutions that did not begin the transition to a market-based economy until after 1810 (Butlin, 1994). The other eastern colonies (VDL, VIC and QLD) were offshoots of NSW. WA and SA, in contrast, were founded with free institutions⁴ as opposed to penal institutions (Keneally 2009, 374-385). Importantly, these two colonies were organised on different lines: Mercantilism in WA and systematic colonisation in SA. The apparent neglect of their histories thus leaves a significant gap in Australian economic (and institutional) history because different methods of colonisation may not necessarily lead to uniform institutional outcomes.

The Mercantilist-inspired method of colonisation employed to establish WA was based on a historical system of land grants (rather than sales) that had proven moderately successful in NSW (Darwin, 2012). It had the advantage of minimising the expense to the British taxpayer, it had created new markets and it potentially reduced unemployment (and crime) in the metropolis. As such, there was no reason to suspect that WA, established in 1829, would be any different. However, the system of allocating

² I offered to pen a stand-alone economic history of the state, to coincide with the 175th anniversary of foundation (in 2011) in a format similar to what had been published by the WA Government in 2004, but the SA Government showed no interest in contributing to such a project.

³ The name Swan River Colony (SRC) was *pars pro toto*, however, the colony was renamed Western Australia in 1832. In this work, the SRC will be used to describe the colony's progress from 1829 to 1832.

⁴ For example, the bill establishing SA specified liberty of the press, freedom of trade, no convicts and no interference with religion (Mills 1915, 221). These institutions were not available in penal colonies.

land in WA was without colonial precedent and directly affected the distribution of property rights. As will be summarised later in this chapter, land-based property rights was an important institution that helped to determine economic development and had important implications on the evolution of capital markets, the state and culture.

Edward Gibbon Wakefield's [1796-1862] 'systematic' alternative to Mercantilist colonisation, tested in SA (and later New Zealand) in the nineteenth century, called for land to be sold at a "sufficient" price with the proceeds funding the passages of qualified migrants (Kittrell 1973, 194). These migrants would work for several years to save up enough to become landowners requiring labour, and so the "system" would become almost entirely self-perpetuating (Kittrell 1965, 195). As with WA, land-based property rights had a direct influence on other institutions as well as overall economic development throughout the nineteenth century.

A handful of local historians who have assessed WA's colonial period have noted the importance of institutions (e.g. Roberts, 1924 and Statham, 1981) in determining its early economic performance. However, many others have maintained that natural factors were most relevant (e.g. Crowley, 1960 and Burvil, 1979). In a similar vein, several studies of SA's history have already noted the impact of Wakefield's systematic colonisation on economic development in the nineteenth century and these include Pappé (1951), Richards (1986) and Fieldhouse (1999), among others, who continue to hold conflicting views about the efficacy of his plan. It does not appear that anyone has used the opportunity, that the European settlement of WA and SA provide, to assess the different methods of colonisation and to understand their impact on institutional transfer and economic development. This issue will be specifically addressed in this research.

Method & Data

This thesis is a comparative analysis of the economic performance of colonial WA and SA, making use of the natural experiment they provide to assess the effect of two distinct methods of colonisation had on institutional transfer and subsequent development, and their resulting impacts on economic growth. As such this study is empirically grounded in which the experimental conditions, i.e. the rates of economic growth between the two colonies, have not been manipulated and can be determined by observing differences in institutional transfer; natural factors such as climate and geography; and by exogenous factors such as technology and human capital. All of these potential sources of economic growth, and resulting outcomes, were unplanned in the sense that the colonising experiences of WA and SA were not set to some master design emanating from the British government bent on observing economic or institutional phenomena. This investigation is limited to the period prior to Federation (1 January 1901) after which the colonies no longer acted as independent (and competing)

economies and became integrated (and complementary) states under the Commonwealth of Australia.

The method adopted in this thesis to explore the role played by institutions in explaining the contrasting economic performance of WA and SA through to 1900 consists of six sequential steps. First, guided by North's institutional theory, an attempt is made to identify the institutional matrix that applied in each colony. Recent institutional studies tend to analyse only one institution of interest. Such a narrow focus fails to convey the importance that numerous institutions and their interactions play within the economy. To remedy this deficiency this study focuses on an institutional matrix and attempts to classify alternative institutional types to identify those of potential importance to the development of colonial WA and SA. Those institutions that theory suggests are relevant to economic performance (and which there is some prospect of measuring) are property rights, capital markets, state-based institutions, and cultural attitudes.

The study then compiles the available colonial data and transforms this into a set of measures that illuminate aspects of each institutional type and their influence on the economy. At least three aspects of each of the four institutions is examined with the available data, and these are placed into context with an historical narrative to explain how the institution functioned, how it was changed and how it contributed to economic development. Acknowledging that not all economic growth can be accounted for by the institutional matrix, measures of several additional factors are incorporated into this analysis: natural resources, labour and transport and communication. The use of descriptive methods in this analysis reflects the limitations in the availability and quality of data on the institutions, other factors resulting in growth and ultimately economic performance over the study period. As Diamond (2005b, 193) has observed when conducting natural experiments of his own, if statistical correlation or econometric analysis is to succeed, there must be more separate experimental outcomes than there are variables to be tested. Hence, in this present study, there is only one experiment but four institutional variables of interest and so no statistical or econometric modelling can be undertaken.

The major challenge in fulfilling the terms of this thesis was to access relevant data both on economic performance and on the range of institutional and other factors relevant to its determination. In addressing this challenge, the colonial data contained in the *Blue Books* and later the *Statistical Registers* is fully utilised for both colonies, the majority of which is unpublished but directly comparable. The Australian Bureau of Statistics (ABS) (1989) describes how the gathering of statistics by the Colonial Office

(CO) from across Britain's empire formed part of the centralised framework of its governance and control. After 1822 the method of collection was standardised and became colloquially known as the *Blue Books* (ABS 1989, 7). Each colony's *Blue Books* collected the same type of data irrespective of geographic location within the British Empire and therefore allow for a direct comparison between WA and SA. From about 1850 onwards, following the granting of responsible government (to all colonies except WA until 1890), a new type of annual report emerged, first known variously as *Statistics*, *Statistical Returns* or *Statistical Register* (ABS 1989, 7). The scope of these reports was substantially larger than previous data collections and covered almost all aspects of economic, financial, demographic and social life in the colonies. The reports were disseminated for local and imperial consumption, and helped inform policy decisions. Again, the types, and measurement, of data reported in the *Statistical Registers* permit an inter-colony analysis.

In WA, the *Blue Books* were published from 1837 (not 1829) to 1895, after which they were succeeded by the *Statistical Register of Western Australia*. Data covering the initial years 1829 to 1836 is not readily available in *Blue Book* form. However, the *British Parliamentary Papers on Australia and New Zealand 1800-1899* contain certain data covering the period to 1836 and have been used where appropriate. In SA, the *Blue Books* were used from 1837 to 1844 after which the statistical content was expanded to a publication initially called *South Australia: Statistics* from 1845 to 1849; then *South Australia: Statistical Returns* to 1875; and finally the *Statistical Register of South Australia* from 1876.

Whilst the aim of the *Blue Books* and the *Statistical Registers* was to impose a uniform framework on the gathering of important information about colonial economic development, colonies the world over were anything but consistent in what they measured and how they reported it. This is particularly evident when one contrasts the data between WA and SA. The former is patchy in the formative years and subsequent editions don't lend a high level of confidence as to the accuracy of certain sets of data, but this improves as the colony developed. On the other hand, the SA statistical data stands out as being of extremely high quality for the entire period. The common characteristic of both sets is the wealth of information available on the colonial period including the microeconomic aspects of the time that can be compared. For instance, the direct impact of technological developments upon economic productivity in the primary sector is reported. The percentage of female participation in the workplace is similarly reported; and the value of annual deceased estates, year on year, which could be adapted for use as a measure of prosperity, is also available. Such information offers a uniquely rich economic and institutional portrait of the colonial period.

Both colonies conducted a *Census* at regular intervals throughout the nineteenth century following standard imperial practice: WA from 1861 and decennially thereafter; and from 1844 in SA on a quinquennial basis until 1871, after which it became decennial. These sources, directly comparable between WA and SA, provide a wealth of additional economic information but they are not consistent with the *Blue Books* and *Statistical Registers* published in the same year. This is probably due to timing differences when the data, intended for each publication, was collected during a year in which a census⁵ coincided with the annual *Blue Book* or *Statistical Register*. All price data collected from these primary sources are stated in current (i.e. nominal) terms.

Secondary sources have been used to resolve inconsistencies or fill in the gaps found in the primary documents (all of which had to be transcribed from the printed page). The most important of these sources was *Australian Historical Statistics vol. 10*, which provides comparable data on WA and SA (Vamplew, 1987). The publication *South Australian Historical Statistics* (Vamplew et al., 1984) provides significant supplementary data on colonial SA.

Data on the capital markets, particularly banking, was generally not included in the primary sources until the end of the nineteenth century. In his two ground-breaking publications, *Foundation of the Australian Monetary System 1788-1851* and *The Australian Monetary System 1851-1914*, Butlin (1953; 1986) made extensive searches of the archives of the main Australian trading banks. The financial data used in Butlin's study is mostly complete (but had to be transcribed to an electronic format) and was of considerable value to this thesis.

An important preliminary task for this thesis involved the construction of a database containing time series data on the aggregate economy, land, labour, capital markets, government, religion and education, and transport and communication for each colony for the period 1829 to 1900. The task involved manually transcribing the data from the different relevant primary and secondary sources, as well as conducting a large number of calculations to standardise a plethora of imperial measures into consistent workable units (e.g. bushels or ounces to tons etc.)⁶. It also required the conversion of imperial currency (pounds, shillings and pence) into a decimal format to allow statistical manipulation of monetary statistics (Microsoft Excel® has trouble coping with pounds, shillings and pence). A descriptive overview of this database is given in Table 1 (p. 16).

⁵ Technically the census was published the year the data was collected. For example, the 1901 census of population measured the number of people in a colony as of 1900 so the use of this census fits within the designated timeframe of this thesis.

⁶ No attempt has been made at metric conversion given the volume of data employed as this would unnecessarily extend the page count.

Vamplew (1987, xv) states that Australia has one of the most accessible and comprehensive collections of official statistics in the world. The colonial data is most certainly assessable (being in micro-fiche available at all state libraries) but it is not in an electronic format and nor are there any plans by the ABS to make it so. This official apathy towards digitising such a rich seam of statistical knowledge hinders the study of colonial Australia to the detriment of the nation's understanding of its heritage. The two databases for WA and SA that have been constructed for this thesis are certainly a start towards changing this unfortunate situation and it is hoped that the effort incurred will spur further interest in this valuable colonial data. While "statistics in themselves do not tell the whole story...they can be utilised to good effect to assist in the interpretation and understanding of Australia's [colonial] past" (Vamplew 1987, xvi) and this is one of the primary aims of this thesis. The data utilised in this study reflects a small proportion of the actual amount collected during the course of this research program. In total, over 25,000 pieces of data were manually transcribed from the primary and secondary sources and represents possibly the third largest collection of Australian colonial data ever assembled⁷.

The next task involved the creation of institutional measures and other factors resulting in economic growth. There were several challenges involved since quantitative measures of institutions that may be relevant to economic development are not as developed, standardised or widely accepted by practitioners as are measures of factors included in standard analyses of economic performance. Indeed, institutional analyses in economic history reviewed as part of this thesis used a wide range of different measures. The authors of such studies appear to have implemented unique measures that were based upon the context of the subject under examination. This context-based approach, commented on in [Chapter 3](#), is also adopted in this study. As such, the measures of institutions employed here are unique in terms of institutional analysis but they are relevant to the circumstances of (and data available for) each colony.

Table 2 (p. 18) summarises the key measures developed for this study. As already noted, four measures of each part of the institutional framework have been devised, based on the available colonial data. Proxies for traditional growth factors (land, labour and transport and communication) are also included in the analysis. Key measures of economic performance relate to the Terms of Trade, GDP, the cost of living and life expectancy. One note of caution should be sounded here regarding these measures. The available data sets that allow direct comparison between colonies limits the derivation of some indicators of economic and institutional phenomenon that would normally be expected in any comparative analysis. For example, the lack of exchange

⁷ The Butlin brothers, Noel and Sid, perhaps occupy the top two places for Australia colonial data assemblage.

rate data covering the period 1829-1900 between WA and SA (via Britain) prevent the derivation of a measure of purchasing price parity (PPP), which can be useful as a GDP deflator. In addition, data on the wholesale and retail prices that North (1990) cites as a measure of institutional effectiveness (when they narrow) are only partially reported by each colony and so cannot be compared. The author is confident, however, that the measures constructed from the colonial data, listed in Table 2 and deployed in [Chapters 6](#) and [7](#), contrast the ways in which institutions and other growth factors impacted on economic development in WA and SA during the nineteenth century.

Findings

The available data on the economic performance of colonial SA and WA show that the method of colonisation (and the associated institutional matrix) appears to have had a profound effect on the pace and pattern of economic development. This section briefly outlines the major findings of this thesis.

The specification of property rights appears to be a significant factor in colonial economic formation and impacted on other elements of the institutional matrix. The amount of land granted in WA exceeded the available capital and labour to develop it and this cast a long shadow over economic development in the colony throughout the study period. The colonists were dispersed over a large area due to a number of factors including a lack of town surveys, the need to limit the amount of riverfront land any one colonist could claim and the fact that the grants hindered the development of local transport (see [Chapter 6](#)). The colony also lacked money and the government could not provide essential services. In SA, in contrast, the system of property rights was such that land could only be acquired through a cash purchase at foundation and that the amount of land availability, particularly the division of town and country plots, would be rationed (Whimpress 2008, 230). With the amount of land thus capped at the colonist's available capital, dispersion of settlement was avoided (discussed further in [Chapters 4](#) and [6](#)). The revenue from sales could pay for the cost of new immigrants and government services. The sale of land also provided the colonist with security of tenure and protection from expropriation under the common law of England, and this helped to explain the rapid start to agriculture in SA.

There were also substantial differences in capital market institutions between the colonies. In WA, land grants resulted in a barter economy until at least the early 1850s. Land was an ineligible form of collateral for credit, which stunted the development of banking. The dispersed population created information asymmetry and lending was done at high rates of interest. With the local economy producing little of value what little hard currency existed was soon drained by a dependence upon imports. It was only after the effects of land grants began to recede and the government intervened to boost banking

competition in the second half of the nineteenth century that capital market institutions began to grow. By contrast, SA had a monetary based economy, banking services commenced at foundation, land was an eligible form of collateral, and competition for deposits and loans was vigorous. The compact population reduced information asymmetry and so commercial interest rates fell sharply, which aided economic development.

Initially there were some similarities in State institutions between WA and SA before diverging significantly as the nineteenth century progressed. Government in WA had less taxation flexibility due to the small population and limited exports. Import tariffs were high and its economy was less accessible to global trade flows. State involvement in the economy came towards the last quarter of the century and helped to develop the infrastructure needed to exploit its mineral assets. In contrast, the SA government enjoyed a wide tax base; import tariffs were subsequently lower compared to WA; and the economy was more open to global trade flows.

Cultural institutions, as proxied in this thesis by religion, had important impacts upon the relationship between church and state, and the colonial attitudes to education. The dispersed population of WA, resulting from the land grant scheme, hampered the ability of the settlers to form dense social networks. As a result religious penetration was superficial and was supported by the State. There was little incentive to offer educational services for children. Children remained a valuable source of labour up to the mid-1870s with school enrolment figures consistently below SA's. SA's freedom of worship principle, free from State dependence (as in Britain and other Australian colonies at that time), attracted religious denominations other than strict Anglican.

This thesis also finds that SA was a more effective innovator of farming techniques, and that this offset the natural advantages in climate that WA had over SA. On balance, the climate was probably more favourable in Perth than Adelaide, which should have aided the development of farming. However, innovation in farming techniques and the use of fertiliser were not adopted until the last quarter of the century. Sheep numbers and wool yield did grow significantly in WA toward the end of the century after the much delayed adoption of technical innovation. In contrast, SA farmers appear to have been voracious in their implementation of the latest European farming techniques. Fertiliser derivatives were in use not long after their introduction in Britain.

This thesis also finds that the institutional design of each colony affected labour force growth. In WA under the grant system, capitalists were rewarded with additional acres of land for every labourer disembarked but this failed to supply the required

amount of labour and the colony had to resort to male convict labour to fill the deficiency. This situation led to a high masculinity ratio and low natural birth rate for much of the century. Systematic colonisation in SA focussed on gender-balanced immigration as a design principle, which favoured a higher natural increase in population compared to WA. The data show that the masculinity ratio was almost at parity across the century and the focus on child education and, concurrently, innovation in agriculture led to a rapid division of labour in SA.

This thesis is probably the first work to present aggregate annual estimates of GDP for each colony. The graph of WA's real GDP estimate is almost shows a low level of growth from 1829 to the mid-1880s, after which output grew by a factor of seven to £18.751m over the following 15 years to 1900, at a rate of growth higher than any previous time during the nineteenth century. In comparison, SA's graph of real GDP shows an economy growing at a much higher rate and more gradually in which social change caused by an increase in wealth was more gradual. Its GDP estimate was more volatile compared to WA and by 1900 reached £18.446m. The shape of these estimates underline the fact that WA's institutional matrix came together later than SA's which allowed it to catch up economically⁸.

Living standards, another indicator of economic performance, also differed between WA and SA over the course of the century. The ratio of births to deaths is lower in WA compared to SA due, in part, to the higher masculinity ratio and lower development of public hygiene. From early on, the SA government invested in water facilities and waste disposal such that outbreaks of old-world epidemics, while common, were less virulent. Between 1890 and 1910, SA citizens lived longer than their WA equivalent by a considerable margin.

Importance of Study

This thesis will add a number of unique and important elements to the body of knowledge on institutional economics and to Australian economic history. It is the first attempt (to the best of the author's knowledge) at developing a comparative time series analysis of colonial WA and SA and using a significant amount of (unpublished) primary source data to construct unique measures of colonial institutions that are relevant to economic performance.

Certain past institutional studies appear to make arbitrary choices about institutions of interest without due reference to the lack of consensus about institutional categories and types. This thesis outlines the categories, characteristics and typologies

⁸ When these nominal estimates are deflated using a proxy comparable "basket" of consumer goods, the comparison is the same.

of institutions in order to determine a logical methodology for selecting an institutional matrix that fits a given economic phenomenon.

This thesis tackles an apparent gap in the institutional literature highlighted by Owen (1999), which is the lack of systematic analyses of the way in which institutions are transferred from one environment to another through the process of colonisation. This thesis outlines the two main forms of colonisation and argues that the method chosen mattered to economic development because of the potential transfer of dysfunctional or incomplete institutions. In examining the differences in Australian colonisation methods, it becomes apparent that systematic colonisation introduced the idea of private property rights in land tenure under the common law. This was a concept that was little known in Australia because of its previous reliance on land grants (borne out of the penal institutions of NSW) as a means of colonisation but had a profound effect on SA's colonial economic formation and the subsequent speed of its growth.

Much of the primary data collected and presented in this work has never previously been converted to electronic format nor used in any studies to the same extent as in this thesis. Additionally, almost all of the measures used throughout Chapters 6 & 7 are new and innovative. The colonial database took over 700 hours to amass, it required travel to four Australian states (WA, SA, NSW and VIC – approximately 7,000 km) between 2011 and 2013, and represents possibly the third largest collection of Australian colonial data ever assembled.

Thesis Structure

The remainder of this thesis is structured as follows: [Chapter 2](#) discusses the evolution of institutional economics from the old to the new. North's particular contribution is examined, as are the ways it has been applied. [Chapter 3](#) discusses institutional categories and types, and how they relate to the choice of specific institutions that might suit the analysis of certain economic phenomena. The concept of an institutional matrix is elaborated and how the interaction of multiple institutions influences economic development is explored. These two chapters form the basis of the analytical framework used to examine the colonial economic development of WA and SA.

For readers purely interested in the historical narrative, rather than the economic theory, this begins in [Chapter 4](#) and discussed Britain's approaches to colonisation within the classical economic framework. The purpose here is to argue that colonisation was in fact an institutional transfer mechanism; a conduit to allow one nation to impose its institutional, economic and social structures over another territory. It is also argued that the type of mechanism undertaken had important institutional implications for subsequent economic development. Wakefield's particular contribution to colonisation

theory is laid out in some detail as it applied to SA's foundation. [Chapter 5](#) introduces the reader to the foundation of WA and SA.

The historical story continues in [Chapter 6](#) which utilises the institutional framework of Chapters 2 and 3, as well as the measures of institutions outlined in Table 2 to explain the similarities and differences in colonial economic development. A number of additional growth factors such as natural endowments, labour and transport and communication are introduced in [Chapter 7](#) to demonstrate the interconnectedness and persistence of the institutional influence. As such, Chapters 4 to 7 follow a sequential historical progression from the early 1820s to the end of the nineteenth century. [Chapter 8](#) summarises and concludes.

Table 1: Snapshot of the Colonial Database

A. Western Australia

Worksheet	Category	Periodicity	Number of Variables	Number of Measures	Complete?	Source
Economy	Gross Colonial Produce	1829-1900	9	749	No	Vamplew, W. 1988.
	Retail Price Level	1837-1900	3	192	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Balance of Trade	1829-1900	10	720	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
Labour	Population		3	216	No	
	Migration	1837-1900	3	191	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Vital Statistics		3	192	No	
Land	Land alienated during the year	1829-1900	1	72	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Land revenue (Treasury figures)		1	72	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Agriculture	1835-1900	20	1,356	No	Governor's Dispatch to the Colonial Office 1837 Blue Books, 1837:1895; Statistical Register, 1896-1900.
Capital	Livestock	1829-1900	4	355	No	Bathye, J. S. 1924.
	Mining	1850-1900	7	175	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Gross Capital Formation	1873-1900	15	257	No	Butlin, N.G. 1962.
	Capital Markets	1837-1900	14	772	No	Butlin, S. J. 1969. Butlin, S. J. 1986.
	Education	1829-1900	2	144	No	Vamplew, W. 1988.
Religion & Education	Science	1829-1900	2	144	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Religion	1829-1900	7	3,328	No	Vamplew, W. 1988.
Transport & Communication	Transportation	1829-1900	10	562	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Communication	1871-1900	10	364	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Revenue	1829-1900	3	288	Yes	Blue Books, 1837:1895; Statistical Register, 1896-1900.
Government	General Expenditure	1829-1900	1	72	Yes	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Public Debt	1854-1900	3	96	Yes	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Expenditure from Loan Funds	1876-1900	5	225	No	Blue Books, 1837:1895; Statistical Register, 1896-1900.
	Total		136	10,542		

B. South Australia

Worksheet	Category	Periodicity	Number of Variables	Number of Measures	Complete?	Source
Economy	Gross Colonial Produce	1837-1900	13	632	Yes	Vamplew, W. 1988.
	Retail Price Level	1840-1900	3	192	No	Vamplew, W. Richards, E. D. Jaensch, D and J. Hancock. 1984. Blue Books, 1838-1865; Statistical Register, 1865-1900.
	Balance of Trade	1838-1900	8	585	Yes	Statistical Register, 1901
	Population	1836-1900	3	195	Yes	Vamplew, W. Richards, E. D. Jaensch, D and J. Hancock. 1984.
	Migration	1836-1900	3	195	Yes	Statistical Register, 1865-1901
	Vital Statistics	1836-1900	3	195	Yes	Vamplew, W. Richards, E. D. Jaensch, D and J. Hancock. 1984.
	Land alienated during the year	1836-1900	1	65	Yes	Statistical Register, 1901
	Land revenue (Treasury figures)	1836-1900	1	65	Yes	Statistical Register, 1901
	Agriculture	1838-1900	20	1044	No	Statistical Register, 1901
	Livestock	1838-1900	4	252	Yes	Statistical Register, 1901
Land	Mining	1843-1900	9	337	Yes	Vamplew, W. Richards, E. D. Jaensch, D and J. Hancock. 1984. Blundell, R. P. 1915.
	Gross Capital Formation	1860-1900	17	690	No	Vamplew, W. Richards, E. D. Jaensch, D and J. Hancock. 1984. Butlin, N. G. 1962.
	Capital Markets	1839-1900	10	923	Yes	Vamplew, W. Richards, E. D. Jaensch, D and J. Hancock. 1984. Butlin, S. J. 1969. Butlin, S. J. 1986.
	Education	1838-1900	9	378	Yes	Statistical Register, 1901
	Science	1861-1900	2	44	Yes	Vamplew, W. 1988.
	Religion	1838-1900	42	2646	Yes	Vamplew, W. 1988.
	Transportation	1836-1900	10	563	Yes	Statistical Register, 1901
	Communication	1842-1900	6	479	No	Statistical Register, 1901 Todd, C. 1896.
	Consolidated Revenue	1838-1900	5	252	Yes	Vamplew, W. Richards, E. D. Jaensch, D and J. Hancock. 1984.
	Government	General Expenditure	1851-1900	2	150	No
Public Debt		1851-1900	2	350	No	Statistical Register, 1901
Expenditure from Loan Funds		1851-1900	7	350	No	Statistical Register, 1901
Total			Total	10296		

Table 2: Measures Derived from the Colonial Data

Type	Category	Measures
Institutional Factors Influencing Economic Growth	Property Rights	Total land alienation per capita (a measure of land disposal)
		Ratio of agricultural land to total land alienation (a measure of land productivity)
		Number of annual colonial patent applications (a measure of the take-up of intellectual property rights)
	Capital Markets	Colonial money supply (M0)
		Total number of colonial banks (a measure of the ability to reduce information asymmetry through competition)
		Public debt per capita (a measure of the confidence of creditors in colonial finances)
		Cost of capital (a measure of reduction in information asymmetry)
	Institutions of the State	British fiscal contributions to the cost of colonial administration (a measure of political maturity)
		WA and SA house election enrolment vs. turnout (a measure of political engagement)
		Colonial taxation per capita (a measure of the diversity of the taxation base)
		Size of government (a measure of public investment)
	Cultural Institutions	Number of religious denominations (a measure of diversity)
		Number of churches per 1,000 of population (a measure of social networks)
Percentage of population receiving an education (a measure of the availability of education)		
Other Factors Influencing Economic Growth	Natural Resources of the Colony	Annual rainfall statistics (a measure of climate comparability)
		Wheat reaped per acre planted (a measure of farming output)
		The number of sheep occupying a square mile (a measure of natural growth in livestock)
		The amount of wool produced per sheep (a measure of animal output)
		Cumulative export earnings from mining
		Comparative value of natural resources (as at 1850, 1875 and 1900)
	Labour	Percentage of male population of working age (15-64)
		Masculinity ratio (the number of males to females)
		Age distribution of the population by gender (as of 1861 to 1901)
		Labour specialisation measured by occupation types
	Transport & Communications	Total inward and outward shipping (a measure of population density)
		Miles of railway per 1,000 of population (a measure of population density)
		Total printed media per capita (a measure of literacy and population density)
Economic Performance	Terms of Trade	Net exports of each colony (a measure of the balance of trade)
		Composition of exports of each colony (as of 1850, 1875 and 1900)
	Cost of Living	Consumption price index (a crude measure of colonial inflation)
	Gross Domestic Product	Gross domestic product (a measure of economic output)
	Living Standards	Life expectancy at birth (an aggregate measure of improvements in diet, sanitation, medical technology etc.)

Chapter 2: Institutional Economics

“I have long been convinced that institutions purely democratic must, sooner or later, destroy liberty or civilisation or both”.

Thomas Babington Macaulay, 1858

Introduction

Institutional economics is the study of the institutions and organisations which interact within an economic structure. From Douglass North’s (1990, 5) perspective, organisations are purposely created by economic agents in response to some opportunity within the institutional environment, namely the incentives to engage in trade and reap the benefits of specialisation. The same economic agents will, in turn, become the representatives of institutional change (Rossiaud and Locatli 2010, 1). This thesis is primarily interested in how institutions were transferred to Western Australia (WA) and South Australia (SA), and how they affected the economic performance of these two colonies during the nineteenth century.

The institutions of interest – property rights, capital markets, transparent and accountable government and education - were originally defined by the metropolis (i.e. Britain). These same institutions were transferred to the Antipodes through a mixture of formal rules and informal norms of behaviour, where they took seed and, over time, shaped the economic activities and outcomes of colonial society. The process of colonisation is the institutional transfer mechanism that sets the framework for subsequent institutional evolution and becomes a determining factor as to whether an economy grows or stagnates.

The structure of this Chapter is sequenced as follows: the initial section discusses institutional economics, specifically the evolution of old institutional economics (OIE) during the first half of the twentieth century, its supplanting by neoclassical economics (NCE) after World War II, and the emergence of new institutional economics (NIE) and how Nobel Laureate Douglass North is a key figure. Section two considers North’s particular contribution to the debate, namely that institutions are the “rules of the game”. The following section considers the basic unit of analysis, namely the transaction, and how transaction costs affect economic outcomes as it might apply to the colonial era. As this thesis seeks to apply North’s institutional framework to a colonial economic case study, the final section reviews a selection of North’s ideas in practice before closing with some concluding remarks.

Institutional Economics

Institutional economics has a long pedigree and has, in recent years, come to represent an ever increasing variety of approaches (Rutherford 2001, 173). There are, in fact, two distinctly recognised institutional research programmes often referred to as the 'Old' and the 'New' (Hodgson, 1993). The 'Old' (OIE) was championed by Veblen, Commons, Mitchell and Ayres; whereas the 'New' (NIE) includes scholars such as Coase, Williamson, North and Ostrom (Rutherford 2001, 173). It is not a matter of generational torch passing that distinguishes the two approaches: NIE is paired up with game theory as favoured by Aoki (2001); or the Austrian school of economics as represented by Hayek and Menger (Furobotn and Ritcher 1998, 43); thus in many ways NIE shares more in common with neoclassical economics than OIE. However, some are looking to resurrect certain strands of OIE to be placed into a historical revision (Rutherford 2001, 173). It is thus not surprising then that the volume of research on institutional economics is multiplying rapidly regardless of how it is classified. Both approaches offer useful insights into the role of institutions in defining the incentive structure to capture the gains from trade, how they change as a result of exogenous and endogenous influences, and how both influence economic development through time.

Old Institutional Economics

The widely accepted view is that the OIE agenda took root following Veblen's (1899; 1902) theorising on constraints imposed upon individual and collective actions due to the presence of institutional factors in the economy, and his stress on the cumulative and path dependent nature of institutional change (Rutherford 2001, 174). His positioning of institutions was that they inhibited the growth of new technologies being "out-of-step" with economic and social issues that, through the inertia of vested interests, they themselves created (Rutherford 2001, 174). Thus, as Veblen states, there was an inherent tension between the existing social and legal institutions, and the means to coordinate large-scale industry of the type that the US was on the threshold of perfecting at the beginning of the twentieth century. Veblen's (1899; 1902) views were echoed by Mitchell (1923) when he wrote that there was a conflict between physical production and profits, or the trade-off between constantly high levels of output and self-interest in monetary gain. In Veblen's view, business institutions had failed to efficiently "channel private economic activity in ways consistent with public interest" (Rutherford 2001, 175).

Veblen highlighted the importance of psychology to economics. For example, Rutherford (2001, 175) describes how Veblen criticised the hedonistic/rationalistic psychology inherent in marginal utility theory and proposed an alternative, influenced

by William James, based on instinct/habit psychology. Veblen's remoulding gave rise to notion that economics could be built on modern psychology. This notion inspired Mitchell's (1910) paper entitled *The Rationality of Economic Activity* which contained elements of the emerging "behaviourist approach" and openly questioned the rationality assumptions implied in marginal utility theory. Mitchell's work subsequently spawned a multitude of research aimed at exploring the psychological roots of economic activity, often referred to euphemistically as the "new frontier" (Rutherford, 2001 176).

The development of the OIE agenda was not solely due to Veblen's influence however. Economists such as J. M. Clark, Commons and Hale were less interested in the behavioural approach and sought to cultivate avenues of research in law and economics. In Commons (1924) the approach was built on distributional conflicts, with the court attempting to resolve economic disputes, and the evolution of commercial law as a result of the learning from conflict resolution. At the macro level the OIE agenda encompassed the development of property rights, the legal framework for transactions as well as "intangible property and goodwill, valuation of public utilities, rate regulation, many issues in labour law, collective bargaining, health and safety regulations, and consumer protection" (Rutherford 2001, 176).

At the micro level, Commons (1931, 652) identified the "transaction" as the basic unit of analysis, which was defined as the activity of "alienation and acquisition, between individuals, of the *rights* [italics in original] of property" over physical assets. He considered it the most appropriate measure since it contains the three key principles: conflicts of interest, mutuality and orderly expectation of property (Commons 1931, 656). In his analysis, Rutherford (2001, 177) relates how the terms of transactions were determined by working rules and legal rights, civil liberties, and by economic (bargaining) power. The key to understanding the micro-view of OIE is to begin with a question, "how do we infuse order into the transaction?" This is the question that Commons (1934) posed and he described institutions as being the collective action in the control of the individual action. In this definition, institutions are Janus-faced in that they provide rules that both encourage and frustrate economic activity. By ignoring the exchange itself as the unit of analysis, Commons believes there is a need to understand the behaviour of human beings and this should be done by focussing on the legal dimension of the exchange. Williamson (2000), of the NIE School, builds on Commons' ideas and emphasises that "governance is an effort to craft order, thereby to mitigate conflict and realise mutual gains".

Commons' project for developing an OIE approach to economics was born out of perceived failings in the neoclassical approach (Rossiaud and Locatelli 2010, 3). These included the reduction of all human behaviour to self-interest, its inability to account for conflicts of interest in the transaction and the supposed irrelevance of the legal dimensions that help to explain the vibrancies of the economic structure (Hodgson, 1993).

The apparent popularity of the institutional agenda was boosted by its claim to be an empirical science and being aligned to the latest research in other social sciences (Yonay, 1998) than neoclassical economics. Institutional theory was held up to be closer to real world problems that could be tested quantitatively and supported by case studies, documentary evidence and judicial opinions. This was compared to an "orthodox neoclassical economic framework that was presented as based on an outmoded psychology and assumptions that were 'unrealistic' in critical ways; difficult to apply to real world policy problems; and subject to little, if any, empirical test" (Rutherford 2001, 178).

OIE reached its apogee during the interwar years as it made significant economic and social contributions, particularly the need for better policy analysis, improvements to the quality of economic data, and the role of government. John M Clark, Wesley C Mitchell and Arthur F Burns were prominent proponents of fusing institutional elements onto traditional economic analysis and some of their, and others, particular contributions are briefly discussed in the following paragraph⁹.

Clark (1918) made an important addition to psychological economics that presaged recent work on bounded rationality and the costs of decision-making. On the institutions of business cycles, Mitchell (1913, 1927) and Burns and Mitchell (1946) viewed cycles as layer upon layer of micro-transactions and business decisions occurring in the financial system, and stop-start movement in prices. In addition to continuing to work on price controls, full employment, and business cycle theory, Shute (1997) says that Clark, in his 1923 paper, analysed the pricing behaviour of firms with large overheads, and how marginal cost pricing may not cover overheads under competition. Hamilton and Wright's (1925) examination of the coal industry concluded that whilst it was competitive it was saddled with chronic excess capacity and less than ideal employment conditions. Ezekiel (1938) studied agricultural pricing and developed the cobweb model which raised implications about the conventional view of self-regulating markets. Means (1935) worked on the theory of administered pricing, which inspired considerable work on relative price

⁹ For a richer discussion, see Rutherford (2001).

inflexibility. These studies highlighted the inadequacy of theories regarding perfect competition and pure monopoly common to standard economic models (Hamilton and Associates, 1938). In his *Social Control of Business*, Clark (1926) discussed a varied range of market failures, which included monopoly and ethical competition; population displacement, unemployment and poverty; asymmetric information and agency problems; public goods (“inappropriable services”); and the “unpaid costs of industry” (i.e. externalities); generational accounting and the apparent divergence of private and public (i.e. social) accounting. Rutherford (2001, 180) believes that these contributions were significant because of their institutionalist viewpoint.

The influences of economics and law on market micro-structure was studied by Hale (1923), Commons (1924; 1934), and Hamilton (1938) among others. These authors proposed that the exchange of goods and services was more properly an interchange of private property rights that took place under the umbrella of the law. Commons (1934) differentiated between market transactions (based on competition and bargaining) and managerial transactions (in a hierarchy), and pointed out both are substitutable¹⁰. Finally, as Rutherford (2001, 182) details, OIE made other important contributions to policy through its involvement in the development of unemployment insurance, worker's compensation, welfare, workplace relations, public utility regulation, agricultural price support policies programs, and in the involvement of government to stabilise levels of production.

As a result of these and many other contributions, OIE attained a significant position in US economic circles during the interwar period, but then declined in terms of both station and standing afterward (Rutherford 2001, 182). Whilst reasons are both numerous and overlapping, they are well documented (Blanchard 1987, 634-6). Briefly, the social reform agenda promoted by OIE was perceived by some to have been largely completed which deprived OIE of its *raison d'être*. This drew criticism about the ongoing relevance of OIE's position on markets and the requisite for “social control” (Knight, 1932). In addition, Keynesian economics became the “spotlight kid”, and neoclassical economics benefitted from the application of statistical analysis and quantitative methods (Samuelson, 1947), and some argue that neoclassical theory developed a language capable of better discussing economic issues that previously resided in the institutional domain (Barber, 1996). In short, after 1945, OIE was condemned for its perceived lack of theoretical foundation, its perceived inability to explain individual behaviour (Koopmans, 1947), and its failure to convince the “establishment” to abandon the rationalistic foundations of markets (Lewin, 1996).

¹⁰ This would later be elaborated up by Williamson (2000) with his discussion of vertical integration.

New Institutional Economics

Under such unremitting assaults *institutionalism*, however, did not die in the traditional sense, though it was marginalised after 1945. Rather it was forced to revise itself significantly as neoclassical economics squeezed out institutional content (Rutherford 2001, 184). However, as new theories and modelling tools evolved, ignoring institutions in economic theory was no longer feasible (Shubik, 1975). As the institutional approach revised itself, NIE sought to describe the role of institutions within an economy by applying the standard neoclassical tools (Furubotn and Richter, 1998). Indeed, NIE was an attempted extension of orthodox theory where institutional elements were generally assumed or modelled as evolving from the interactions of self-interested, rational individuals who use institutions to solve coordination problems. NIE was not an attempt to supplant neoclassical theory by suggesting that institutions are a separate, non-individualistic influence on economic action and outcomes (Eggertsson, 1990).

However, there are similarities between NIE and OIE and, increasingly, there has been a tendency for NIE to challenge the boundaries of neoclassical economics. The latest work on the significance of property rights was a key plank of the OIE agenda (Rutherford 2001, 187). Other examples include Williamson's work in integrating the transaction cost approach into the NIE framework, Commons' interests (Williamson, 2000); and the increasing importance of bounded rationality (Furubotn and Richter, 1991). Many of the reasons given in the NIE for the existence of institutional rules, conventions and norms relate to information and / or cognitive constraints on rational action (Heiner, 1983).

Whatever similarities there may be, there are clear lines of delineation between the two approaches (Hodgson, 2006), which some new institutional economists have been at pains to point out (Eggerston, 1990). As Rutherford (2001, 187) explains there "clearly are major differences in methodology, in the theoretical and analytical tools being used, as well as in the basic orientation towards the market and 'business' institutions". Indeed, Hodgson (1999) argues that the key point of differentiation is that where OIE makes institutions the unit of analysis with institutions determining individuals' behaviour and hence outcomes, NIE keeps the individual as the unit, with the behaviour of rational individuals determining institutions and institutions satisfying individual preferences. In the NIE view, institutions are designed to provide rules to encourage impersonal exchange and productive investment, and to reward those who engage in economic activity.

Whilst there is this general perspective on institutions in NIE, there are a number of different specific conceptualisations of what institutions represent. These

reflect the game-theoretic approach that characterises NIE (Aoki, 2001). One of the common misconceptions about institutions is that they are considered players of the game (e.g. schools, the judiciary, government departments, trade unions etc.) say Mantzavinos et al. (2004). Perhaps the most common interpretation of institutions is from North (1990, 3) who states that institutions are created to define the space of actions and constraints on the behaviour for the players of such games. This approach is explored in greater detail in the next section.

Within the NIE universe, institutions and institutional change occur to reduce transaction costs and informational uncertainty, internalising externalities, and producing collective benefits from coordination and cooperative behaviour (Rutherford 2001, 187). Unlike Veblen and certain OIE opinions, NIE argues that institutions provide “efficient” solutions to economic problems. This is an argument that is sometimes supplemented by “notions of competition working to select the most efficient organisational form, or set of routines, or rules” (Furubotn and Richter 1998, 42-3).

It is worth noting that North has made a very unique contribution to institutional theory sometimes described as “building bridges”. This can be attributed to his fusion of ideas of cultural norms, his rejection of efficient institution hypothesis to be replaced by bargaining theory, and power differentials within the transaction (Groenewegen, Kerstholt and Nagelkerke, 1995). Economists such as Hodgson (1998, 185) have suggested that this approach to institutions, institutional change and economic growth can be traced back to the ideals of OIE. In effect North has “moved away from a predominantly deductive explanatory strategy to one that is...characterised by a back and forth between empirically established relationships and explanatory models carefully designed to do the job of explaining” (Groenewegen, Kerstholt and Nagelkerke 1995, 472). This unique blend of institutionalism is explored in greater detail in the next section.

The “Rules of the Game”

North is a key proponent of institutional economics which combines elements of OIE and NIE, and his unique approach to the role that institutions play in long-run economic growth, of colonies and nations, is explored in greater detail in the present section.

How do nations (or colonies), with well-defined property rights, capital markets, transparent and accountable governance, universal education, and fast and efficient transport and communication links, come into being? In his Nobel Prize

winning work, Douglass North investigates the role of society's institutions and argues that they should be incorporated into economic analysis.

North's economic universe consists of two distinct groups: institutions and organisations. North's (1990, 3-5) definition, and the one used in this study, is that institutions are "the rules of the game of a society... [and are] the humanly devised constraints that structure human interaction". In other words, institutions are structures and mechanisms of social conduct and cooperation governing the behaviour of a set of individuals within a given collective (Haita 2006, 1).

Institutions are definable within two categories: formal constraints based on "rules, laws, constitutions, [and] informal constraints (norms of behaviour, conventions, and self-imposed codes of conduct" (North 1990, 4). Formal constraints include rules for polities that define the structure of the state, rules for the judiciary which set the agenda for legal administration, and rules for the economic universe including ones that define property rights and govern contracts. As North (1990, 47, 52) explains, the rules follow a hierarchical format emanating from a national constitution. Statute and common laws, then descend down to the structure of property rights, and finally cascade to individual contracts that reflect the incentives embedded in property rights. This hierarchy defines a set of constraints that take us from the general situation to particular specifications and is designed to facilitate exchange, whether economic or political. The cost of enforcement decreases as we descend from constitution to contract such that actors find it more worthwhile to effect institutional change by firstly altering the forms of contract first (North 1990, 47).

North's view of institutions has changed from the functionalist and rational decision making approach that marked his pre-1990 work. Increasingly, he has emphasised the importance of the informal constraint, which takes the form of belief structures (behavioural norms, taboos, conventions, and codes of conduct etc.) and is an equal and functional part of an institutional matrix (High, Pelling and Nemes 2005, 1). The inevitability of subjective and incomplete information processing means that belief structures, the internal representations that individual cognitive systems create, play a significant role in determining choices (Groenewegen, Kerstholt and Nagelkerke 1995, 472). Belief structures get transformed into societal and economic structures by institutions through behavioural norms, taboos and conventions (High, Pelling and Nemes 2005). In addition, North (2005) elaborates further as to how ideology, that is common beliefs and powers of reasoning used to interpret their environment, is critical to institutional change. As a necessary

condition for setting the standard of behaviour for human interaction, these institutions must be accepted by the relevant community and must be anchored in the minds of individuals (Haita 2006, 1). Thus, North discerns an additional source of inefficient institutions: namely constraints on behaviour which are endogenous in origin and these are investigated in his theory of institutional dynamics (Groenewegen, Kerstholt and Nagelkerke 1995, 472).

The function of institutions is to describe “the incentive structure of societies and specifically economies” (North 1990, 3-4). The choice set of incentives determines the profitability and feasibility of engaging in economic activity, and the degree of freedom given to economic agents to exploit such opportunities. Examples of formal institutions that influence incentives include competition laws that affect the desirability to collude or compete; that provides product information; and alters relative prices. Gender norms act as an example as to how informal institutions can affect the incentive to engage in different types of paid or unpaid work. Institutions affect the performance of the economy by their effect on transaction (exchange) and transformation (production) costs that make up total costs, and the level of technology used (North 1990, 4). The relative effectiveness of the incentive structure depends on the existence and enforcement, preferably at low-cost, of property rights for assets owned or used by individuals.

If we accept North’s (1990) definition then institutions have two functions.. First, they allow for a decrease in the information asymmetry faced by individuals engaged in increasingly anonymous exchange. As North (1990, 42) explains, the way in which the human mind processes information “is the key to understanding the way information constraints play an important role in the makeup of the choice set both in the short-run and long-run evolution of societies” and forms the basis for the existence of institutions in the first instance. Agents cannot anticipate the actions of the counterparty and this uncertainty can act as a brake to economic activity as they tend to withdraw from the exchange process *a la* Akerlof’s (1970) market for lemons. Second, the rules, whether formal or informal, promoted by the presence of institutions within the economic structure, assist in reducing exchange uncertainty and act as a constraint when individuals assess their choice set. It is in this way that institutions are critical to economic performance because they help to shape the mode and level of production and exchange within an economic structure.

The second group in North’s (1990, 5) economic universe are organisations. Economic organisations include firms, unions and cooperatives; political organisations are political parties, legislatures and regulatory bodies; educational organisations are

universities, schools and vocational training centres. Thus, in essence, organisations are groups of individuals bound by some common purpose to achieve objectives (North 1990, 5). They are formed in response to the incentive structure offered by the institutional matrix; they play the game to win according to the established rules by “a combination of skill, strategy, and coordination; by fair means and sometimes by foul means” (North 1990, 5). Organisational objectives may be profit maximisation or improving re-election prospects, and their success (or failure) hinges on the extent to which institutions associate effort with reward, to the scope by which they allow for specialisation and for trade, and the freedom they permit for seeking out and seizing economic opportunities (North 1990, 16). The level at which institutions promote such incentives, relative to those that fail to realise their potential, is one of the key factors supporting economic prosperity.

Organisations also play a key role in the effectiveness of the institutional matrix. By extension, one of the keys to understanding economic growth and institutional change is the interaction between organisations and institutions. North (1990, 5) explains as follows: “Organisations are created with purposive intent in consequence to the opportunity set resulting from the existing set of constraints (institutional ones as well as the traditional ones of economic theory) and in the course of attempts to accomplish their objectives, [they are] a major agent of institutional change”.

In this way North (1990, 7) believes that institutions *partly* determine the actions of organisations, and organisations *partly* determine institutions. For example, within an institutional structure, political organizations enforce property rights. This dictates the degree at which low-cost contracting is permissible; they prescribe the legal structure that permits a wide variety of organisational forms, and they create (or at least administer) the governance structure within the market exchange mechanism. In this last example, the state, in effect, determines the balance of power in market interactions by using a variety of tools. These tools include regulation that alters the power of consumers to have their concerns about product quality reflected in market outcomes, and laws that can change the balance of industrial power. The degree to which this level of intervention allows organisations to capture the gains from trade will determine the stability of the institutional structure. In an effective democracy, if the institutional structure results in a net loss to organisations, this information will be fed back to the state, via one’s political agent who will vote to effect change (North 1990, 109).

Given that institutions cannot be seen, felt, touched, or even measured (with any agreement) but are rather constructs of the human mind according to North (1990, 107), do they matter? Haita (2006, 7), and many others believe that institutions are important for a number of reasons:

Firstly, they reduce uncertainty and structure the behaviour in human interactions, both from the social and economic perspective. Secondly, institutions have the capacity of reducing transaction costs that appear due to the information asymmetry and thus, indirectly contribute to economic performance. Thirdly, in the special case of market institutions they help coordinate knowledge with prices. Their existence allows economic and political agents to form strategies with respect to their expectations.

North (1990, 95) also emphasises the importance of increasing returns, noting that “in a world in which there are no increasing returns to institutions and markets are competitive, institutions do not matter”. By increasing returns, North (1990, 95) refers to the interaction between an institutional framework and economic actors. Indeed, these interactions¹¹ are: the initial setup cost of the institutional framework, which give the advantage of falling unit costs as output increases; the learning effects for economic actors (e.g. organisations) that arise in consequence to the institutional environment, which improve products or lower their costs as their importance increases; coordination effects via direct contracts with other economic actors, which confer cooperative advantages with other economic actors taking similar action; and adaptive expectations, where the increased prevalence of contracting based on a specific institution reduces the under certainty around that institution’s permanence (North 1990, 94-5). When these interactions occur then increasing returns to institutions accrue and institutions matter.

Institutional Matrices

Central to North’s (1990) theory is the institutional matrix which acts as a “portfolio” of formal rules and informal norms that ignites sustainable economic growth. Practically, the challenge is to understand the way in which an institutional matrix supports or hinders economic growth because “the difference between institutional forms and functions should be no longer ignored” (Dietsche, 2007) meaning that economic analysis involving the term “institution” in the collective must be abandoned. The construction of an institutional matrix capable of explaining the cross-colony differences in economic growth and development of WA and SA will be discussed in greater detail in the next chapter.

Connected to the formation of an institutional matrix is the related notion of complementarity which, as North (1990) explains, is the way in which multiple

¹¹ Based on Arthur’s (1988, 10) four self-reinforcing mechanisms.

institutions interact to produce a specific outcome. Complementarity can be understood as the way in which institutions achieve their functional role (e.g. property rights and effective exploitation of resources) and this depends on how particular institutions interact with one another within the matrix (Rossiaud and Locatelli 2010, 6). Research on institutional complementarity has followed two directions: the top-down evolution based on North's approach and the bottom-up evolution, focussing on the governance approach to institutions advocated by Williamson (Hirsch and Lounsbury, 1996). To determine how the addition of a new institution will impact on economic development, it is necessary to first consider the complementarity between different types of institutions, and the institutional transfer mechanism. To quote North (2005), "changing only the formal rules will produce the desired result only when the informal norms are complementary to the rule change and enforcement is either perfect or at least consistent with the expectation of those altering the rules".

There are many non-North alternatives regarding complementarity. Rodrik (2008) for example discusses "second best" institutions, in the context of developing countries, which are those that take into account context-specific market and government failures which are irremovable in the short-term. Such institutions will often diverge greatly from first-world institutions. Similarly, Murrell (2005) and Opper (2008) refer to "institutions of transition". This situation applies to economies transitioning away from central planning where certain institutions are not well specified but they appear to promote rapid economic growth. This leads to questions about the underlying incentive structure of poorly designed institutions.

Institutional Efficiency

Once an understanding of the way in which institutions behave within a matrix is known, the next step is to determine whether they are effective in addressing the needs for which they were devised. ILBM (n.d., 4) examines the management of African waterways and describes how effective institutions *respond* to new problems as they become known to the economy and to wider society; they *tackle* critical problems at the most appropriate scale; and "remember, learn, build and maintain personal and institutional relationships...with key stakeholders" in the economy. They also mobilise economic resources by directing them, through price signals, to those best able to exploit them; and *address* collective choice problems (i.e. conflicts) that cannot be solved within the human collective if the institutional matrix is absent (North 1990, 67). For institutions to be considered effective, or *efficient*, they must be inexpensive to obtain, to sustain and to enforce (Bernstein 2004, 282) and

therefore the key to understanding the efficiency of institutions is the degree to which they minimise transaction costs and maximise the opportunities for exchange.

The notion of efficiency is specific to the current notion of value. At the macro level, institutions are said to be efficient when a nation achieves a sustainable level of economic growth comparable to some given benchmark such as the “two per cent rule” for developed nations which held that until roughly 2005¹² GDP growth has averaged two per cent per annum since 1900, and is regarded as a sort of “economic cruise control” (Bernstein 2004, 23-4; OECD, 2014). As North (1990) has pointed out economic expansion of the type now considered normal is only a recent blip on the world’s time clock but this does not imply that during a previous epoch when growth was lower, or different, institutions were any less important.

Given that many formal institutional rules originate from political organisations, i.e. the state, who specifies and enforces property rights in the marketplace, the quality and composition of this body explains, to a large degree, the level of efficiency or imperfection present in the economy (North 1990, 109). In order to make the exchange more efficient – in terms of a reduction in transaction costs – contracting organisations must be in a position to send and receive institutional and informational signals to the state. As explained by North (1990, 110), the affected parties must have the information processing capabilities to digest the amount of material gains or losses they would incur in the marketplace due to information signals. The results are then fed back to the state that, in an ideal ‘market-driven’ world, makes amendments based on the aggregate result of stakeholder feedback slowing the exchange between economic agents to be accomplished at a price low enough to make it worthwhile. Ideally, the state tends to evolve *efficient* institutions when it “has built-in incentives to create and enforce efficient property rights” and when this occurs, the state becomes nothing more than a machine to redistribute wealth and income (North 1990, 110).

As North (1993, 110) warns, since “polities make and enforce economic rules, it is not surprising that [institutions] are seldom efficient (North, 1981)” but in “many cases informal constraints [within the institutional matrix] will evolve to mitigate these disincentive consequences [i.e. political agency problems]”. However, informal institutions, those that seldom originate from the state, may or may not be efficient and the pressure to affect an exchange between parties may not be effective in changing norms of behaviour or customs, for example, in a pro-market way over time.

¹² Extending the data presented by Bernstein (2004, 24) to 2013, GDP growth accelerated beyond the two per cent peaking to about 2.37% in 2007 before falling to about 1.50% per annum in 2013.

The “essential part of the functioning of institutions is the costliness of ascertaining violations and the severity of punishment” (North 1990, 4). Therefore, one of the keys to institutional effectiveness is how the rules and norms of behaviour are enforced. Institutions can, under certain circumstances, be self-enforcing and North (1990, 54) notes that if capturing the gains from trade is the building block of economic growth then surely organisations will develop cooperative institutions to facilitate such exchange. Cooperation does not necessarily preclude the need to resort to coercion but this is merely a fall-back position when the self-enforcing characteristics of institutions fail to facilitate low-cost exchange. In a world of incomplete information, cooperative solutions occur because parties can detect deviations. If not then transaction costs rise with the degree of information asymmetry and cooperative solutions are less likely. The cooperative elements within an institution comprises of two parts: first, there needs to be an information conduit that channels knowledge of deviations to aggrieved parties; and second, the institution must provide an incentive for the aggrieved party to effect punishment when necessary (North 1990, 57). In addition to the formal rules and information constraints, the ability to monitor transgressions by parties to the agreement creates a *credible commitment*, a prerequisite for complex and impersonal contracting (North 1990, 58).

Exchange and, thus, economic growth will be promoted when trade contracts are self-enforcing and the cost of deviating from the fulfilment of the contract is too high, i.e. it pays to honour them because it is cheaper. The costs of fulfilling contracts fall as the available knowledge to parties to the transaction increases and if available data is interpreted in the correct way (North 1990, 55). The amount of available knowledge is a function of the number of repeated transactions between parties; under these conditions, the measured costs of transacting are very low because of a dense social network of interaction.

If the institutional matrix lacks self-enforcement characteristics, or cooperation is no longer possible, then some form of third-party enforcement mechanism is required. As Scott (2001) points out, “rules and norms, if they are to be effective, must be backed with sanctioning power” otherwise economic agents will simply ignore them. Theoretically, for third-party enforcement to be effective, it would have to be administered, cost-free, by a neutral body (Haita 2005, 2). This body must have the ability to measure the attributes of a contract and to enforce it. Simultaneously the offending party would be compelled to compensate the injured party to a degree that made it costly to violate the contract. In reality though, such a perfect model does not exist for detecting deviations, the measurement of the

deviation and low-cost enforcement (North 1990, 58). Indeed, as North (1990, 54) laments “the inability of societies to develop low cost enforcement of contracts is the most important source of both historical stagnation and contemporary development in the Third World”.

The effectiveness of organisations at processing the information on which to make a choice regarding an exchange is also a determinant of institutional efficiency. The better the processing ability a party has the more bargaining power they possess. If relatively efficient institutions have been created then the gains from trade can be realised because “under certain circumstances the private objectives of those with the bargaining power to alter institutions produce institutional solutions that turn out to be or evolve into socially efficient ones” (North 1990, 16). If, on the other hand, organisations that are incompletely informed, devise subjective models to guide their choices, and are only able to partially correct their models when new information becomes available, then the institutional matrix is relatively inefficient vis-à-vis a competing matrix (North 1990, 108).

Technical change has far-reaching consequences for institutional effectiveness but at the same time the relative level of transaction costs has implications for understanding how technical change affects economic growth. As North and Wallis (1994) have pointed out, improvements in technology reduce the costs of physically transforming land, labour and capital into consumer goods and services. The degree to which technology has increased the stock of knowledge in a given society determines changes in the production process, which induces institutional change. In turn, this change controls the cost of purchasing production inputs, monitoring the production process, and selling the output (North and Wallis, 1994). While the use of technology drives down costs to encourage exchange, it increases them to induce institutional change required to implement new technology but this effect is only seen in certain sectors (North and Wallis 1994, 610). Overall, the introduction of new technology and the accumulation of knowledge reduce the level of total economic costs (i.e. the sum of transaction and transformation costs).

North and Wallis (1994, 616-7) comment that different production techniques work best under different institutional arrangements and organisations choose the best combination of techniques and institutions subject to the amount of information and the mental models they process. When choosing institutional arrangements, organisations, like individuals, are constrained by the existing institutional structure but, on the other hand, they are capable of changing that structure to suit their preferences (Groenewegen, Kerstholt and Nagelkerke 1995, 473). Indeed, the choice

can be made on the basis of selecting the lowest cost transformation techniques for adoption by the institutions in order to minimise transaction costs. Alternatively, the choice can be made by selecting the processes and institutions that offer the lowest total cost - changing techniques can affect the choice of institutional structure by changing the available transformation opportunities (North and Wallis 1994, 617). However, these choices do not necessarily result in an efficient institutional framework.

The effectiveness of institutions together with the enforcement of exchange and the technology employed help determine transaction costs so that the potential gains from trade are realisable (North 1990, 61). When the gains are realisable then institutions are said to be effective and even efficient but as North (1990, 16) points out, institutions are not necessarily or even usually created to be socially efficient and can, under certain circumstances, be an inhibitor to economic growth. This marks a point of departure from neoclassical economic theory. North acknowledges that information is not costless and often incomplete which leads to a differential in the bargaining power between two or more parties. In this scenario transaction costs may prevent organisations from reaping the gains from trade and so the institution framework can often be inefficient (Groenewegen, Kerstholt and Nagelkerke 1995, 472). Indeed, North (1990) states that institutional efficiency is contingent on many factors and believes that the subjectiveness of information processing explains why ideology is important to choices. However, Alchian (1950), who takes a different, more neoclassical approach to North, emphasises (unlike North) the likelihood that efficient institutions will evolve. He postulates that over time inefficient institutions fall by the wayside, the efficient institutions survive, and thus there is a gradual evolution to more efficient forms of economic, political and social organisation.

Institutional Change

Menard and Shirley (2011, 11) explain that North's (1961; 1966) treatises on economic history followed the standard model of attributing economic development to three elements: technology, human capital, and efficient economic organization. However, he soon began to question the primacy of mainstream economic growth models when he attempted to apply its principles to European history (Menard and Shirley 2011, 11). The more he investigated episodes of non-US economic history, the more he realised "that the tools of neoclassical economic theory were not up to the task of explaining the kind of fundamental societal *change* [italics added by author] that had characterised European economies from medieval times onward" (North 1993).

As North re-evaluated the cases of US economic growth, he continued to relegate the importance of technology as the explanatory variable. In North and Davis (1971), institutional change was offered as a theory to help understand the determinants of American economic history. In this work, new institutional arrangements appear when agents perceive an opportunity to capture profits that were unobtainable under the old regime. Such entrepreneurs achieve these profits by realising economies of scale, gaining from changes in costs and revenues, by reducing risks and transactions costs, or by redistributing income. These new arrangements can be sponsored by the entrepreneur, the government or both by mutual adoption. An example cited by North and Davis (1971) explains three exogenous events which can trigger new institutional arrangements in the US. They are, changes in market size, in technology and income expectations leading to a reappraisal of transaction costs and benefits. These are seen as the driving factors of economic growth and result from the emergence of new possibilities of for external gain. Others include the falling cost of new institutional arrangements and changes in the existing institutional environment.

Alchian (1950) noted that institutional change occurred because of a need to be more efficient by those economic and political agents that stood to gain from it. This concurs with North's early work (Furubotn and Richter 1998, 77) but, as Rutherford (2001, 188) has argued, North (1990) "has not only come to abandon his original efficiency explanation of institutional change", but has preferred to highlight the importance of "mental models, norm-guided behaviour, and ideological convictions". Indeed, North (1981, 58) reports that "the simple fact is that a dynamic theory of institutional change limited to the strictly neoclassical constraint of individualistic, rational purposive activity would never allow us to explain most [of the] secular change ranging from the stubborn struggle of the Jews in antiquity to the passage of the Social Security Act in 1935".

Institutional change is at the heart of North's theory: institutions are said to "evolve incrementally, connecting the past with the present and the future; history in consequence is largely a story of institutional evolution in which the historical performance of economies can only be understood as a part of a sequential story" (North 1990, 118). Institutions provide the incentive structure of an economy; as that structure evolves it shapes the direction of economic change between growth, stagnation, or decline (North 1990, 97). Moreover, since organisations owe their existence to the institutional framework, it stands to reason that there will always be groups with an ongoing interest in perpetuating the existing structure. Thus, institutional change is not only slow but is also said to be "path dependent" - a term

used to describe the powerful influence of the past on the present and future - and the institutions will have long-term, dynamic effects on economic behaviour in a given society (North 1990, 98).

So how do institutions change and how does this change affect economic performance? North and Thomas (1973) made institutions the driver of economic development and relative price and preference changes create incentives to alter institutions. Price changes leads to the perception that further gains can be extracted by altering the contract (North 1990, 85). Changes to the contracting process may be difficult to achieve because they sit within a wider hierarchy of rules (constitutions / statute law / contract etc.) thereby necessitating a restructure of the various higher levels first which could be costly (North 1990, 61). The party that believes it stands to profit from the additional gains may invest additional resources in effecting the changes to the hierarchical rule structure.

Thus, institutional change is possible and, in certain circumstances, desirable. It originates in the individual who can change the institutional framework according to their perceived self-interest, opportunities and feasible actions, which are a function of ideology. However, any change to the complex of rules, norms and enforcement is likely to be marginal and "overwhelmingly an incremental one" (North 1990, 83). In turn, incremental institutional change "affects the choice set at a moment in time, and the nature of path dependency" (North 1990, 3) thereby creating a dynamic interplay between economic growth, organisations and institutions. This relationship shapes the direction of institutional change as agents, with incomplete information and subjective mental models, attempt to change the institutional framework to capture the gains from trade. Organisations are created to take advantage of those opportunities, and, as the organisations evolve through an informational feedback process that shapes the human reaction to incentives, they alter institutions (North 1990, 104). This evolutionary process is usually not efficient because of the "free riding" problem (as per the neoclassical approach), and because of conflicts of interest between agents, differentials in bargaining power and how culture directs choices in the absence of complete information. These factors are reflected in the type of organisations created to exploit economic opportunities. Change in the institutional matrix includes alterations to the political and judicial framework, the structure of property rights and in many cases behavioural norms and other informal constraints in order to satisfy individual or collective preferences (North 1990, 8).

Institutional change need not always be endogenous, that is, change emanating from within the economic structure. Some changes can be exogenous to the analytical framework such as natural phenomenon that alter relative prices and provide the impetus for institutional change. For example, the Black Death that decimated the population of Europe in the late Medieval Age changed the land/labour ratios (North 1990, 84). In the case of a custom or tradition, these may be eroded “by agenda power, by the free-rider problem, or by the tenacity of norms of behaviour” (North 1990, 86). Because individuals generate ideas and create dogmas, fads and other ideologies they are an important source of institutional change although, as North (1990, 86) points out, this is imperfectly understood. Other examples of exogenous institutional change include foreign direct investment, in either capital or labour. As Churchill (1933, 232) illustrated, Huguenot refugees fleeing religious persecution in France in the late seventeenth century, brought manufacturing skills with them to Britain, which eroded the power of the guilds, freed up the labour market and boosted the nascent middle classes.

So how is institutional change path dependent? First, we must recognise the hierarchy of institutions and how higher level institutions, such as constitutions, provide “a clear, path-dependent pattern of institutional change.” (North 1990, 98). We can also note that the hierarchy of institutions results in various political and economic actors whose rewards (or returns) are dependent on the continuation of particular institutional forms. North (1990, 100) summarises as follows: “path dependence means history matters. We cannot understand today’s choices (and define them in the modelling of economic performance) without tracing the incremental evolution of institutions”. This usage of the term differs from the neoclassical view of path dependence which posits that history is a source of data for testing theories” and do not affect present choices (Melosi 2005, 6). Overall, North (1994) believes that institutional change is made up from an understanding of ideology (culture), path dependency, bargaining power, strategy and the process of learning. In this way, North’s more recent work is consistent with the OIE and NIE, and has similarities to the ideas of Commons (Groenewegen, Kerstholt and Nagelkerke 1995, 473).

Basic Unit of Analysis

The challenge of applying North’s institutional theory to colonial history is in determining “measures” of institutional presence. Furubotn and Richter (1998, 47) observe costliness of transactions as one of the characteristics of North’s work. This is because of the time and resources that are invested to secure sufficient information and processed imperfectly using subjective models, to determine the

value of a transaction. The existence of positive transactions costs has been widely accepted and is acknowledged to be quantitatively substantial in many economies (North and Wallis 1994, 97). Indeed, some estimates of transaction costs in advanced economies comprise as much as 60 per cent of GNP, which does not include the setup costs of new institutions and organisations (Furubotn and Richter 1998, 47). Much of the research done on transaction cost economics (TCE), with which Williamson (1985, 16) is closely connected, applies to the recent past (i.e. the twentieth century) and supported by concise data capable of distilling measures of the costliness of the transaction. Going back further in time to periods where statistical collection was an art rather than a science presents challenges in working within a TCE framework.

Definition

North (1971) highlighted the importance of transaction costs in institutional change when analysing the medieval manor but more recent work has identified some particular characteristics and categories of transaction costs that are potentially useful for empirical analyses of the role of institutions in colonial economies.

In Commons' (1934, 58) definition, transactions "are the alienation and acquisition between individuals of the rights of future ownership of physical things" and, states Williamson (1985, 1), a transaction takes place "when a good or service is transferred across a technological separable interface. One stage of activity terminates and another begins". The common thread of these two complementary definitions is that an exchange of something occurs, the delivery and receipt of tangible and intangible products and services. In this way the term "delivery" is understood as an exchange of material and/or information that moves production along but may not result in physical products (Miller and Vollman, 1985). The specialisation and division of labour within the economy are generally seen as giving rise to the existence of transactions (Furubotn and Richter 1998, 49).

Transaction costs then, are "the costs of running the economic system" (Arrow 1969, 48) and, together with the costs associated with changing the economy's organisational structure from the establishment, use, maintenance, and change of "law-based" and "rights-based" institutions, form the total cost structure of the economy. This basic definition can be expanded by saying that transaction costs involve the use of real and intellectual resources – specifically, the resources required - to carry out market, managerial and political transactions (Futubotn and Richter 1998, 51).

What elements comprise transaction costs? Furubotn and Richter (1998, 48) explain that transaction costs “include the costs of resources utilised for the creation, maintenance, use, change, and so on of institutions and organisations...transaction costs consist of the costs of defining and measuring resources and claims, plus the costs of utilising and enforcing the rights specified”. They believe that the acquisition of information needed to evaluate the transaction is a fundamental cost component because individuals have limited ability to acquire (and process) additional bits of information that reduce uncertainty in exchange. Indeed, information costs are no less real than production costs, and an evaluation of the efficiency of the economy should take these into account (Stiglitz 1985, 26). In terms of factors affecting the size of transaction costs, Williamson (1979, 239) states that transactions are characterised by three crucial aspects that will contribute to the degree of positive cost: (1) uncertainty; (2) the frequency with which transactions occur; and (3) the degree of which transaction-specific investments are involved.

The costs that have been described thus far do not take into account initial set up costs, and North and Wallis (1988) exclude this from of their analysis. What is obvious is that resources – real and intellectual – required for exchange must be financed in some manner and thus transaction costs are indelibly linked to financial capital. In this way, Furubotn and Richter (1998, 51) talk of transaction capital and include the “financial capital” for the setting up of markets, firms, and polities and “current capital” required for the ongoing maintenance of the institutional system. Furubotn and Richter (1998, 51) also believe that “special interest attaches to the concept of transaction capital when consideration is given to development economics and the economics of socialist transition to market capitalism”, and equally applicable to colonial economies.

Types of Transaction Costs

The question now becomes how to identify market and political transaction costs, and how can their effect be measured? In practice, transaction costs are not easily distinguished from production or transport costs as Wallis and North (1986) discovered. Williamson (1985) however describes transaction costs as falling into three categories of description: market transaction costs; managerial transaction costs; and political transaction costs. For each of these three types of transaction costs described by Williamson (1979, 239), it is possible to recognise two variants to the structure of costs: (1) “fixed” transaction costs, that is, the specific investments made in setting up institutional arrangements; and (2) “variable” transaction costs, that is, costs that depend upon the number or volume of transactions. In the following two subsections market and political transaction costs are discussed

further. Managerial transaction costs will not be discussed in this subsection given that many colonial businesses were family run or partnerships and the corporate form did not come into existence until the second half of the nineteenth century.

Market Transaction Costs

It was Coase (1960, 15) who stated that, "in order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal with and to what terms, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed and so on". In this context, Spulber (1996, 136f) identifies four types of market agents: consumers, market-taking firms, market-making firms, and intermediaries (such as retail trade, finance and insurance and selected services) that potentially offer an extensive menu of choices in determining market costs.

In reality, potential traders search each other out, and, once contact has been made, they must try to discover each other's willingness and ability to fulfil an exchange. Time consuming negotiations are conducted to uncover sufficient information required to establish the conditions upon which an exchange will take place. Since errors will occur due to information asymmetry, the fulfilment of the contract must be supervised and possibly enforced. In order for repeated transactions to occur, it is essential that transacting parties become familiar with each other (i.e. reduce the chance of opportunistic behaviour) and so the social structure of the market matters (Furubotn and Richter, 1998). This process of information discovery and assessment of uncertainty adds an additional layer of expense to the market clearing price, that is the seller receives less than what the buyer was paid for, which makes market transacting a non-zero sum game.

Two market transaction costs have been suggested by North (1990) that can be utilised in this study. Firstly, the nation's interest rate curve – that shows the cost (in interest) of government borrowing in financial markets over time - is an important indicator of a reduction in information asymmetry as lenders make more informed estimates of credit risk of each colony. Second, the margin between retail and wholesale prices is indicative of greater effort by customers to "discover" prices due to an increase in competition that forces the margin to contract. Similarly, Furubotn and Richter (1998, 49) advise that the spread between the interest paid on bank loans and the amount paid on deposits serves as an example of a market transaction cost. The lower these market transaction costs are, the more effective the institutional framework becomes. As mentioned in the previous chapter, it is the

availability of data that will ultimately determine how far transaction cost measures can be utilised.

Political Transaction Costs

North and Thomas (1973, 7) describe the power relations existent between governments and their constituents as a political transaction (and a source of inefficient institutions). Furubotn and Richter (1998, 56) elaborate further and describe political transactions as interactions between politicians, bureaucrats, and interest groups and consider the bargaining and planning of these groups about the exercise of public authority ("political exchange"). Similar to market transactions, political transactions have to bear search and information costs. Indeed, Levi (1988, 12) describes political transaction costs as "the costs of measuring, monitoring, creating, and enforcing compliance". To a certain extent, political transaction costs can be interpreted as agency costs, or the costs that arise in a principal-agent relationship (Furubotn and Richter 1998, 57).

For political costs, the expenditures of the state (or colony) in performing its basic tasks - executive, legislative and judicial - constitute a transaction cost. If the case of revenue-producing laws is examined, for example, it is essential to take into account "the costs of acquiring information about revenue sources, constituent behaviour; and the cost of enforcing compliance with that policy" (Levi 1988, 27). Market transaction costs take place in a well-defined political framework. This means that institutional arrangements consistent with a capitalist market (or other exchange-promoting form) must exist, as must a geographical-specific political organisation (Furubotn and Richter 1998, 56).

North's Ideas

North's institutional framework can be described as being cumulatively developed over thirty years having being born out his curiosity to understand how past economic development shaped current systems and policies. In the later 1950s and early 1960s, North, along with other noted scholars such Nobel Laureate Robert Fogel, began applying economic theory and quantitative methods to history. He was a founding member of the cliometrics¹³ school. His interest in institutions began later and developed gradually. This study draws on this methodological approach since it is valuable to review how North's institutional theory evolved over time.

¹³ Cliometrics, sometimes called new economic history (Fogel, 1966), or econometric history (Woodman, 1972), is the systematic application of economic theory, econometric techniques, and other formal or mathematical methods to the study of history (especially, social and economic history). It is a quantitative (as opposed to qualitative) approach to economic history (Glaeser, 2009) and is beyond the scope of this thesis.

North (1968¹⁴, 953) moved away from the strictly neoclassical approach to the analysis of economic growth in a seminal paper concerning the mercantile marine. He argues that productivity gains in ocean shipping after 1600 are not necessarily technological *per se* but are more attributable to declines in illegal expropriation and improvements in economic organisation. Technological change was the variable, as held by economic historians of the time, thought to be the main source of economic growth (North 1993, 953). In deriving this conclusion on the productivity gains in shipping, North determined that ships from 1600s to 1800 did not exhibit major technology improvements other than carrying less weaponry. Drawing from his own merchant marine experience, North knew of the importance of weight and labour costs to shipping profitability. He describes how institutional changes - particularly the regular policing of the shipping lanes to reduce piracy - rather than changes in technology prior to 1800 was what permitted merchant ships to reduce both armaments, manpower and insurance costs (which had fallen by two-thirds between 1635 and 1770). Productivity improvements, brought about by institutional coordination, were also driven by the aggregation of goods in growing markets centred on a few key ports such as London, Amsterdam and New York. These factors allowed ships to maximise their tonnage as the trade in raw materials and manufactured goods gathered pace between ports across the Atlantic whilst still minimising lay over times in port (reduced by an average of 100 days in the New World). North (1968) doesn't dismiss the role of technological improvement entirely in accounting for productivity increases over this period. He cites the improvement in sailing times between ports in late seventeenth and early eighteenth centuries as being a significant technological input whilst subsequent improvements in ship design prior to the invention of the reciprocating boiler do not account for productivity increases prior to 1850 (North 1968, 967). There are at least two key observations made by North in this research. The first was that the promotion of the role that institutions played in incentivising private individuals to engage in socially desirable activities such as policing the shipping lanes and maximising the tonnage on ships between ports. Menard and Shirley (2011, 12) argue that the second observation was that institutions can be observed empirically, through "a combination of practical experience, keen observation, and meticulous research" by which "North opened a new perspective on productivity improvement".

In applying this theory of changing institutional arrangements to US history, North and Davis cite the examples, all from the nineteenth century, of the western mortgage, the petroleum industry and American Medical Association (AMA). In the

¹⁴ The Nobel committee believe this paper on economic history to be one of the most quoted.

first example, certain eastern investors assessed risk differently and began to search out mortgages in the western sector of the US. As agents began to acquire information about potential investments, search costs began to fall and information conveyance became “institutionalised” (North and Davis 1971, 141). From there, agents moved beyond mortgages “on order” and developed mortgages “in inventory”. A mortgage “bank” followed and this process saw a marked decline in interest rates as uncertainty discounts and organisational costs declined.

As an example of the second form of institutional arrangement, North and Davis (1971, 142) cite the ability to corporatise a firm in order to access sufficient capital by limiting the liability of shareholders. Achieving such a structure allowed firms to exploit the increasing returns to petroleum distillation due to the falling costs of technology in a way that was not previously possible. Prior to the adoption of the corporate form, “small firms had one still (boiler and copper tubing) and larger firms more than one, but costs per unit of output were not a function of the size of the operation” (North and Davis 1971, 142). The two decades from 1850, saw the development of new technology that was subject to increasing returns over a wide range of oil distillates. These new techniques required a large capital investment in a sophisticated refining plant that, in turn, could produce a large volume of refined petroleum cheaper than previously, but the entire plant was needed (i.e. it was “indivisible”) even if the output was very small. As a result, large firms could produce much more cheaply than small, and there was great pressure for small firms to increase their size. Most efficient firms' sizes and the number of firms in the industry were, of course, a function of the technology and the relevant market size. Incorporation solved the limited lifetime and liability concerns characterised by sole trading and partnership forms of organisation, and allowed such firms to tap the capital markets to finance the purchase of new refining equipment. With falling interest rates, private incorporation gradually became a viable alternative to governmental forms that dominated the development of the utilities sector. As North and Davis (1971, 144) explain in stark clarity:

The arrangement was an adaptation of an already existing institutional form, but to effect that innovation a change in property rights (limited liability, making the corporation a legal person, and possessing unlimited lifespan) was required. The institutional instrument was the general incorporation law. By the time the petroleum industry's technology led to a dramatic expansion in plant size, its organisers had only to meet liberal state general incorporation laws to realise these organisational benefits.

The third example cited is one involving cooperative groups acting through government to redistribute income in their favour. North and Davis (1971, 145) explain how the AMA was founded in 1847 and adopted two basic policy positions:

(1) that doctors should be licensed; and (2) that schools of medicine must be accredited. To achieve these objects, the AMA exerted political action on US state legislatures to enact licensing requirements and to delegate licensing authority to state boards affiliated with the AMA, an example of institutional rearrangement. The initial organisation costs of the AMA during the 1850s declined because it offered exclusive benefits (i.e. malpractice insurance) not available to non-members. From this organisational base the “passionate minority” with specific goals was able to convince political agents to adopt the institutional position of “self-regulation” (North and Davis 1971, 146).

Given the unconventional nature of this work in discussing institutional elements, North and Davis (1971) still contained many neoclassical elements, such as in their proposition that institutional change occurs when “the expected net gains exceed the expected costs” (Menard and Shirley 2011, 13). However, North contested this neoclassical position and in this paper he developed an alternative but complementary approach that better addressed the cross-national variations in economic growth and development. Hirsch and Lounsbury (1996, 875) explain how North conceived institutions as the crucial mechanism through which formal and informal constraints determine the rules of exchange, which formed the basis of a dynamic theory of institutional change.

In *The Rise of the Western World: A New Economic History*, North and Thomas (1973) positioned institutional and organisational change as the leading determinants of economic growth. They asserted that “efficient economic organisation is the key to growth” which involves “the establishment of institutional arrangements and property rights that create an incentive to channel individual economic effort into activities that bring the private rate of return close to the social rate of return” (North and Thomas 1973, 1). They also suggested that institutional arrangements such as court-enforced contracts which enabled economic agents “to realise economies of scale (joint stock companies, corporations), to encourage innovation (prizes, patent laws), to improve the efficiency of factor markets (enclosures, bills of exchange, the abolition of serfdom), or to reduce market imperfections (insurance companies)” (North and Thomas 1973, 5-6) paved the way for successful European economic development. Yet both these North and Thomas arguments were firmly grounded in neoclassical theory for they continued to assume that institutions changed when the net benefits outweighed the cost of maintaining the existing structure (Menard and Shirley 2011, 21).

As the weight of evidence began to accumulate, North questioned the validity of these efficiency assumptions when, for centuries, most countries suffered under inefficient institutions causing ongoing poor economic performance (Menard and Shirley 2011, 14). He began to develop a more true-to-life theory for why states adopt the institutions they do and under what incentives they choose to alter them. Here, institutions evolve to capture the gains from labour specialisation and to reduce transaction costs which, appeared to North, to offer more rigorous explanatory power.

In *Structure and Change in Economic History* North (1981) believes that the increasing gains to agriculture in the ancient world were the first economic revolution and gave birth to the modern state. Here governments specialised in providing internal and external security, while the increasing demands of an agricultural economy (as opposed to tribes of hunter-gatherers) fostered labour specialisation across society. Consequently, new military technology allowed states to expand and more representative forms of government to evolve as rulers were forced to make concessions to their constituents in return for funding wars of aggrandisement. The Industrial Revolution (IR), described by North (1981), as the second economic revolution, was ignited by a higher standard of enforceable property rights that increased the returns to technical innovation and gave birth to entrepreneurialism. Over time, the IR raised living standards in Britain (and the western world) but required a new institutional framework to enable agents to capture the gains from labour specialisation whilst keeping transaction costs low.

In this work, North introduced the role of ideology, culture and informal constraints in fostering or hindering institutional change and abandoned the notion that institutions were efficient (Menard and Shirley 2011, 14). North (1981) notes that without a normative system that encourages compliance with contractual obligations, transaction costs would be prohibitive. Consequently, concurrent with the IR, there was a concerted effort in Victorian Britain to instil the values of hard work, thrift, and sobriety among the lower social strata. Additionally, changes in knowledge (compulsory education and 'learning by doing') and technology (the use of steam to power hand looms) affected relative prices which changed how agents judged fairness. Differences in employment and geography (e.g. the migration from the country to the towns) also gave rise to altered realisations of how production should be distributed among the population.

From his observation of the IR, North developed a new theory on the role of entrepreneurs and ideology. Indeed "ideological entrepreneurs" often benefit from

these different perceptions and the successful ones often draw lessons from history that plausibly accounts for today's reality (Menard and Shirley 2011). Ideologies, according to North, must be flexible to attract new adherents and accommodate changing circumstances but most importantly, to effect change, the successful ones will surmount the free rider problem inherent in any economic system. Their ability to achieve this outcome is inversely related to the legitimacy of the existing institutional framework. This work offers considerable insight into fundamental historical forces, the role of institutions and economic growth. North concludes that the tension between gains from specialisation and attendant costs is "the basic source of structure and change in economic history".

North (1990) augmented these basic principles and further abandoned the tenets of neoclassical concepts of efficiency and rationality in *Institutions, Institutional Change, and Economic Performance*. The persistent nexus between wealth and poverty was explained here as "Third World countries are poor because the institutional constraints define a set of payoffs to political/economic activity that do not encourage productive activity" (1990, 110). North believes that institutional change begins when economic or political agents holding the balance of power perceive that the institutional framework could do better in capturing certain gains from trade that would be otherwise hidden. This perception is, in turn, influenced by the quality and cost of the information that economic agents acquire and by the cognitive processes invoked to process it (North 1990, 8). This information is likely to be incomplete, the reasoning models defective and their reforms "path dependent" - constrained by the existing set of institutions and incentives (Menard and Shirley 2011, 14).

Under North's (1990) framework, a conformity-rewarding society will tend to decline whereas an innovation-centric society will be, more often than not, technologically advanced. A key statement advanced by North (1990, 8) is that institutions change in a marginal and incremental way particularly in real-world situations. The example of the 1917 Russian Revolution is used to highlight the fact that discontinuous institutional change such as revolution and military conquest leaves behind so many aspects of a society in spite of a total change in the rules. The Russian Revolution is one of the most unexpected and profound social changes of recent memory, yet there is still much socialism in Russian society today due to the survival and persistence of many informal constraints connected with, and despite the fall of, the Soviet regime (North 1990, 37).

North further argues that deep-seated economic reforms are hampered by a society's inherited belief system (Menard and Shirley 2011, 14). Indeed, "Societies that get 'stuck' embody belief systems and institutions that fail to confront and solve new problems of societal complexity" (North 1994, 6). The sticky nature of beliefs and persistence of institutions explains why underdevelopment has been so persistent in most of the world and why efforts to alleviate this deficiency by importing institutions from developed countries have been so unsuccessful (Menard and Shirley 2011, 15). So what determines beliefs if institutions become resistant to change because of the very same beliefs? This was partially answered by the fact that belief systems are directed by human "mental models" which are used to make sense of the external environment and are shaped by personal experiences and inherited belief systems. Given that education and learning is diffused through the societal belief structure then the past affects how people solve problems today (North 2005, 77).

Having spent thirty years or so developing an institutional theory to describe European and American economic history which has been refined to meet the challenges of third world poverty, North, Wallis and Weingast (2006) examined institutional theory to reinterpret the last ten thousand years of human history. This analysis begins with small bands of warring tribes and posits that within these tribes small groups of elites form coalitions around military leaders to protect the non-military. This limits outsiders' access land, labour, capital within the tribes' territorial zone, and protects valuable activities such as trade, worship, and education (North, Wallis and Weingast 2006). Restricting admittance to such resources and activities gave elites exclusive powers of control which generated rents which, in turn, encouraged cooperation – rather than warfare - between neighbouring territories. This cooperation formed the basis of "a stable equilibrium for expanded trade and production as well as additional rents" (Menard and Shirley 2011, 16). This equilibrium proved both profitable and persistent, so that "limited access orders" came to dominate the behaviour of these societies as they evolved to the present day - that is this stable state became the *de jour* "natural state".

North et al. (2009) argue that the natural state is surprisingly diverse: some states are "basic" in that they possess durable and stable state organisations; others are "fragile" where war is an ever likely possibility (e.g. North Korea); and there are some that are "mature" and possess many "open access" characteristics such as private property rights, transparent and periodic elections, and a high degree of economic openness. The common thread running through all three high level categorisations is the enforcement of property rights and rule of law at the top of the

social strata, with every institutional framework designed to limit access to the lower strata (Menard and Shirley 2011, 16). "Access" which is a form of vertical social mobility to the top strata is limited, under the basic and fragile natural states, by formal and informal institutional constraints which permit a privileged minority to participate in lucrative economic activities or to create or dominate organisations such as companies, political parties, trade unions etc. The lower strata of society are not explicitly excluded from certain economic activities, or even from participating in politics in mature natural states, but their path is blocked by high transaction costs that effectively exclude them from competing with the top stratum. North et al (2009) show that under such circumstances, elite-run activities can access the capital markets easily and more cheaply because their cronies control the supply of specie. In natural states, those at the top of the tree manipulate the judiciary, political markets, social networks, and customs to restrict access and maintain control, but that does not presuppose that the elite groups cannot be supplanted (Menard and Shirley 2011, 16). On the contrary, the stratum holding the reins of power was seldom permanent: through frequent coups, revolutions, and elections, new "blood" was infused. This social "musical chairs" was made possible because of a stable institutional framework with the "actors" simply abiding by the rules of the game to claim a share of the economic or political spoils.

Open access societies in contrast are the exception and emerged after the European industrial revolution, and are limited, thus far, to that clique of nations known as the developed world (North et al., 2009). They differ significantly from limited access orders by their shared beliefs that focus on universal inclusion. Open access institutions ensure that the state exercises the monopoly on violence, laws are enforced impartially, and all members of society have equal and low-cost access to competitive economic and political markets (Menard and Shirley 2011, 17). Not only is vertical social mobility open to all, but the risks of, and gains from, market participation are spread across society, and are shared through widespread education, communal insurance programs, and extensive public goods and services (North et al 2009, 111). As North et al (2009, 3) point out, it is easy to see how economic development contrasts within the institutional framework of limited and open access economies:

In addition to capital accumulation, being developed economically entails having sophisticated economic organisations and credible enforcement of property rights and other contractual commitments. Similarly, being developed politically entails having rule of law, a constitutional setting in which all major players accept changes of power, effective legal recognition of organisational rights independently of who is in power, and state control of organised violence.

This analytical framework advanced by North et al (2009) is the latest in a long, and often controversial, development of North's vision of how institutions describe long-term economic growth; these insights will continue to stimulate a large body of applied research such as this current study.

After providing an overview of the many dimensions of North's institutional theory, it will be useful to highlight the key elements of his particular institutional contribution as relevant to this thesis. The modes of organising the colonies of WA and SA will be critical to understanding the framework of formal rules and informal norms that constrained the colonist's approach to economic formation. Many of the institutions that operated in these colonies were imposed by Britain (e.g. property rights and governance structures) but others were developed, altered or changed by the colonists in responding to economic circumstances and the environment. The interplay of exogenous and endogenous institutions within the matrix in reducing information asymmetry and transaction uncertainty will be critical in determining whether the colonists were sufficiently encouraged to engage in specialisation and trade, and to seek out and exploit economic opportunities. North's work on informal institutions – norms of behaviour, codes of conduct and customs - will be particularly relevant for this study's exploration of the comparative economic performance of the two colonies. This is especially true given that religion was a powerful social force during the nineteenth century and will have influenced attitudes to education, technology and economic activity. Ultimately, North's theory of institutions provides a conceptual framework to guide this study's analysis of the sources of disparity in the economic growth and development of WA and SA during the nineteenth century.

Do Institutions Matter?

This chapter provides an overview of the evolution in institutional economics beginning with the work of the Old Institutionalists. OIE attempts to explain the role of the evolutionary process and the role of institutions in shaping economic behaviour, and it views markets as a result of the complex interaction between various institutions (e.g. individuals, firms, states, social norms). NIE, on the other hand, seeks to extend neoclassical economics and earlier OIE by focusing on the social and legal norms and formal rules that underlie economic activity (Rutherford, 2001).

Taking elements from OIE and NIE as well as traditional neoclassical economics, Hirsch and Lounsbury (1996, 872) believe North has carved out an "institutional approach that is distinctive for the increasing importance and causal primacy accorded behavioural concepts to explain economic and political structures and the dynamics of structural change". Specifically, North (1990) perceived that

long-run economic change results from the accumulation of incremental short-term decisions by self-interested economic and political agents. Their individual choices are reflective of subjective modelling of the environment in which they operate which increases the likelihood of suboptimal outcomes in decision making. These mental models also assume a knowledge component in which North combines the neoclassical axiom of scarcity/completion together with how individuals respond to incentives as being the driving forces of long-run economic change (Hirsch and Lounsbury (1996, 873).

One of the important characteristics of North's research is that it puts market-augmenting institutions back at the centre of economic theory (Cato Institute, 2012). Over the course of half a century, North has come to believe that institutional adaptations are more important than technological changes and at the heart of his analysis private property rights are seen by many as a key determinant of economic growth. Societies that protect ownership experience levels of growth that far outpace those that don't (Cato Institute, 2012). This however is not the complete story, North's theory also encompasses the issues of behavioural complexity – norms of behaviour, codes of conduct etc. – that do not form part of the neoclassical economic analysis but by their inclusion allow for a much richer discourse on the how and why of the human decision making process (Hirsch and Lounsbury (1996, 882).

Another important contribution of North's to institutional economics has been an understanding of the way in which institutions can be observed in action within a given economic structure over time. Transaction costs are the unit of analysis in the NIE and they form the cornerstone of North's macro-institutional model (Hirsch and Lounsbury, 1996). The action of economic and political agents, driven by a particular belief system, is geared toward modifying institutions that will alter transaction costs in a way that is beneficial for those agents. If transaction costs are too high, private losses will exceed the benefits and individuals have less incentive to engage in uncertain and risky economic activity. Conversely when the level of transaction costs result in greater expected benefits compared to losses then individuals will undertake socially desirable activities, and this leads to, in the aggregate, to sustained economic growth (Bernstein, 2004).

Why use North's approach to study the problem of colonial economies? The current neoclassical explanations of why WA's economy struggled for so long until gold was discovered from 1885, 56 years after foundation, are not as convincing in light of the primary data that has long been available but seldom employed. Equally true are the neoclassical explanations which are inevitably based on soil fertility and

the early discovery of copper as to why SA economy developed so quickly. In both cases, nothing is said about the significance of, and differences in, property rights and financial and risk sharing institutions that may have influenced the coordination and direction of economic activity. Acknowledging that both colonies were founded under different modes of organisation, the study of the institutional processes by which the colonists responded to incentives may account for the cross-colonial differences in economic growth that traditional economics may have either ignored or found difficult to explain. The purpose of the next chapter is to examine institutions by category and typology in order to determine which institutions belong in a matrix appropriate to the problem at hand.

Chapter 3: The Institutional Matrix

“Happy families are all alike, every unhappy family is unhappy in its own way”

Leo Tolstoy, 1877

Introduction

In the novel *Anna Karenina*, Tolstoy outlines his ideas about what makes a successful marriage. In order to be happy, “a marriage must succeed in many different respects: sexual attraction, agreement about money, child discipline, religion, in-laws, and other vital issues” (Diamond 2005a, 157). Failure in any one of those essential respects can doom a marriage even if it has all the other components.

Tolstoy’s thoughts on what makes a successful marriage are analogous to the requirements for institutions to contribute to economic development. An institutional matrix, in the words of High, Pelling and Nemes (2005, 13), is a system of formal and informal “interlocking institutions”. This implies that one or more institutions acting in concert are responsible for economic growth rather a single institution, or a “black box” of institutions that has formed the basis of much prior research. Bernstein (2004, 16-17) explains that an economy cannot prosper until a trade-promoting institutional matrix is in place and the absence of one institutional element from the matrix endangers economic progress and human welfare: “kicking out the legs will topple the platform upon which the wealth of a nation rests”. In other words, certain institutional elements must be present both simultaneously and in their correct measure for growth to become a reality. Most tragic of all, in much of Africa, an institutional matrix promoting economic growth, or a many of its elements are still essentially absent (Bernstein 2004, 17). This notion of a matrix – or portfolio – of institutions being the engine of prosperity contrasts with a vast bulk of modern institutional literature that tends to focus on individual institutions, particularly property rights, and their effects on the economy.

As will be recalled from [Chapter 2](#) on the discussion of OIE and NIE, part of the problem in applying institutional theory to economic issues is the lack of a consensus definition of institutions, and even less agreement on what institutions must exist to launch economic growth. The first section of this chapter briefly discusses a recent attempt to classify and create a typology of institutions to aid in choosing relevant institutions for macroeconomic analysis. Based on this framework, and on due consideration of the historical record and the availability of colonial data, the second section constructs a matrix centred on four inter-related institutions that

appear to be relevant in explaining the similarities and differences in economic development of the colonies of WA and SA.

Categories of Institutions

Parto (2005, 31) believes that there are three general categories of institutions: one focuses on the *form* of institutions (how they manifest); another on the *behavioural* impact of institutions, emphasising the way in which individual behaviour is constrained or regulated; and the third stresses the way institutions *constitute* individual behaviour. In many instances, a single institution can be described in each of these three ways.

As discussed in [Chapter 2](#), institutions regardless of whether one follows OIE or NIE are intangible but much of the *form* taken is that projected by organisations (North 1990, 107). Through these organisations are projected formal and informal institutions that shape societal interactions in the economy. For example, the institutions of the State are manifested in parliaments, municipal councils and regulatory agencies that dictate modes of political engagement. Similarly, educational organisations such as schools and universities project both formal and informal institutions of knowledge and learning. Whilst the *form-based* definition of institutions typically describes their physical manifestations in particular organisations, many scholars have attempted to expand this list. Lewis (1960, 102), for example, includes religion, family and the custom of property ownership; and Neale (1987, 1994) includes marriage systems, legal codes, churches, and the American middle class.

Behavioural-based institutions are commonly discussed in relation to the constraints they impose on the types of activities that individuals can pursue, for example theft as compared with trade (North 1990, 5). This statement necessarily implies that these constraints take the form of behavioural inhibitors or enablers according to some system or code of conduct (e.g. the Bible or Koran). Paraphrasing Scott's (2001, 50) view, institutions provide guidance and prohibitions on the actions of agents, from correlation to coordination of various problems requiring resolution, from the global level down to the interactions between two individuals. Viewed in this way, institutions, such as constitutions, laws, regulations, codes of conduct and customs, define what can and cannot be done by organisations and by individuals. According to this definition, an institutional framework sets out the available choice set of incentives through a combination of empowerment and coercion (Scott, 2001). As such, an institution acts as a regulator of behaviour by prescribing a system of rules and will be endowed with self-enforcing characteristics otherwise a mechanism will exist to provide recourse to a third party (Rutherford 1994, 182). A behaviour-

based perspective on institutions is evident in North's (1990, 67) work where he asserts that global interaction is due to a complex set of institutions that "fix the confines of, and impose form upon, the activities of human beings". Parto (2005, 33) advances a similar viewpoint noting that institutions coordinate and correlate human behaviour, particularly when the interaction is repetitive, and they constitute the formal norms of behaviour that shape societal relations across space and time. This implies a certain degree of institutional permanency due to the habits and customs of society (Neale, 1987), a view echoed by Hodgson (1988, 10) who writes that an institution is "a social organisation which, through the operation of tradition, custom or legal constraint, tends to create durable and routinised patterns of behaviour". Behavioural institutions are also, simultaneously, social facts: "phenomena perceived by the individual to be both external and coercive" (Scott 2011, 13).

A third, broad view of institutions is one which emphasises their *constitutive* effects; that is institutions as mental models, constructs or definitions. Olsen (2000) describes this view as one where society takes the form of a basket of institutions; a community of rule followers with singular cultural traits, subjective mental models of understanding based on shared codes of conduct, and a sense of reasoning and belonging. In this way constitutive institutions influence how individuals *want* to act.

The behavioural and constitutive viewpoints are evident in a range of writings on institutions. For example, Durkheim ([1901] 1950) discusses the cognitive, constitutive and behavioural roles of institutions which can be seen as a type of "collective representation" that accrues to agents through processes of knowledge transfer and accumulation, beliefs and moral supremacy. Later on, Neale (1987, 1994) identified four important characteristics of institutions: rules that define activities; their repetition and stability; order that specifies boundaries of action; and a cultural anchor that justifies such actions and rules in the societal consciousness. Similarly Hodgson (1988, 1076) refers to institutions as possessing behavioural, regulative and constitutive characteristics through the reinforcement of traditions, customs and constraints. These and various other strands, have been brought together by Scott (2001, 51-8) when he identified three important pillars of institutions important for economic development.

Typology of Institutions

Scott's typology (2001, 52) features, first, a *regulative* pillar, which can be observed in the rule setting, the monitoring of compliance and the enforcement characteristics of the agent with the collective balance of power. In this typology, the State devises the rules; acts as the referee and the enforcer; and under certain situations can forgo neutrality to develop its own interests free from otherwise

binding social factors (Scott 2001, 54). A *normative* pillar acts as the source for, and enforcer of, social behaviour and action. Scott (2001, 55) explains that this aspect of institutions is keenly felt in “kinship groups, social classes, religious belief systems, and voluntary associations where common beliefs and values are most likely to exist”. A *cultural-cognitive* pillar comprises the shared conceptions that frame social perception and the lens through which understanding and interpretations are made. The title of this institutional aspect is recognition “that internal interpretative processes are shaped by external cultural frameworks” which “stresses the central role played by the socially mediated construction of a common framework of meaning” (Scott 2001, 57-8).

The benefit of adopting the typographical approach to institutions, of articulating and specifying institutional classifications, is that it avoids describing institutions collectively – the “black box” approach. As Parto (2005, 38) emphasises, the “articulation of levels, scales and systems at and through which [economic] phenomena are to be studied allows research to focus on the key institutions in a given situation and avoids...being overly concerned with the importance of complexity and the need to remain holistic”.

Constructing a Matrix of Institutions

In this thesis, the institutions of concern are those that are likely to have had the greatest impact on the economic development of colonial WA and SA up to the end of the nineteenth century. The following subsections describe in greater detail four institutional forms, drawn from the above categories and typology, which may account for the observed disparity in economic growth between the colonies. The four institutional forms considered respectively are: property rights, capital market institutions, State institutions and culture.

Property Rights

Property rights is an example of *regulatory* institutions as they set the bounds of social relationships. The generally accepted definition of property rights are that they are a complex of formal and informal rules, as well as laws and customs that structure the way in which economic agents gain access to resources and their range of permissible uses (Saleh 2004, 3). Property rights have four essential attributes: first, there are exclusive usage rights, to maintain and improve the resource and to physically transform it; second, there is the right to earn income from the resource and contract over the terms with other interested parties; third, rights and obligations exist relating to acquisition and disposal of the resource from low to high yield status (Demsetz, 1967); and, fourth, there is a right to call upon enforcement by the State (Eggertson, 1990). A system of property rights, then, is a method of

assigning to particular individuals the authority to select, for specific goods, any use from a lawful (but finite) choice set of alternate uses (Mahoney 2004, 126).

While Saleh (2004, 10) identifies four types or stages of property rights governing - open-access communal resources¹⁵, restricted access common resources¹⁶, usufructs and private property rights – this thesis only examines the last two types, due to their relevance to the economic development of WA and SA. A usufruct assigns a resource usage right to individuals that enables them to derive profit or benefit from property but the governing authority retains the ownership and resumption rights (Saleh 2004, 11). Usufructs, as a property right type, may be implemented when the costs associated with communal governance becomes too great. Compared to a communal arrangement, usufructs may be easier to defend, and monitoring of users become less important since many communal externalities are internalised (Furubotn and Richter, 1998). However, Saleh (2004, 11-12) argues that usufructs result in underinvestment and overexploitation of resources, due to the lack of transferability.

Private property rights generally grant the possessor the freedom from expropriation, the right of sale and transfer, the right to use property as collateral and the right to own any revenue stream (Alchian, 2008). The NIE literature, surveyed in the previous chapter, suggests they become more important when impersonal exchange deepens. In both European history and modern developing countries, usufructs in land were generally transformed into private property as capitalism grew and took hold (Hicks, 1969). Eucken (1952) asserts that the assignment to individuals of property rights and their enforcement by the State is the basis of market economies. As Benjamin (2006, 1) explains, the institution of private property rights (hereafter property rights) includes an enforcement mechanism that protects an individual's property against expropriation and excludes others from using that resource. The security of the property right will be determined by the mechanism, which consists of two mutually supporting tools: social conventions, including the existence of trust, and the State (Furubotn and Richter 1998, 86).

In the theoretical realm, but not always in reality, the State acts as third party enforcer, and steps in when rights are perceived to be violated and the enforcement characteristics of social custom, habit and trust are deemed ineffective. By using its

¹⁵ Open access communal resources can be used by the whole of society in an unrestricted way (Saleh 2004, 9). They apply to plentiful resources or when they are scarce but the costs of excluding other agents exceed the benefits of restricting access (reductions in the harmful effects of overuse).

¹⁶ Restricted-access common resources are rights assigned when scarcity of a resource, due to a sudden increase in demand, drives up the cost of open access rights relative to benefits (Saleh 2004, 10). Social norms and traditions may evolve to induce people to limit use of the resource at various margins and to invest in conservation of resources (Hardin, 1968).

coercive powers, the State assists individuals enforce legitimate contracts. This lowers the costs of exchange, particularly when the State uses its powers in a systematic and predictable manner. Resorting to the State's enforcement mechanism is not without cost due to the requirements of detecting and measuring violations of property rights. The size of this cost relative to the economic value of the rights partly determines the effectiveness of the property rights structure (Eggertson, 1990). There are two types of sanctions available in the modern State: a property rule which punishes trespassers with criminal penalties forcing individuals to engage in voluntary exchange or transfer in order to gain access to another's property; and a liability rule (such as eminent domain) which protects against trespass by imposing damages (Saleh 2004, 15).

In their research on institutions and colonial economic development, Acemoglu and Johnson (2005) reveal that within the institutional matrix, well-defined and enforced property rights are most important in shaping long-run economic growth. Libecap (1989) agrees for two important reasons. First, by assigning ownership to valuable resources that grants the bearer the economic rewards and costs of resource-use decisions, property rights offer incentives for economic behaviour within society. Second, by allocating decision making authority, the prevailing property rights system determines who the key players are in the economic system.

The extent to which property rights promote productive activity will depend first on the security of the rights. More secure rights generally lead to lower expectations of expropriation and higher net returns (Acemoglu and Johnson 2005, 952). Besley (1995) likens this expectation of expropriation as an expected (random) tax on returns which tends to discourage investment for the risk-averse. The degree of transferability of property rights, i.e. through gifts, bequests, rents or sale, is a further channel through which investment and, thus, economic performance can be affected. Higher transferability means that the value of improvements in resources can be realised through sale. Furthermore, high transferability promotes the likelihood of resources being acquired by agents whose intention is to make the best use of them, i.e. those who can generate more efficient investments (Saleh 2004, 8).

There is, of course, the possibility that property rights may change. Reflecting the efficiency-promoting approach to institutions in NIE analysis overviewed in Chapter 2, Demsetz (1995) suggests that changes in property rights may be driven by new market prices and production possibilities to which old arrangements are poorly attuned. According to the NIE approach, property rights are altered because of

changes in the nature of incentives under consideration. Thus, Davis and North (1971, 39) say that “it is the possibility of profits that cannot be captured within the existing arrangement structure that leads to the formation of new (or the mutation of the old) institutional arrangement”.

However, Mahoney (2004, 113) argues that past property rights choices serve to limit the menu of possible future changes to property rights to tackle various economic problems. Libecap (1989) believes that recent historical investigation suggests a less optimistic view of how property rights change over time. This view is based on examination of the role of interest groups and their inevitable conflicts over the distributional effects of property law and government regulation (Mahoney 2004, 113).

The crucial message appears to be that the content of property rights affects the allocation and use of resources in specific and predictable ways (Furubotn and Pejovich 1972, 1139). A further clear message is that enforcement mechanisms that improve the security of property rights and trade mechanisms that lower transfer costs are key to the functioning of a market economy. Apart from the reduction of transactions costs, the fundamental purpose of property rights is, as Alchian (2008) believes, to eliminate the destructive struggle for control of economic resources: well-defined and well-protected property rights give rise to competition for resources by peaceful means.

Capital Market Institutions

An institutional development that has marked the transition of many developing economies, and colonies before them, is the development of capital markets (La Porta and Lopez-de-Silanes, 1998). This is an important example of a *behavioural* institution as it prescribes the types of interactions permissible between disparate public and private interests.

At its very crudest, a capital market is a forum to transfer savings to borrowers in return for a promise (a contract) to repay the funds at some future date and a regular repayment of interest (Mokyr 2009, 221). The concept of a capital market is any structure that allows market participants to repeatedly exchange different types of financial goods, services or information. It is a social network consisting of three types of market participants: lenders (or savers), borrowers, and intermediaries (e.g. banks and other financial sector enterprises that connect lenders and borrowers), who develop and maintain impersonal contacts with each other. The institution also features a governance structure that details the mechanism for the legal and economic transfer of financial goods and services.

An economy without a capital market would be forced to exchange by barter (McMillan, 2008). An effective capital market facilitates economic trade because it enables lenders to evaluate the quality (creditworthiness) of borrowers, and risks to be priced accordingly (interest rate). The exchange of capital for a debt obligation (contract) creates a transaction. A capital market then consists of the cumulative transactions of all savers and borrowers (and intermediaries) that influence the prevailing cost of capital.

The existence and effectiveness of capital markets, is affected by three factors: information, risk and cost. When information is asymmetric, interest rates do not incorporate all relevant information about the creditworthiness of borrowers, and so non-price information is required (Rothschild and Stiglitz, 1976). Lenders of capital must invest significant resources in the search and inspection of potential borrowers' financial strength and this is usually in the form of information procurement (their honesty, crop yields, repayment capacity etc.). When this information is known, capital is more likely to be efficiently distributed throughout the economy allowing growth to occur. Otherwise a "lemons market" may develop whereby lenders would price their surplus capital at a rate reflecting average (rather than specific) risk, thereby deterring safe borrowers from seeking capital (McMillan, 2008). As McMillan (2008) explains, due to asymmetric information, capital markets are also subject to moral hazard where a borrower, having received a loan may have an incentive to default.

The risk of capital relates first to the ability and freedom to contract in the capital market and have those rights protected. Indeed, Arrunada and Andonova (2008, 81) believe that the "proper functioning of a [capital] market...requires that freedom of contract be protected effectively". The mere existence of a governance structure, including the legal rules, supporting the capital market may not be enough to protect market participants, or to promote market development and the growth of credit; rights and contracts must also be enforced by an independent and impartial power (North 1990, 109). Market participants may enjoy high levels of protection despite bad laws if an efficient judiciary can redress expropriations by delinquent borrowers (La Porta and Lopez-de-Silanes 1998, 13). In this way, strong legal enforcement may serve as a substitute for weak market rules.

However, the governance structure is not the sole determinant of risk in capital markets. For example, resort to enforcement mechanisms is not needed to support transactions where borrowers deliver on their contractual promises, not because they are forced to, but because they want to build a good reputation with

other lenders (Gomes, 1996). Indeed, one of the key characteristics of successful capital markets is where recourse to State enforcement is uncommon. Furthermore, borrowers may be able to offer lenders better security through warranties in the contracting process, which effectively serve as performance guarantees between market participants (Easterbrook and Fischel, 1991).

The level of risk in a capital market is likely to be reflected in the cost of finance; and can be demonstrated by the interest rate plot, which Bernstein (2004, 131) considers as a thermometer of a nation's economic, social and military health. The gradual decline in interest rates that North (1981, 1990) observed in seventeenth century Holland, eighteenth century Britain, and nineteenth century USA reflected an increase in the supply of investment capital available for lending, and an increase in the security pledged by borrowers. It was associated with improvements in the efficient functioning of the capital markets and led to increased business activity and economic growth (Bernstein 2004, 129).

The cost (and risk) of capital will also depend on the market for public debt, especially in developing economies (Sullivan, 2003). Specifically, public borrowing may reduce risk and cost in capital markets for two main reasons (Bernstein 2004, 148). First, the creditworthiness of the State is widely known and this debt is the simplest to price. Since pricing and the sale of commercial capital is the same as for government bonds, a successful market for government debt must exist before a commercial debt market can mature. In developing economies (and in colonies), government debt acts as the "training wheels" for supplying capital to entrepreneurs; and it provides an essential "risk-free" benchmark that applies to perfectly safe enterprises, which can be used to price risky non-government debt. This forms a "baseline" to which can be added a "risk premium": the amount of extra interest demanded because of a borrower's risk of default. The presence of an easily observable risk-free rate on government debt makes it easier to price loans to entrepreneurs.

Institutions of the State

The State is a source of many regulatory institutions, including property rights, those affecting the operation of capital markets and the legal framework in which to engage in trade (Reinert 1999, 279). In the widest sense, the State issues the written and unwritten "rules of the game", and acts as both referee and enforcer. Furubotn and Richter (1998, 471) consider the State as the highest authority in the land which reserves to itself certain powers not available to the constituency. These include the ability to draft laws and compel obedience across the entire social spectrum. It can maintain institutions designed to encourage economic development

through the protection of property rights and enforcement of contracts via an independent judicial instrument (North 1990, 109). As standards of living grow, secondary demand is created and the State may also provide institutions, or organisations, for education, science, charity, sanitation etc. (Cohn 1895, 73). As Baumol (1952, 153-4) writes: "food, drink, clothing, shelter, amusement, social intercourse – these are the primary wants supplied by the private economy; peace, order, security, culture, relief – these are the higher needs which are mainly served by the public economy". These views can be traced back to Adam Smith's ([1776] 1976) musings on the State as a provider of institutions to foster market efficiency. Where markets face several informational problems, the government can, under the threat of coercion, enforce disclosure so that the information revealed will be correct and complete (McMillan 2008, 2). In fact, the market system could not function without certain governance institutions such as an independent apparatus that enforces contracts. Many moral-hazard problems inherent in transactions are eliminated by the presence of strong State institutions since aggrieved parties can recover damages (Saleh 2004, 19). Another of Smith's ([1776] 1976, 482) functions for government are the "erecting and maintaining [of] certain public works and...public institutions, which it can never be for the interest of any individual or small number of individuals, to erect and maintain". The State uses taxation to cover the cost of providing public goods since "there are economies of scale in providing these services [and] total income in society is higher as a result" (North 1990, 23). Infrastructure, as Bernstein (2004, 258) points out, is a key factor in bringing goods to markets; it is a channel for dispersing positive feedback mechanisms, and for lowering transportation costs.

Despite the positive role for State institutions the potential for negative impacts is also widely acknowledged. Regulatory institutions designed to address market failures relating to externalities, or imperfect information may result in further social losses. For example, State institutions devised to regulate competition may be operated for the benefit of firms rather than consumers. Furthermore, the coercive power of the State may be abused, as Weingast (1995, 1) explains:

A government strong enough to protect property rights and enforce contracts is also strong enough to confiscate the wealth of its citizens. Thriving markets require not only the appropriate system of property rights and a law of contracts, but a secure political foundation that limits the ability of the State to confiscate wealth.

Abuse of power occurs when the principal-agent relationship, that characterises North's (1990, 114) implied contract between the ruler and the ruled, breaks down. As Furubotn and Richter (1998, 476) explain, a democratic and

constitutional State consists of the principals (constituents) and their agents, representatives from the constituency that act collectively as the ruler. This relationship and power structure necessitates the need for some level of discretionary actions by agents, whom their principals (the constituents) have to trust to a certain degree (Furubotn and Richter 1998, 477). In turn, this implies the potential for the abuse of power and indicates how a breakdown in trust can undermine the efficient operation of State institutions.

The efficiency of State institutions depends in part on the correct functioning of the political institutions that assign roles for the formulation and implementation of regulations (North and Weingast, 1989). Political institutions can, and do, operate through different forums or contexts to determine the “rules of the game” with direct implications for the “regime of accumulation” (Parto 2005, 35). Institutional arrangements, in the political context, are the medium through which agents possess the ability to make credible commitments with various stakeholders including their constituents. North and Weingast (1989) outline how limits imposed on rulers by the advent of popularly elected assemblies, from the Middle Ages through to the Modern Era, have enhanced the predictability of government decisions and, as a consequence of the reduction in uncertainty, contributed to a flourishing of private capital markets. However, political institutions do not always have positive effects on economic development. As Furubotn and Richter (1998, 483) elaborate, “political actors try...to fashion structures that insulate their favoured agencies and programs from the future exercise of public authority”. If this strategy is successful, State institutions will contribute towards stability but at the cost of efficiency.

The risks of inefficient State institutions may be particularly high given that political “markets” are characterised by asymmetries of power (Korpi 2001, 44). As a result of such imperfections, political competition does not, in general, lead to effective solutions or efficient political markets. As North (1990, 51) remarks, “such markets are scarce enough in the economic world and even scarcer in the political world”. The reasons why political markets are far more inefficient than economic markets are described by North (1997, 9):

What is being exchanged are promises for voters: the voter has little incentive to be informed since the likelihood that his or her vote counts is infinitesimal, there is no comparable enforcement mechanism, and competition is imperfect. The complexity of the issues (together with the lack of incentives for votes to be informed) leads to ideological stereotyping taking over. In effect, the incentives for efficiency are diluted by the structure of political markets and the complexity of the issue.

A range of studies has examined the impact of State institutions on economic performance. Shane's (2003, 26) study of the effects of regulatory change on economic development, as detected by the rate of new firms or by changes in participation in industry types, is specifically relevant to this study. The evidence suggests a strong positive relationship between favourable changes in political markets, e.g. deregulation in product and factor markets, liberal trade policies etc. and the number of new firms created in any given period. Baum (1996) and Carroll and Hannan (2000) found that regulations supporting particular organisations are associated with an increased rate of formation of those organisations. The *coda*, of course, is that a favourable change might spur the entry of so many new market participants that they subsequently perform poorly in aggregate and thereby hamper economic development (Shane 2003, 26).

Cultural Institutions

Cultural institutions are usually thought to influence economic outcomes by affecting personal traits such as honesty, thrift, willingness to work hard, and openness to strangers. Culture, according to Neale (1987, 1179) "defines the permissible and forbidden, defines right from wrong, the admirable and its opposite, gives context to these definitions with rules for behaviour, and so provides opportunities as well as limits". Additionally, Guiso et al. (2006, 3) define culture as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation". Therefore they can be viewed as constitutive and regulatory. Clearly culture, by defining "the admirable and its opposite" constitutes behaviour by providing subjective mental modes of understanding. However, culture is also a major determinant of informal norms of behaviour and social constraints and, as such, contributes to the set of regulatory institutions.

Some researchers, such as Huntington (1996), Landes (1999), and Inglehart and Baker (2000), argue that explanations for economic growth should go further to include a nation's cultural institutions (Barro and McCleary 2003, 2). Until recently however, economists have shown reticence to assign cultural institutions a possible role in economic development because their very notions are broad and the channels through which they influence economic systems are vague making it difficult to design refutable hypotheses (Guiso et al. 2006, 3). Many past studies of the effects of cultural institutions on economic outcomes, such as those by La Porta et al (1999) and Tabellini (2006), tend to treat culture as a black box or focus on aspects of hierarchy in social institutions. In other studies, culture has been proxied using measures related to religion (Licht, Goldschmidt and Schwarz, 2007), reflecting the

fact that their respective definitions share many common characteristics. Both culture and religion are defined as systems of belief, social learning, symbols and traditions with historical origins, providing direction for human behaviour and interaction, and specifying a set of shared moral values (Iannaccone 1998, 1466). The concepts differ in that religion concerns itself with temporal rather than secular existence.

There has been much ink spilled in the sociological literature on culture and the issues associated with using religion as a proxy which is a valid objection when religion *substitutes* for culture as the studies cited above strongly infer. Historically religious institutions have been acknowledged as providing the catalyst for structuring human interaction by providing modes of cooperation, norms of behaviour, conventions and taboos, and as a mode of transitioning into the afterlife, which, in turn, provide the foundations for the development of formal institutional structures in the current life (Bryant, 1955). Saleh (2004, 31) also asserts that much of the common law and civil codes of developed countries are based on the ethical codes emerging out of such religious beliefs. However, Bernstein (2004, 300) argues that culture extends beyond religion: "Culture is determined by geography, not by place of worship. Sociological surveys demonstrate, for example, that while a German Catholic is likely to have more conservative and traditional values than a German Protestant does, he will resemble a Catholic from South America, or even Italy, even less". Consequently, wealth and poverty correlate more closely with other sociological factors than with religion.

What has not largely been acknowledged by economists seeking to slot cultural institutions in their analysis in the two-way causality, "from culture to economics and from economics to culture" (Guiso et al. 2006, 3). This problem can be resolved by focussing only on those cultural aspects that individuals inherit from previous generations, rather than voluntarily accumulated (Guiso et al. 2006, 3). According to Becker (1996, 16), individuals have less control over their cultural makeup than over other forms of social capital because they cannot alter their ethnicity, race or family history but can switch their religion. It must also be borne in mind that religion was a much stronger social binding in the nineteenth century than in the twenty-first, whereas the notion of a cultural identity appears to be a twentieth century construct, and religious affiliation would have coloured peoples' outlook toward capitalism regardless of geography. In this way, religion no longer substitutes for culture but becomes one dimension of it; it is a cultural aspect under individual control with one-way causality with economics; and has supporting colonial data.

Certain economic incentives during the nineteenth century could not be exploited until individuals were free from moral - or State - sponsored constraints that determined the methods of increasing wealth (Lewis 1960, 102). Some of these constraints took the form of religious strictures forbidding members of religious denominations from engaging in certain types of economic activities, of incrementing wealth rather than pursuing spiritual contemplation. As Polanyi (1944, 43-44) explains, the pursuit of economic or individual gain is a relatively recent ideal, which was necessary for modern economic expansion.

Economic growth also requires a willingness to experiment and to seize entrepreneurial opportunities (Shane, 2003). The willingness to engage in new economic activities implies that agents behave rationally, albeit imperfectly (Furubotn and Richter, 1998). As Lewis (1960, 102) observed, "medieval Christian theologians made much of the doctrine that God himself is rational, and thus helped in laying the foundations for the revival of scientific enquiry in Western Europe". Indeed, much technological progress springs from an attitude that everything in this world is here for the convenience of man - the so-called *mastery / harmony* cultural value dimension - an outlook quite compatible with those religions which place man at the centre of the universe (Licht, Goldschmidt and Schwarz, 2007).

Economic growth is also sustained, or fed, by an increase in labour and consumer specialisation, particularly of the anonymous kind, irrespective of kinship, nationality or creed (Lewis 1960, 103). If religion encourages people to treat strangers fairly - to give honest service, to keep contracts faithfully, and so on - it will facilitate exchange. Where religion is exclusive, or encourages hatred of unbelievers, and divides people, then economic opportunities are diminished (Lewis 1960, 103).

Less favourable to economic growth is the tendency for religion to lean heavily on the side of the *status quo*, such as in family relations, or in political or religious obligations (Lewis 1960, 103). Change to religious doctrines is not generally a dynamic or an acquiescent process. Thus, religion may restrict change or it might slow down the rate of change, and it may also distort its effects (Lewis 1960, 106). These effects are likely to be substantial because, after all, social change results mainly from what people do, and this, in turn, is mainly the result of what they believe. Furthermore, as Iannaccone (1998, 1491) observes, religions employ a vast arsenal of weapons in a war to shape souls: childhood education, parental reinforcement, selective membership, group monitoring, sanctions and status, spiritual rewards and punishments, to name a few. Religion permeates a society's

belief structure because religious instruction (whether formal or informal) begins during the early formative years and this type of learning is harder to change compared with cognitive processes that are learned later in life (North 1990, 120).

It must be acknowledged that the relationship between religious institutions and the market is not unidirectional. Self-interest, as Smith ([1776] 1978, 740-66) points out, operates within religious markets just as it does secular ones; that market forces constrain churches just as they constrain secular firms; and the burdens of monopoly (the default position in many nations), the hazards of government regulation and the benefits of competition are as real for religion as for any other sector of the economy. Smith also explained how established religions face the same incentive problems that plague State-sponsored monopolies because they stifle religious innovation by restricting choice and narrowing the range of religious commodities. Government regulation is said to induce exactly the same effects (Iannaccone, 1998). In countries with a dominant religion, which enjoys the financial and regulatory support of the State, Iannaccone (1998, 1486) finds that the average level of religious belief and participation in church activities is consistently lower than among the small denominations operating at the competitive fringe of the country's religious market.

The pressure to reinterpret religious doctrines to suit changing economic (or social) circumstances can be a catalyst for competition in religious markets. Finke and Stark (1992) explain that "deregulation" can occur when the original faith splinters into subcategories and a market for religion develops (e.g. the Reformation and the later various strands of Protestantism). These variant religions share some commonality but are distinguished by their doctrinal differences (Becker and Woessmann, 2007). They allow minority memberships to find guidance, inspiration, or codes of conduct which differentiate them from the rest of the community, and which are linked in their own minds with the innovations they wish to introduce (Lewis 1960, 104).

Smith ([1776], 1976) claimed that competition would not only generate more religion but also *better* religion: free trade in religion is the best way to satisfy the demand for religious instruction and reduce religious conflict. Indeed, Finke and Stark's (1988) analysis of church membership at the beginning of the 20th century America found higher rates of religious affiliation and Sunday school activity in cities with higher rates of religious diversity (the same phenomena can be seen in early SA history). Similarly, Iannaccone (1998, 1486) documents a strongly negative correlation between church attendance and religious diversity, "On every available

measure, including frequency of prayer, belief in God and confidence in religion, piety is greater in countries with numerous competing religions than in countries dominated by a single faith, and these relationships remain strong even after controlling for income, education, or urbanisation". Furthermore, the active religious participation observed in the US is partly due to having access to an immense market of more than 1,500 denominational alternatives (Melton, 1989).

Given this discussion, to what extent does religion have an independent effect in shaping economic behaviour? Weber ([1904], 2001) famously proposed that the Protestant Reformation was instrumental in facilitating industrial capitalism in Western Europe. This assertion was in part supported by an observation in Germany during the latter half of nineteenth century that "business leaders and owners of capital, as well as higher grades of skilled labour, and even more the higher technically and commercially trained personnel of modern enterprises, are overwhelmingly Protestant" (Weber [1904] 2001, 3). A particular aspect of Weber's thesis was based on the "ethic", the sanctification of labour to a task set by God and the fulfilment of worldly duties as the highest moral achievement, which affected economic outcomes (Becker and Woessman 2007, 6).

Weber's thesis has been subject to much scrutiny by economists in recent years but so too has the causal question of what influence does religion play in shaping economic growth generally. Beginning with Tawney (1926) and continued by Samuelson (1993), these studies demonstrate that most or nearly all the capitalist institutions preceded the Protestant Reformation rather than the other way around, as Weber thought. Pyle (1993) states that polls conducted in the US consistently find that the economic attitudes of evangelical-fundamentalist Protestants are no more "conservative" than those of other Protestants. Perceptions of economic conservatism ascribed to the Protestant denominations stem largely from a set of theological, moral and social issues (such as school prayer, abortion and sexual conduct), which prove largely independent of their economic attitudes (Iannaccone 1998, 1478). Licht, Goldschmidt and Schwarz (2007, 670) theorised that Protestantism might promote good governance through its impact on national culture and other channels, and indeed found that, when included as an explanatory variable, Protestantism scored highly on the rule of law and non-corruption governance norms. They added, though, that a heritage of British institutions was a stronger predictor of governance norms than purely one of religion. This link to governance was foreshadowed by Hull and Bold (1995) who found, after controlling for police expenditure and crime-related socioeconomic variables, significantly lower rates of violent and non-violent crime

existed in states and countries with a greater diffusion of religious membership such that no single denomination enjoys a balance of power.

The majority of studies testing the effects of religion on economic development have focused on cross-country data despite Weber's wholly domestic observations (Becker and Woessman 2007, 7). Iannaccone's (1998) work found little evidence that religion influenced national economic growth rates, and failed to support Weber's account of European economic history. Using extensive nineteenth century European data, Delacroix and Neilsen (2001) conclude that the effect of the Protestant work ethic on growth is largely chimerical and based on anecdotal evidence only. However, many such studies failed to account for the effects of heterogeneity in religious denomination, as well as geography and institutions (Acemoglu, Johnson and Robinson, 2005).

An extensive quantitative study by Becker and Woessmann (2007), using Prussian census data from 1871, rejected a direct correlation and causation between Protestantism and economic development but found that Protestantism influenced nineteenth century growth through education and, especially, literacy channels. This theory argues that Protestant economies prospered because instruction in reading the Bible (translated from Latin to German by Luther) generated human capital¹⁷, through better standards of education, and this factor more than anything else was seen as crucial to economic success. The same observation was made earlier by Bryant (1955, 213) who wrote that "it would be hard to exaggerate the part played by the monastic houses in forming the character of English and European institutions. They were the centres and creators of civilisation and the principal meeting places of learned men. [British] schools, universities and charitable foundations have all grown out of their rules and ordered life".

The relationship between religion and education is a curious one: it has been suggested that individuals become "more sceptical of faith-based claims as they acquire more education, particularly more familiarity with science" (Iannaccone 1998, 1468). On the other hand, Chiswick (1983) cites the fact that in the US, Jews generally earn higher wages than non-Jews primarily because of higher levels of education thereby leading to a conclusion that education does correlate with religion. Many East Asian countries, such as Japan, Taiwan, Hong Kong, Singapore, and China (at least after Deng Xiaoping), have Confucian values, which also puts a strong emphasis on education and the development of human capital (Juergensmeyer,

¹⁷ Human capital is defined here as the stock of competencies, knowledge, and personality attributes, including creativity, embodied in the ability to perform labour in order to produce economic value (Becker, 1993).

2006). In addition, certain Catholic regions in northern Italy, Bavaria, the Rhineland, and France have demonstrated effective capitalist development at various times suggesting that Protestantism enjoys no monopoly over capitalistic development (Delacroix 1992, 126; Greif, 2005). Indeed, all religions are capable of embracing capitalism and do so in a number of ways and one of the most important appears to be through the provision of educational services (Iannaccone 1998, 1491). In economies where religious markets are competitive, there is greater incentive to offer these "value-adding" services in order to increase participation in church-related activities. As such, religion is an important conduit for shaping the population's attitude towards education irrespective of the denomination.

These attitudes toward learning form an important foundation for economic growth because, according to Shane (2003, 32), educational organisations conduct scientific research resulting in the creation of new knowledge and technology that forms the basis of many entrepreneurial opportunities. Educational institutions (whether denominational or state-based), coupled with concentrated urban characteristics, assist in the diffusion of information that generates opportunities for economic activity through the accumulation of human capital (Aldrich and Wiedenmeyer, 1993).

There have been a number of studies that examine how the provision of educational services throughout a given society affects entrepreneurial activity and thereby facilitates economic growth. Shane (2003) asserts that the most direct and persuasive comes from Zuker et al. (1998) who conducted research on company start-ups formed on the back of high technology research in universities. They found that universities generate new knowledge from research activities that is disseminated throughout the community. This process creates entrepreneurial opportunities that do not exist in places where university research does not occur (Shane 2003, 33).

Investing in human capital, through educational institutions, has flow on effects within the economy through its influence on technology. As Bernstein (2004, 93) comments:

The history of economics is the history of technology – after all, modern prosperity rides in the cockpit of invention. Economic growth is virtually synonymous with increased productivity, which in turn is almost entirely the result of technologic advance.

A nation with a tolerant religious culture that promotes the virtues of education coupled with a scientific rationalism (i.e. natural curiosity) will favour the invention of new technology, and the invention of new technology reduces

transaction costs and results in further labour specialisation. Romer (1986) showed that technology benefits society through its “externalities”, the rapid adoption by all manufacturers of the industry leader’s best practices, and that the marginal productivity of knowledge grows as more of it is accumulated. Indeed, a “badly educated society cannot master new productivity-enhancing technologies and so dooms itself to poverty [but] even a highly educated populous can suffer the same fate without efficient economic incentives [e.g. property rights]” (Bernstein 2004, 306).

Technological changes allow educated people to allocate resources in different and potentially more productive ways (Casson, 1995). Some empirical evidence, surveyed by Shane (2003, 24), supports the argument that technological change is a source of entrepreneurial opportunity, albeit indirectly. He found that the rate of technological change, as measured by the annual number of new patents issued, had a positive effect on the number of organisations per capita in the subsequent year.

Conclusion

This chapter has identified four inter-related institutional forms within the institutional matrix that are likely to be important to colonial economic performance. These are property rights, capital markets, state-based institutions and culture.

Property rights are a set of formal and informal rules, laws and customs that define the way in which economic agents gain access to, and able to use, particular resources. They consist of four vital attributes: usage rights to maintain, improve and physically transform resources; the right to earn income from the resource; rights and obligations relating to the acquisition and disposal of the resource; and the right to call upon enforcement by the State. One of the most fundamental requirements for a capitalist economic structure is a strong system of property rights. Land was perceived to be the major source of wealth and economic productivity in the colonies because it produced exportable cash commodities as well as food and other material for domestic consumption. However colonial land required sufficient labour and capital to make it produce in the European sense and without these two inputs the ownership of land was effectively worthless. The system of property rights that applied in the colonies of WA and SA - to land as well as to one’s intellect - and their economic consequences are studied in [Chapter 6](#), as are the attempts to improve the security of property rights and reduce the costs of accessing colonial resources.

Even with secure property rights, if entrepreneurs possess insufficient internal capital to mass-produce commodities, outside sources of funding are required for economic growth to occur (Bernstein 2004, 128). This creates a key role for capital

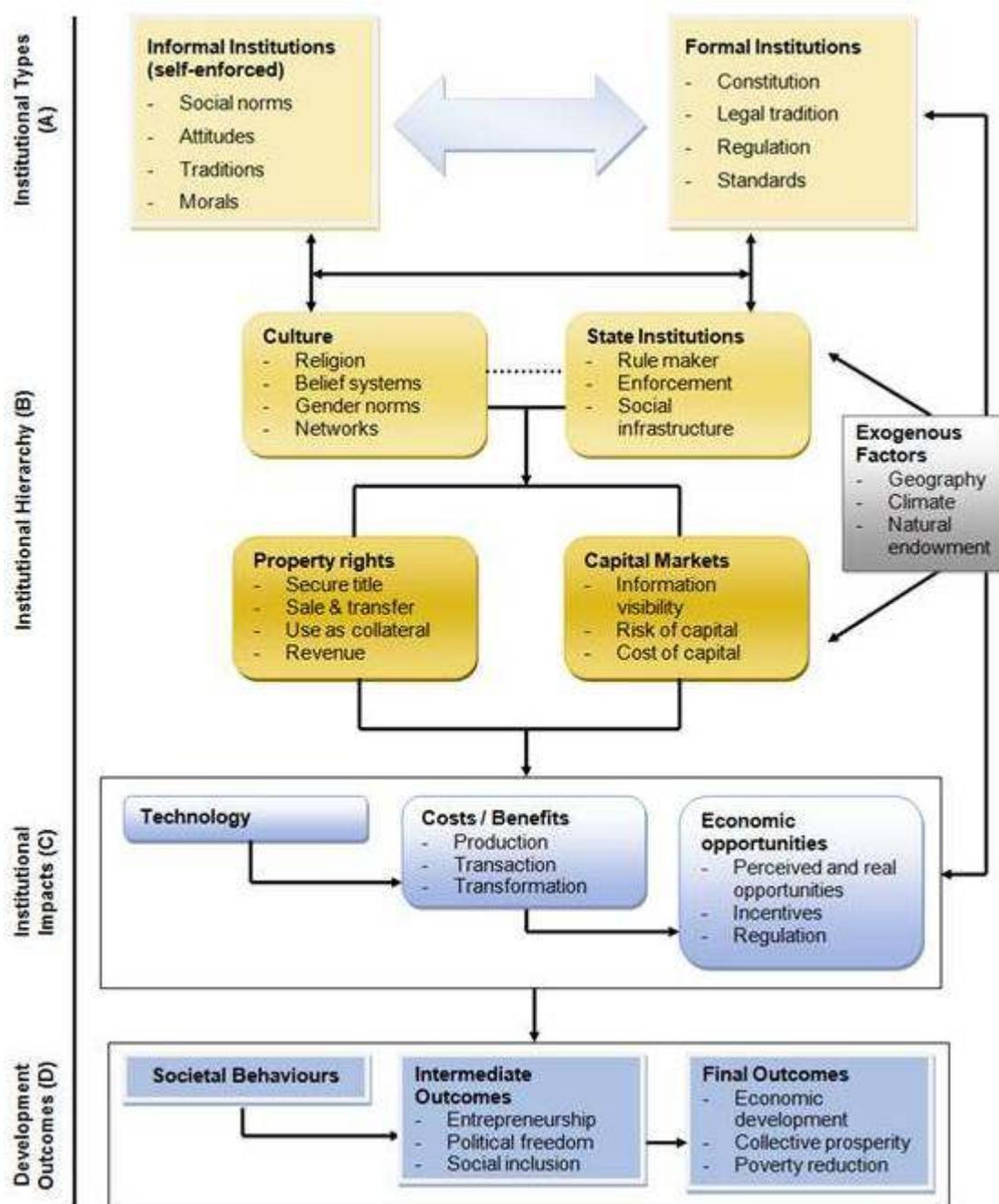
market institutions, which will affect the risk, cost and flows of information about financial transactions. Very few empirical studies have attempted to measure capital market transaction costs quantitatively, partly due to the paucity of suitable data (Gabre-Madhin, 2001). In terms of identifying capital market institutions and their effectiveness at promoting colonial economic growth, [Chapter 6](#) presents measures of the growth of money supply, the number of banks (which indicates the level of information asymmetry and the cost of obtaining information), the growth of public debt (a proxy for the “risk free” benchmark), and, one that North (1990) urges, graphs of government and commercial interest rates (the cost of capital).

Evidence on how State-based institutions affect economic growth is accumulating with much of the evidence coming from developing and transition economies (McMillan, 2008). Of particular note is the UNECA (2011) report which comments that the successful transformation from agrarian to capitalist economic models has been achieved historically by deliberate State involvement implementing a disciplined planning process. Indeed, the role of the State throughout the world is being redefined to accommodate the needs of the market economy, and institution building is becoming widely accepted as the principal means of fulfilling this role (La Porta and Lopez-de-Silanes 2008, 2). Thus, effective State and political institutions have a significant role to play in economic development. They will feature: a constitution, a private property rights structure, the rule of law, an independent judiciary, and representative political institutions. The institutions of the State that appeared most significant in promoting economic growth in the colonies of WA and SA are assessed in [Chapter 6](#) from three perspectives: the degree of political engagement by colonists in elections, amount of public revenue that emanated from taxation on a per capita basis; and the level of public expenditure as a percentage of output, which proxies as a measure of the *size* of the State.

Even with property rights, capital markets and the State institutions, certain agents in society must assume an entrepreneurial role for economic growth to become sustainable. That is, there must be incentives to innovate and to utilise technology so as to deepen the division of labour. The ability to master new technology is in part due to attitudes to education, and when considering nineteenth century economic history, it is probably not wise to completely dismiss a causal link between religion and economic development particularly where the religious outlook puts a stress on literacy, education and the accumulation of human capital (Iannacone, 1998). The role of religion is analysed in [Chapter 6](#) from data collected on the breadth of religious denominations and the number of churches per capita. The effects of religion on education are examined from data collected on the number

of children receiving an education provided by religious denominations, the cost of schooling a child at public institutions, and the amount of public revenue spent on education. The effects of education on technology can be gleaned through the number of patents granted within each colony but also from the perspective of the development of colonial transport and communication.

Figure 2: The Institutional Framework



Source: Adapted from de Soysa, I and J. Jütting. 2006. *Informal Institutions and Development*. <http://www.oecd.org/dataoecd/52/16/37790393.pdf> (Accessed April 3, 2012).

Figure 2 (p. 72) illustrates a basic framework for understanding how the institutional matrix facilitates economic development goals. As can be seen, Development Outcomes (D) cannot be attributed to one single institution (A). Working backwards, Figure 2 shows that development outcomes depend on a dynamic interaction between the institutional impacts (C) resulting from the institutional matrix (B) of property rights, capital markets, State institutions and culture (explored in [Chapter 6](#)). There are, of course, external factors such as geography, climate and natural endowments (analysed in [Chapter 7](#)) that also influence institutional evolution and economic development.

Of the major institutional factors that ignite historical economic growth which was the most important? Acemoglu and Johnson (2005) deem that a property rights structure is the most important institution for historical economic growth. Brunt (2007, 1) makes a more forceful assertion that “changing [other] institutions is really only tinkering at the economic margin” but “establishing clear property rights, by contrast, facilitates almost all economic interactions and unleashes the full potential of the economy”. McMillan (2005) is of the opinion that without capital market institutions, agents will be reluctant to transact, credit fails to grow and economic activity will be arrested. Reinert (1999) believes that the provision of knowledge by the State is the most important institution although he presents no empirical evidence to support his hypothesis. Licht, Goldschmidt and Schwarz (2007) believe that cultural norms and informal rules make the difference in economic growth.

All of these viewpoints have merit but the problem with these studies, and others like them, is that they only test one institution rather than a combination to determine their relative importance in explaining economic growth. As Brunt (2007, 1) points out, “it is obvious that a country’s political, legal, economic and social institutions will affect its rate of growth [but] it is much more difficult to identify exactly which institutions matter and exactly how they matter”. Bernstein (2004) believes that it is the matrix itself that is the determinant of economic growth and that all institutions within the matrix are equally important. This view would appear to be logical given the inter-connectedness of, and inter-dependencies between, institutions in fostering prosperity. In the final analysis, it may be nonsensical to judge the relative importance of the four fundamental factors to a country’s development, says Bernstein (2004, 192), as “each complement the others because without all four ingredients, there is no just dessert”.

Chapter 4: The Evolution of British Colonial Theory during the 1820s

“Here we may rear a race of Englishmen, with the same Government, the same feelings, and the same love of freedom that fills our bosoms”

Sir George Arthur, 1838

Introduction

This chapter examines the evolution of economic thought during the 1820s with respect to colonisation as a solution to the prolonged slump in the British economy following the end of the Napoleonic War. This debate came to be dominated by David Ricardo [1772-1823] who argued for a domestic solution in contrast to Edward Gibbon Wakefield favouring a colonial alternative. Encompassing this small-scale discourse, against the backdrop of the Industrial Revolution, was the wider transition from Mercantilism to free-trade economics. As this occurred, the colony of Western Australia (WA) was formed in 1829 under Mercantilist principles.

Wakefield’s theory on colonisation was heavily influenced by Adam Smith (Kittrell, 1965; 1973). Further inspiration was drawn from the French Physiocratic School of economic thought in which Quesnay was prominent (Cameron, 2008). The Province of South Australia (SA) was chosen as a canvas upon which his ideas could gain form and was founded in 1836. The popular belief is that his package of colonial reforms was not fully adopted (Fieldhouse, 1999) in SA but as [Chapters 6](#) and [7](#) will show, notwithstanding this assumption, many of Wakefield’s outcomes came to be realised progressively during the course of the nineteenth century and also influenced subsequent economic development in WA. In the majority of analyses of Wakefield’s theory (the majority of which have been negative), there has not been a comparison of his method as compared with the next available colonial substitute. Marx ([1867]; 1999) comes close but his context - Ireland and India rather than settler colonies - is mistaken and his reasoning is theoretical rather than empirical.

As will be shown throughout this thesis, the colony of SA provides a unique natural experiment – one of the few available - by which the outcome of Wakefield’s ideas in practice can be more properly evaluated through the economic lens of Douglass North’s (1990) institutional framework. This contrasts with the neoclassical explanations which has underlined much of the twentieth century commentary on ‘systematic colonisation’.

Definition of Colonisation

A commonly accepted definition of colonialism is the extension of a nation's sovereignty over territory beyond its borders (Daus 1983, 325-7). Colonising nations generally dominate the resources, labour, and markets of the colonial territory, and may also impose socio-cultural, religious, and linguistic institutions on the indigenous population (Lange, Mahoney and vom Hau 2006, 1414). It is in essence a system of direct political, economic, cultural intervention and hegemony by a powerful country onto a weaker one.

Colonisation results in the transfer of institutions characteristic of the colonising power, or at least partial facsimiles, over time to geographic surroundings quite dissimilar from the environment that forged the original templates. Subsequent institutional development then takes on new trajectories due to the fusion of pre-colonial institutions, imported institutions, geography and people, both indigenous and non-indigenous. The genetic code of the resulting offspring retains many key elements of its progeny but with a whole host of singular characteristics designed to meet the distinctive challenges of the colonial environment.

Colonisation is, in itself, an innovative ex-ante activity but unlike most examples of innovation which can be evaluated from direct observation or reports of other innovators prior to acceptance, the probable outcomes of colonisation can only be evaluated ex-post facto (Cameron, 1973). The decision to colonise is therefore anticipatory and highly risky. In initial colonisation situations, the high risk factor is clearly perceptible and the problems of evaluating comparative advantages are immeasurably increased. The decision to colonise has to be made on vague statements of "potential" advantage usually from cursory examinations of the environment such as Cook's exploration of Botany Bay in 1770 and Stirling's at the Swan River on the western coast of Australia in 1827 (Cameron, 1973).

The practice of British colonialism, the framework actually employed to extract economic benefit from a geographically distinct territory, can be described as having evolved through three stages of unequal length. The first stage begins with the foundation of the first colonies, in Ireland and the New World, to the 1830s. The second stage ranges from that time to the end of the nineteenth century encompassing WA and SA, and the last stage from the 1890s to decolonisation after 1945. While such divisions are arbitrary they do provide a basic structure for analysis (Fieldhouse, 1968). The focus of this chapter examines the first two stages of British colonisation and examines the prevailing economic discourse that led to the foundation of the colonies of WA and SA under uniquely different principles of organisation.

Mercantilism as an Economic Doctrine

The century following about 1660 has been dubbed “the classical age of Mercantilist thought” and spawned many sophisticated theories on colonialism which were discussed widely during the second half of the seventeenth and into the early eighteenth century by such identities as Richelieu, Colbert, and Vauban in France; and in Britain by Child, Petty, Davenant, Defoe, and Young among others (Fieldhouse, 1968).

As Nester (2000) has argued, the economic justification for possessing colonies was to serve a number of purposes. Primarily, they were producers of raw materials to free their owners from dependence on European supplies, which might be cut off because of war and for which monopoly prices were often charged. In addition, colonial products could be paid for in exported manufactures, saving foreign exchange, and could be re-exported to Europe to help the balance of trade. Conversely, colonies provided uniquely favourable markets for European exports, since they were monopolies, and thus helped to maintain employment in metropolitan industries. Furthermore, since colonies were subordinate, they could be prevented from building competing industries, and their economies could be made entirely complementary to the metropolis. Whilst diffusion of aims existed, the primary goal of colonialism was to attain a pre-eminent economic position among European rivals using the value of colonial trade to support an artificially large merchant marine and navy (Nester 2000, 54). These arguments, based on observation of established practices formed a well understood corpus of concepts although the multiplicity of arguments and practices it embraced were merely dubbed a “system” by Adam Smith in 1776 (Fieldhouse, 1968).

During the era of Mercantilism, European colonisers applied, to varying degrees, protectionist practices to their overseas possessions: only ships bearing the flag of the metropolis could dock at colonial ports, other nations were excluded; almost all colonial trade was routed through metropolitan ports; and the colonies were prevented from processing raw materials or developing manufactures (Cranny 1998, 237). By these means it was hoped that each colonising power would have a monopoly over colonial bullion and raw materials, and a guaranteed market for metropolitan manufactures; that metropolitan merchants would be ensured a middleman profit on trade passing through the home country; and that the colonies would be preserved as primary producers, feeding the industrial markets of Europe (Nester, 2000). In addition, the demand for colonial products was artificially stimulated by complex systems of bounties and preferential tariffs in the metropolitan markets (Fieldhouse, 1968).

The Mercantile system generated a return to the metropolis in the form of commercial monopolies (Kinsella, 2011). This “return” or profit is not possible to estimate but it almost certainly existed, at least to the extent that colonists had to pay a higher price for their imports and received a lower return for their exports than under a free trading alternative system (Fieldhouse, 1968). This Mercantile return varied inversely with the metropolis’ economic capacity; favouring economically uncompetitive countries like Spain, who would otherwise have had little share in the trade of their own colonies, more than a country like Britain, which, by the eighteenth century possessed the greater economic potential. For Britain, Fieldhouse (1968) has estimated that in 1773 the gross “profit” of commercial controls (ignoring the ancillary costs of empire) in North America lay between US\$2.5 and US\$7 million but in addition to such commercial profits, Spain and Portugal made substantial fiscal profits by transferring surplus revenue from colonies to the metropolis. The British conceded the principle of fiscal autonomy up to 1763 and thereafter attempted to tax the colonies to offset the cost of colonial defence and administration (Fieldhouse, 1968). This attempt failed, although it had considerable importance in the course of events leading to American independence. Overall, however, Mercantilist policies had a positive impact on the British economy during this era by helping turn it into the world's dominant trader, and an international superpower (Milios, 1997; Chernow 2004, 370). Mercantilists felt that to maximise a nation's power all land and resources had to be utilised, and this era saw projects like the conversion of metropolitan “waste lands” to agricultural productivity which was one domestic policy that had a lasting impact on the British economy (Wilson 1963, 15).

British Colonisation under Mercantilism

The English were relative late comers to overseas colonisation following behind the Spanish, Portuguese and Dutch who had established settlements and trading stations in the Americas, the Caribbean, Africa and Asia by the mid sixteenth century (Ferguson 2003, 9). The first settler colonies on the mainland of North America began as bases for buccaneering strikes against the Spanish treasure fleet whilst Mercantilist (exploitative) colonies were acquired in the Caribbean through war with other European powers (Earle 1992, 479; Parker 2011, 29-30). These early New World settlements, were not directly financed, sanctioned or directed by the State but were privately ordered affairs though it was not uncommon to count the sovereign or high ranking parliamentarians among the shareholders of a particular venture (Somerset, 1997; Cooper, 2011).

Robbins (2006, 23) explains that the English, prior to 1788,¹⁸ opted for privately funded colonies in order to tap the resources of newly discovered territories. This lies in contrast to the state-led strategies of the Portuguese and Spanish, or the public-private model favoured by the Dutch. Under the English model, a syndicate of private investors formed a chartered corporation, at that time a public body, to engage in international commerce. The Crown¹⁹ would grant land in overseas territories, claimed in the name of the sovereign, to persons who performed meritorious service in lieu of payment and in this way there was a feudal semblance about early attempts at colonisation: colonial lands were seen as a storehouse of wealth despite being not easily divided, traded or improved (Bowe 1974, 128; Bernstein 2004, 28). The grantee, called a proprietary governor and invested with gubernatorial administrative authority, received the land by patent and assumed all the costs of colonisation (Osgood, 1897). In return for a fixed sum from the profits of the enterprise, the Crown granted a renewable monopoly²⁰ to the corporation or proprietor for a particular geographic region (i.e. India or the New World).

Where those regions mandated under the monopoly were heavily populated and already possessed a manufacturing sector, such as India, the corporation simply sent out *factors*, or agents, to engage in trade with sovereignty over that region not automatically assumed (i.e. conversion to a colony). Where the region was sparsely populated, such as the eastern seaboard of North America, there was a need to establish a permanent workforce in that territory in order to exploit the natural resources. Whether founded by a corporation or by a proprietor, there was no shortage of volunteers for the journey since they hoped to make their fortune and escape the perceived endless poverty or religious intolerance of the metropolis (Earle 1991, 480; Thomas 1993, 149). Thus the monopoly granted by the Crown included not only exclusive rights to the importation of raw materials and the exportation of finished goods but also exclusive ownership of the resources within a defined territorial boundary by patent (Stoebuck 1968, 396). These concessions were required by the corporation to safeguard its investment in colonial infrastructure in lieu of the State rejecting direct involvement in colonial developmental.

The model chosen by the English to engage in overseas trade and colonisation infused elements of the modern corporation: joint stock ownership, limited liability

¹⁸ The New World colonies were privately founded with free-market institutions but later the Crown came to exercise more control over the legislature (Stoebuck, 1968). The Botany Bay colony in Australia was the first publically funded example of British colonisation founded wholly with penal institutions.

¹⁹ "Crown" is the usual term employed for referring to executive authority in Britain (Darwin, 2012).

²⁰ During the sixteenth and seventeenth centuries, in the absence of a broad based tax system, the sale of monopoly patents to individuals and corporations was a common method for the Crown to raise revenue (Bernstein 2004, 15).

and the separation of control from shareholders and managers (Robbins, 2006). The spreading of risk and cost of the enterprise to a much larger pool of potential investors, than was possible in a partnership, enabled economies of scale to be realised. Dividends were payable if profits were generated, and losses were limited to the amount originally invested in the venture. It also created a number of governance problems for the Crown. The corporation was a public body answerable to the shareholders only, and was endowed, under its charter, with semi-sovereign privileges to rule territories and raise armies if required (Robbins 2006, 5). As such the governance of colonial territories was decentralised and left to non-indigenous populations whose intentions and actions may not have been aligned to the strategic wishes of the metropolis. Shareholders had limited means to control the actions of the company directors, and directors had even less scope to curb the activities of its overseas representatives. In the case of the English East India Company, its representatives were able to trade on their own account, leaving them free to cherry pick the most profitable opportunities for themselves while relegating the marginal, loss making deals for the company's shareholders (Robbins 2006, 33). Consistent with agency problems today between different economic groups, pre-nineteenth colonisation had the potential to, and many times did, result in exploitative outcomes – of the social, demographic and economic varieties, and frequently involved the metropolis in unforeseen wars with other European powers²¹.

Toward the end of the seventeenth century, the English government began exercising more direct control over its colonial possessions partly as a result of these military conflicts and partly as a result of mismanagement by the corporation or proprietor (Bowle 1974, 130). For example, in 1684, the Massachusetts Bay charter was annulled with Maryland's facing a similar threat eight years later, both becoming Crown colonies. Under this system of governance, a Crown colony was under the direct legislative control of the metropolitan government, which retained the right to veto local ordinances and to directly legislate for the colony by orders in council. Such a colony may, or may not have, possessed its own system of representative government. Crown colonies were administered by a governor appointed from London or by elected or nominated legislative and executive councils with an official majority. This was the first step towards centralised control and as a result colonial development became wedded to wider imperial policy.

²¹ The Seven Years War (1756-1763) and the American War of Independence (1775-1783) are clear examples in which Britain was victorious in the first adding a significant amount of colonial territory, including Canada, only to be humbled in the second with the loss of the Thirteen Colonies.

Adam Smith's Criticism

Critics of Mercantilism became vocal by the mid-eighteenth century, led by the French Enlightenment *philosophes* born of disapproval of the industrial production for colonial consumption and a general detestation of monopolies (Fieldhouse, 1968). Adam Smith ([1776] 1976), in particular, hated corporations and colonies in equal measure because both – in their eighteenth century form – had singularly failed to exploit the full economic potential of the Enlightenment discoveries in the Americas and Asia (Robbins, 2006).

On corporations, he correctly identified the link between monopoly and subsequent corruption. For Smith, “commercial success comes not just from meeting consumer demand, but also from building up market power to generate excess profits” (Robbins 2006, 100). The result of anti-competitive behaviour was to raise profits of monopolistic firms to an artificially high level amounting to a tax on society by lowering the prices paid to producers and raising prices to consumers (Smith ([1776] 1976). More dangerous was the establishment of monopoly corporations (or proprietors) to exploit colonial possessions. By referring to the Asian trade, Smith showed that during two brief periods of open competition between 1595 and 1601, and in 1694 and 1702, producers received higher prices, consumers paid lower prices, and general economic welfare was enhanced. Monopoly didn't just create economic injustice, it was also inimical to good management because there was no pressure for ethical conduct and the monopolist could engage in abusive practices that would otherwise be eradicated under competition (Robbins 2006, 101-2). Smith ([1776] 1976, 692) believed that government by merchants was “incurably faulty”, as it stunted the natural development of colonial settlements and thus exclusive corporate rule would inevitably result in failure.

On colonies, Smith viewed them, under the system of monopolies, as an inherently wasteful investment for the metropolis (i.e. any European power) and usually oppressive for the colonists (Robbins 2006, 113). The stubborn necessity to hold on to colonies (rather than voluntarily giving them up when they became unprofitable) embroiled the metropolis in frequently ruinous wars and was a drain on national wealth. The monopoly status on trade between colonies and with the metropolis suppressed economic development in the former and did not bring the expected trade benefits for the latter (Robbins, 2006). However, many economists have tended to overlook Smith's distinction between colonial trade and monopoly, and impartially condemned both (Mills 1915, 19). In actual fact he saw a continued use for colonies so long as they weren't patterned along monopolistic lines. It was

this difference that piqued Wakefield's subsequent interest in colonial theory when he commenced editing Smith's *Wealth of Nations* (Ince, 2012).

Smith's Alternative Doctrine, "Free Trade"

Smith ([1776] 1776) provided an alternative economic doctrine that could govern colonial production and trade by applying the principles of labour specialisation. The value to the metropolis of colonies was that they provided new articles for international trade and extended the market for metropolitan manufactures. Widened markets increased productivity and stimulated greater division of labour through the use of technology (Winch 1963, 393). In fact by 1885, after almost fifty years of free trade (and colonial development), corn-growing land as a share of total grain consumption in Britain declined by a million acres and imported grain rose from two per cent during the 1830s to 24 per cent by the 1860s. Two decades later this percentage had increased further to 45 per cent, and for corn specifically it was 65 per cent (Esnor 1936, 116). The price of imported grain had fallen well below the artificial benchmark under the Corn Laws. Esnor (1936, 117) demonstrates that the 1881 British census showed a decline of 92,250 in agricultural labourers from 1871 with an increase of 53,496 urban labourers. Many of these had previously been farm workers who migrated to the cities to find employment despite agricultural labourers' wages being higher than those of Europe (Esnor 1936, 117).

The benefits of free trade weren't dependent upon any colonial system *per se* and tended not to accrue to either party when the metropolis attempted to monopolise its colonial trade. Hence, Smith ([1776] 1976), accepting that Britain (and other European powers) had colonies which it would not voluntarily give up, believed, a better colonial system could be re-modelled upon his principles of open and competitive trade. Britain would open up colonial merchandise to all nations thereby removing socially damaging monopolies. This would encourage the principle of labour specialisation within the colonial workforce, share common costs proportionately between colonies and metropolis, and eliminate the thankless task of imperial organisation (i.e. defence and administration).

Smith ([1776] 1976) doubted whether his proposals would gain widespread acceptance at the political level. For half a century his arguments reached a small minority and no colony was liberated voluntarily for there were always enough traditionalists to argue that the economic benefits of Mercantile colonialism were real (Robbins, 2006). "Free-trade" economic theory, as originally expounded by Ricardo

and the Benthamites²², continued to run against colonial monopoly and therefore against colonies, because the two were still assumed to be inseparable in terms of their cost to the mother country (Fieldhouse, 1968). By the 1820s, the British, as they moved toward international free trade, were losing interest in their colonies (Fieldhouse, 1968), which were increasingly criticised as areas of government expenditure devoid of economic value. India and trading bases in the Asia were exceptions to this attitude because they were economically self-supporting and were an increasingly valuable market for British manufactures (c.f. Robbins, 2006).

Colonisation Evolved

After 1815, and particularly during the 1820s - a time referred to as the "Bleak Age" there was much discussion between classical economists in Britain about the causes and effects of the current economic climate; characterised by a post-war slump in demand for British exports with the traditional markets not expanding fast enough to absorb surplus manufactures; high unemployment due to the discharge of military personnel from the late Napoleonic War; a rising population caused by a falling death rate (rather than a rising birth rate); high food prices due to the Corn Laws²³ that excluded cheaper imported substitutes; periodic bouts of food scarcity; and a glut of capital (Pappe 1951, 92; O'Brien 1989, 373-9). At the same time, the Industrial Revolution was transforming British economic and social institutions causing widespread political agitation and disenchantment with the state (Kittrell 1965, 202; Butlin 1994, 110). Initially, the "Ricardians" - the classical economists extolling the benefits of international trade and exchange, loosely comprising James Mill, Robert Torrens and John Ramsey McCulloch among others, argued for a domestic solution to combat the prevailing economic ills. However, some commentators espousing Ricardian orthodoxy favoured some form of state-subsidised emigration from Britain to the colonies, as did Ricardo himself, in order to relieve, what was seen, as chronic unemployment and prolonged post-war economic depression (Kittrell 1973, 101). The following paragraphs discuss the arguments between the Ricardians and Wakefield, and how emigration, though more accurately colonisation patterned along Wakefieldian lines, prevailed.

The Role of Colonisation in Classical Economics

One of the influential economic dogmas that gained currency immediately following the Napoleonic War was the *Malthusian Trap* which suggested that technological advances and scientific discoveries led to population increases rather

²² The followers of Jeremy Bentham (1748-1832), who subscribed to the classic notion of utilitarianism, or the Greatest Happiness principle, included economists James Mill and JS Mill, the legal philosopher John Austin and socialist Robert Owen among others.

²³ An example of Mercantilist trade laws designed to protect cereal producers in the United Kingdom of Great Britain and Ireland against competition from less expensive foreign imports between 1815 and 1846.

than improved standards of living (Clark, 2007). Malthus (1798) worried that the rising population would soon outpace the ability of the land to yield enough food. He believed that the human population increased geometrically whereas the food production, subject to the law of diminishing returns, increased arithmetically thereby causing a gap between supply and demand (Bernstein 2004, 11).

In spite of the technological advances being ushered in by the *enfant* Industrial Revolution there was a dearth of profitable investment opportunities leading to widespread losses as capital was either left idle or squandered in speculative activities in Latin America (Winch 1963, 388-9). Furthermore, institutional rigidity during the 1820s were, in the words of Scrope (1833, 379), cramping “the exertion of its inhabitants, and interfering with the natural, that is the *free*, direction of their industry, and the natural and equitable distribution of its produce”.

Ricardian orthodoxy attempted to reconcile these issues within a domestic framework that excluded colonisation as a possible solution. Leading economists, such as Robert Torrens²⁴ [1780-1864], perceived that profits and wages were falling because capital had outgrown the field of investment and land yields were also falling (Whimpress 2008, 109). The removal of institutional blockages, such as the Corn Laws and Navigation Acts²⁵, were identified as the best means of boosting the return on capital and alleviating the food shortage (Mokyr 2009, 67). Supporters of this viewpoint created the impression that, as far as Britain was concerned, further capital accumulation was desirable, and any loss, waste or export of capital, was to be deplored (Winch 1963, 389-90). Adherence to *Say’s Law* ensured, and also resulted in belief, that the process of accumulation would be self-regulatory. In Ricardo’s ([1817], 1999 Vol. 1: 289-90) words, “at the same time that capital is increased, the work to be effected by capital, is increased in the same proportion”. Even in the stationary state, stagnation was impossible, as a mechanism existed to switch savings into consumption once profits reached a minimum (Winch 1963, 390).

However, the real point of difference between Wakefield and Ricardian orthodoxy was that the latter believed that the demand for capital was not necessarily matched to its supply, and that capital accumulation could take place in

²⁴ Torrens is often associated with the history of colonisation in Australia, especially SA. He defined many of the operational aspects of Wakefield’s scheme. However Wakefield was responsible for the scheme’s design and orientation. Chapters 5 and 6 also discuss Torren’s role in SA’s development.

²⁵ This serves as a classic example of Mercantilist trade law restricting the use of foreign shipping for trade between England (after 1707 Great Britain) and its colonies, a process which had started in 1651 and was finally repealed in 1849.

the absence of profitable investment opportunities, making possible the simultaneous existence of redundant capital *and* labour.

Ricardian analysis did not admit that colonisation was a mechanism that would yield higher returns to labour and capital that could usefully be employed in the metropolis (Winch 1963, 387). Indeed, Mill went on to state that colonisation would drain the metropolis of both labour and capital and that an insufficiency of both would be unfavourable to the domestic economy (Semmel 2004, 95).

Rejecting these precepts, Wakefield argued that an industrialised state could generate surplus capital which was unprofitable to invest at home either in agriculture - because of the declining profitability of marginal lands - or in industry because foreign markets did not expand fast enough to absorb its products (Fieldhouse, 1968). Wakefield, in a series of publications starting with his *Letter from Sydney* (1829), and culminating in his *Art of Colonisation* (1849), argued that colonies were valuable to the metropolis, even under free trade conditions, provided they were correctly organised (Fieldhouse, 1968). Wakefield criticised the position of Ricardo, McMulloch and James Mill for failing to consider colonisation (rather than state-assisted emigration) as a method for combining British labour and capital to provide cheaper, more secure food supplies and other materials²⁶; and for placing too much emphasis on the removal of trade barriers (i.e. the Corn Laws) as the best means of providing cheaper food to a growing population (Winch 1963, 387; Winch 1963, 396). Indeed, Wakefield cited the absence of institutional reforms, which were not to begin until after 1830, as justification for promoting the benefits of 'systematic colonisation' as a means of employing surplus labour and capital, and in developing raw materials needed for Britain's economic welfare (Kittrell 1965, 202).

In Wakefield's ([1833] 1967, 225) words, "a progressive enlargement, partly domestic and partly colonial, of the field for employing capital and labour" was beneficial to Britain since, following Smith²⁷, widened markets increase productivity by permitting and stimulating greater division of labour and the use of improved techniques (Winch 1963, 393). Instituting large-scale settler colonies would "unleash the forces of growth": by widening the opportunities for capital investment where the rates of return would be higher than currently available in the metropolis (Winch 1963, 391). Adopting Smith's ([1776] 1976, 574) idea of "new equivalents" in which an increasing amount of new colonial produce is exchanged for an increasing amount of metropolitan industrial output leading to economic expansion, Wakefield insisted

²⁶ Access to natural resources outside British borders is sometimes known as "ghost", or virtual, acreage (Mokyr 2009, 146)

²⁷ Wakefield had edited Smith's *Wealth of Nations* in 1839 (Roe 1974, 84).

that surplus metropolitan capital would be profitably employed in places where fertile land was plentiful and labour became abundant through emigration (Fieldhouse, 1968). Whilst the colonial investment opportunities would eventually exhaust themselves, at least initially the colonies would serve as a “vent for surplus” - Smith’s phraseology - an extension of markets for domestically manufactured goods which would relieve the pressure on metropolitan capital (Winch 1963, 392-3).

In addition to extending markets, Wakefield wanted to reduce domestic unemployment in the metropolis and this would be achieved by highlighting the wage differential in the colonies (due to labour shortages) which, he hoped, would create a demand for emigration from amongst a cross-section of metropolitan society (Pappe 1951, 92). Schemes for reducing the unemployment by subsidising emigration of the labouring poor to *existing* colonies had been previously floated with the most widely known (and condemned) by the politician John Wilmot-Horton [1784 – 1841] and supported by Torrens (Ghosh 1964, 385). Such theories precluded the establishment of large-scale settler colonies envisioned by Wakefield and were ultimately rejected by the metropolitan government on grounds of cost (Whimpress 2008, 30). John Stuart Mill, the noted economist and a supporter of colonisation rather than emigration, believed that the lowering of transportation costs and the diffusion of knowledge about colonial employment opportunities (both institutional in origin) would result in a spontaneous demand for emigration and lead to a material rise in metropolitan wages (Kittrell 1965, 204). Indeed, some modern studies of mass European migrations in the nineteenth century have proven this to be true²⁸. From the government’s perspective, emigration would be desirable if its cost was less the costs of supporting the metropolitan unemployed (Kittrell 1965, 195). Indeed Malthus (1798) thought the State should encourage emigration among the active but indigent labouring classes by denying them access to social security (via the Poor Laws²⁹).

The resumption of colonisation was thought to be a Mercantilist anachronism completely incompatible with the enthusiasm shown for free-trade and the prevailing negativity directed towards monopolies. The Wakefieldians recognised the dominance of the free trade argument and used a series of institutional factors to support the resumption of colonisation (Kittrell 1965, 200). New colonies, they said, would be forced to trade freely with the world and there would be no favouritism shown to colonial goods by the metropolis (and vice versa) by the use of tariffs or duties

²⁸ See Sewell (2009, 191) for a detailed explanation.

²⁹ The English Poor Laws were a system of poor relief which existed in England and Wales that developed out of the Tudor-era and continued until 1834 when they were replaced by a radically different New Poor Law which survived, more or less, until 1945.

(Fieldhouse, 1968). In addition there would be no resumption of the old Mercantile system of monopolizing trade and transport for the sole benefit of the metropolis. Indeed, in accordance with the *laissez faire* principles of the day, the new settler colonies would be encouraged to develop diversified economies that would compete with the metropolis (Bowle 1974, 191). Furthermore, this system of open trading would benefit the metropolis and colony as well as producer and consumer no matter their relative location to one another because of lower marginal and opportunity costs, commonly associated with the Ricardian doctrine of comparative advantage (Baumol and Binder 2009, 50). Finally, free trade, it was argued, would relieve the metropolis of the burden of Imperial defence and administration (Kittrell 1965, 206) that had crippled the old colonial system toward the end of the eighteenth century. The spreading of race and culture, sharing a common interest and tastes for metropolitan manufactures, would assure markets, with trade and peace negating the need for political ties (Kittrell 1965, 206).

Wakefield's Colonial Alternative

How Wakefield developed his theory is a matter of some conjecture. Mills (1915, 80) believes that he began pondering the disposal of colonial land while studying the 1828 *Report from the Select Committee on the Civil Government of Canada* but he may also have been aware of the plan (but not the subsequent results) to colonise the Swan River (WA) in 1829³⁰. Regardless, Wakefield's ([1829] 1929, 100-106) *Letter from Sydney* was published in October 1829 and his plan for an improved system of settler colonisation – 'systematic colonisation' – consisted of three key principles (laid out in nine articles): new land to be sold at a "sufficient" price per acre and existing land grants to be taxed as a percentage of rent; proceeds to be used to defray the expenses of migrating labour to the colonies; and matching the supply of labour to demand as close as possible.

The first key principle required colonial land to be sold at a sufficient price per acre and existing land grants to be taxed as a percentage of rent, both figures to be determined by local circumstances (Wakefield [1829] 1929, 100). When analysing the problems of NSW, Wakefield believed that the current practice of granting land for little or nothing precluded an efficient combinable supply of capital and labour, and retarded the labour specialisation (Kittrell 1965, 194).

Wakefield correctly identified the link between land grant largesse, rent seeking behaviour and economic stagnation. In NSW and VDL, grants of land far

³⁰ The *Colonial Gazette* (July 29, 1840) quotes Wakefield stating that he examined the regulations for the Swan River colony published by the CO in January 1829. Chapter 5 provides more detail on when Wakefield became aware of the provisions under which WA was founded.

exceeded the available capital and labour, resulting in large swathes of unproductive land, and an excessive reliance on agriculture, resulting in low wages and profits. In addition, this system of land tenure allowed labourers too quickly to become landowners (Mills 1915, 96), diminishing the labour pool further. Here, Wakefield diverged from Smith who, thinking of America when he wrote the words applauded the cheapness and abundance of colonial lands as the chief causes of prosperity. The fact that land in America had little intrinsic worth was considered by Wakefield as being the root cause of past colonial failure pointing to conditions in NSW and would continue to discourage metropolitan investment and emigration, thereby consigning any new settler colonies to stagnation (Kittrell 1973, 87 & 90). Torrens was also critical of large land grants. He perceived that land had no value unless capital and labour were invested in its development, and that the metropolitan government was forgoing a significant opportunity by granting land *pro gratis* (Whimpress 2008, 110).

Whilst Wakefield did not expressly state what the “sufficient” price for land should be, he wanted it high enough to prevent the colonists becoming land owners “too soon” and force concentration of settlement throughout the colony. This would encourage an efficient combinable supply of labour and capital (Kittrell 1965, 194). It was perceived that, by making land ownership a four year goal for the labourer, effective division of labour would occur (Kittrell 1973, 89). Wakefield ([1829] 1929) believed, as did Smith ([1776] 1976, 532-33) before him, that tightening labour specialisation would enhance productivity; colonial profits and wages would increase; capital and labour would pour in; and economic growth would be assured. Conversely, if the price for colonial land in Australia was too high, emigration would be diverted to the US where land was cheaper, and transport was both affordable and quicker (Kittrell 1973, 91).

As criticism grew, Wakefield elaborated further on his doctrine of sufficient price positing that the best approach was for the metropolitan government to fix a relatively low price, and as experience dictated, gradually raise the price until the level of wages and profits indicated that the price was sufficient (Kittrell 1973, 91). He also felt that the length of service a worker would give in the colony was dependent upon the wage rate, cost of living, soil fertility³¹, and climate type present in a particular colony. These data could be used to establish the sufficient price (Kittrell 1973, 91). Other classical economists proposed alternative methods of

³¹ One of the defining features of Australian colonisation was its haphazard manner. Those surveys undertaken prior to colonisation were cursory at best (see Appendix B). Had a detailed environmental survey taken place, then the colonial beginnings in WA and SA may have been markedly different. In fact Burns (1989) explains how the micro-NZ colony of Otago was surveyed prior to systematic colonisation and economic development had a smoother trajectory.

determining the sufficient price. Torrens, for example, advocated that the cost of conveyance to the Australian colonies be used to determine the price of land, and that public lands would appreciate to such an extent, that the proceeds from sales would also augment the cost of colonial infrastructure (Kittrell 1973, 100-101).

Wakefield ([1829] 1929, 103) also recommended that land sales be made absolute in title upon full payment of the cash price, be unconditional and obtainable by proxy, with the management of land or other property delegated to a colonial agent. These elements of the plan effectively granted secure title to the purchaser, meaning that the land was alienable in the same way as it was in the metropolis. In the past, the granting of colonial land came with the obligation for the title holder to emigrate personally and bring the land into (total) production within a set timeframe otherwise ownership rights would revert back to the Crown (Mills 1915, 55-6). With the enormous grants prevalent in the older Australian colonies, grantees with limited financial means had no hope of cultivating the land within the time allotted, and so there was little incentive to maximise its potential. Land grants also encourage speculation which, taken together, represented a net loss in productivity for the colonial economy (Mills 1915; Fitzpatrick 1949).

Wakefield's ([1829] 1929, 100-101) plan advocated pooling the proceeds from land sales and rent taxes in an Emigration Fund to convey British labourers to the colony at little or no cost to themselves. This was the only obvious and effective answer to the problem of how to build a free bridge on which poor emigrants could cross from one side of the world, where they were unwanted, to the other side where they could be employed (Blainey 1977, 155). In addition, capitalists who provided a passage for emigrant labourers, independent of the actions of the Emigration Fund, would be entitled to a cash payment based on some proportion of the prevailing transportation cost offered by the Fund (Wakefield [1829] 1929, 103). These measures were designed to encourage capitalists with colonial businesses to supply their own labour in accordance with their precise skill requirement. The supply of labour was to be matched as closely as possible to the demand as determined by the amount of land sold in the colonies. Colonial wages would be kept high by voluntarily rationing the amount of labour available (Pappe 1951, 92). Preference of passage would be given to young childless adults between the ages of eighteen and twenty four from a cross-section of the social strata, with gender being balanced as closely as possible (Kittrell 1965, 194). He thought that this policy would provide the most efficient labour pool, the fastest means of population growth and be socially cohesive under colonial conditions (Kittrell 1973, 100). If, after meeting all the expenses of emigration, there were surplus proceeds remaining in the fund then these, Wakefield

([1829] 1929, 104-5) urged, should be used to defray the expenses of colonial government and infrastructure investment.

Kittrell (1965, 195) explains that these elements of the system appeared to be self-perpetuating. Given a sufficient price that took account of the savings habit and the wage rates of the labourer, the augmented productivity on the land led to higher profits and encouraged landowners to extend agriculture activities. In addition, there was added investment in agriculture by labourers who were now able to purchase land after completing their terms of service (usually three to four years). These new land sales would produce revenue for new immigration, and the process would commence anew, conditioned by the success of establishing a revised sufficient price which also created the conditions to attract foreign capital and labour. Whilst this was the very novelty of Wakefield's plan and was to dominate all discussion, it was hardly a new or an original idea as he had simply reverted back into history and lifted lessons from the colonising of America³². As Bowle (1974, 129) describes, the colonisation of Georgia in 1733 was achieved by raising subscriptions to settle the "deserving poor" on fifty acre holdings to produce primary products for the metropolitan markets. Wakefield's contribution was to enhance this idea by selling land to capitalists rather than relying on philanthropic charity and implementing emigration from the proceeds on a much larger scale. The introduction of land sales in the Antipodes brought with it a system of private property rights which included the concomitant protections of the common law previously absent under the grant system.

In addition to these key principles, Wakefield's also held quixotic hope that his system would achieve certain cultural goals. In attempting to address Smith's criticism that colonies ensnared European powers in frequent, ruinous wars and were of dubious loyalty, he visualised a leisured class of cultured middle class gentlemen who would transplant the ethos of British aristocracy to colonies patterned on his system (Cameron 2008, 1). This "squirearchy" would develop large properties replete with elegant homesteads and game preservations managed by tenant yeomen. Their children, the "currency lads and lasses", would be educated in the best English colleges and universities where they would acquire the speech and mannerisms of the aristocracy before returning to colonies and perpetuating the legacy (Cameron 2008, 3). In this way, the wealthy middle class of Britain could mimic the aristocracy in the colonies without acknowledging the existence of an upper class. Wakefield felt

³² Even the name of Wakefield's plan was not new. It originated in 1584 when Richard Hakluyt published his *Discourse of Western Planting* which called for, among other things, the systematic colonisation of America as a cure for unemployment, overpopulation and commercial depression in the metropolis (Darwin, 2012).

that the sense of belonging to a wider Imperial family sharing a heritage of language, history, and culture would bind the colonists to the metropolis in a reciprocal relationship of which no other major foreign power could match (Janasoff 2011, 80).

In support of the economic and social aspects of his program, there was also a political side in that he desired colonial self-government as soon as practically possible after formation. The colony would pay for the cost of government either through the traditional means of indirect taxation (e.g. customs, excise, tariffs, licences etc.) or, preferably, through a single tax on the unimproved value of land regardless of its use (Cameron 2008, 4). In his thinking about governance, Wakefield drew inspiration from the teachings of the French Physiocratic School, and particularly François Quesnay [1694-1774], who believed that land was created for the benefit of all and should never become the private property of individuals but advocated exclusive possession of land instead. In order for the public good to be served, society was owed a rent from the possessor of land equal to the amount someone else was willing to pay for the use of the same land (Cameron 2008, 4). The amount of the rent was determined by the fertility of the land and its proximity to market, as well as the degree of public infrastructure that was close to the land but independent of private improvements. Increased rents could not be passed on to consumers because they would always have the choice of purchasing the same goods located some distance away where the public rent paid was lower. This differential in price for the same goods but located at different points from market would not confer a benefit to the consumer because of the increase in transportation cost thus creating a uniform price regime across the colony. The Single Tax, if implemented, may have had some influence in checking the Free Rider problem common to the land grant system that was characteristic to all the Australian colonies. In this way, the property rights model advocated by the Physiocrats was closer to Usufructs as discussed in [Chapter 3](#) rather than rights based on private ownership championed by North and others. With respect to Wakefield's theory, he favoured secure property rights rather than possession rights advocated by Quesnay but the principle of taxing unimproved land would discourage speculation by incentivising owners into bringing their land into full production that would boost trade, British direct investment and therefore public revenue.

Whilst Wakefield's Single Tax proposal gained no currency in the colonies or the metropolis, it had an impact upon the American economist and philosopher Henry George [1839-1897]. In 1855, George visited Australia and "saw a vibrant nation, with productive cities and prosperous peoples" (DeNigris and Gild 2007, 3). Back in the US, George became interested in the causes of poverty and became convinced

that land should be held for the common good rather for private ownership (George [1879] 2008). In 1879, he proposed his version of the Single Tax in which a levy on land would replace taxes on wages and interest thereby leading to the common land ownership, rising wages and profits and, by wealth redistribution, the abolition of poverty (Backhaus 1997, 453-458). In 1890 he delivered a speech in Adelaide on the advantages of taxing unimproved land and parts of this philosophy was adopted by the Australian Labor Party in its first Federal manifesto (Cameron 2008, 4). Ultimately his proposal failed to gain widespread political support in the US due to the entrenched interests of the mercantile elite that viewed private land ownership as their key to wealth (DeNigris and Gild 2007, 11).

The Single Tax funding model of government, together with the self-regulating and self-supporting characteristics of 'systematic colonisation', particularly the demand for emigration, balanced proportion of gender and the resulting natural rate of population growth, would deliver the cheapest mode of government for both the colony and the metropolis (Kittrell 1965, 194). Wakefield also believed that the colonies would be better governed if power were placed in the hands of the most self-interested parties in the colony (Kittrell 1965, 194) who would rule according to the laws and principles of nature³³ (rather than through the old world institutions) - another Quesnay precept.

In the *Art of Colonisation*, Wakefield ([1849], 1929, 110-130) described in detail the advantages that would accrue to the metropolis and the colony if his system was adopted. Capitalists, he said, would have new investment opportunities in the settler colonies; for developing competitive colonial markets, metropolitan manufacturers would have additional outlets thereby improving profitability at home. The demand for manufactures would be driven by emigration to the colonies, attracted by the high wages and relative labour scarcity that would retain their metropolitan tastes for consumer goods. Emigration would reduce unemployment and the need by the state to provide social security (via the Poor Laws). As domestic production rose to meet colonial demand, metropolitan profits and wages would rise in conjunction as labour became scarcer leading to higher standards of living (Sowell 2009, 191). Indeed in Britain during the nineteenth century up to 1850, at a time when Canada was being reorganised and new settler colonies were being established in Australia and New Zealand, Mokyr's (2009, Table 18.1a and 18.1b, 374-375) data indicates some growth in real wages (though the measurement of UK wages is an

³³ In many respects, Quesnay's teachings underpinned the philosophical debates leading up to, and justifying, the American Revolution as well as the formation of the US Constitution (Clark, 2011).

ongoing source of uncertainty) consistent with Sowell's assertion³⁴. The increases in exports would not reduce domestic production and colonial exchange would bring about a favourable balance of trade. The colonies would provide these advantages better than independent states because colonies would be forced to trade freely without metropolitan preference, and the new settlements would remain primary producers for the indefinite future (Fieldhouse, 1968). Perhaps one of the strongest selling points in Wakefield's program was the politically palatable concept, as approved by Jeremy Bentham [1748-1832], that the cost of emigration was transferred to the colony (Kittrell 1973, 100).

The colonies also gained by Wakefield's ([1829] 1929, 125-130) proposals. By assigning land a minimum value, the colonists had the means to attract sufficient migrants to alleviate the labour shortage. Without this mechanism, migration to Australia was not an attractive proposition – compared to the US and Canada – given the cost, distance and risk involved (Blainey 1977, 156). The high rates of wages on offer in the colonies acted as a strong incentive to the unemployed in Britain to risk such a journey to the Antipodes. Subsidised emigration would increase the total employment pool, stabilise wages at sustainable levels and support a high standard of living. By rationing labour in the colonies, the fatal dispersion of population would be prevented and greater division of labour (away from primary production) would occur as improved techniques were adopted from the metropolis or developed locally (Winch 1963, 393). The subsequent increase in the colonial population resulting naturally and from immigration would create a demand for surplus metropolitan manufactures thereby raising colonial living standards. Immigration and tastes for domestic produce would spur the transference of much metropolitan technical expertise that would stimulate the development of colonial industrialisation, and ultimately lead to self-government. This then was the framework within which the Province of South Australia was conceived.

The Swan River Paradox

It was in this indeterminate economic environment of the 1820s, more than half a century after Smith's rejection of Mercantilism and before Wakefield's alternative theory of colonisation gained a wider audience, that the Swan River Colony was conceived toward the end of that decade. This was to be the first non-convict settlement established since Smith's critique half a century earlier³⁵ on the

³⁴ With the data in Tables 18.1a real wages only exceeded the previous war time peak (1803-07) in the mid-1830s before falling again. By mid-century that growth reached a new peak climbing by 20 per cent since 1803-07.

³⁵ New South Wales and Van Diemen's Land were initially started as penal settlements and their status under the common law with regards to "settler" colonies was ambiguous and not resolved until 1824 (Castles, 1963).

Australian west coast. At this time, settler colonies had fallen out of favour – Turgot described them as “fruits that cling to the tree only until they ripen³⁶” – and there were no widespread theories that directly challenged Smith’s accepted wisdom (Fieldhouse, 1968). Mercantilism was discredited but not totally abandoned and *laissez faire* free trade was politically unpalatable until the 1840s. As a result the Swan River Colony was patterned on the old model of “spontaneous and unregulated colonisation” in Marx’s phrase ([1867] 1999); that is, granting land – *pro gratis* – to a monopoly syndicate who would then undertake colonial investment by supplying the capital and labour, within a minimal governance framework, which was supposed to minimise the cost to the metropolitan taxpayer – in theory. It was only after the colony had been founded, and almost foundered, that certain aspects of Wakefield’s program were grafted onto the existing institutional structure in 1832. However, the original structure of the colony was Mercantilist in origin and was the very antithesis of Smith’s *laissez faire* vision for the colonial relationship (and of Wakefield’s too).

Wakefield’s Plan in Practice

Large scale systematic colonisation was also attempted in New Zealand (NZ) and the Northern Territory (NT) and it is worthwhile considering these experiences in the evaluation of Wakefield’s approach as a whole. After Wakefield’s involvement in SA, he chaired a meeting of the New Zealand Association in 1836 that discussed colonisation of the land according to his theory (King 2012, 171). Unlike Australia, where the principle of *terra nullius* vested the land in the Crown and didn’t recognise Aboriginal land ownership concepts (discussed in Chapter 5), Maori ownership of land was acknowledged by the British, and so the Association’s plan of colonisation rested upon being able to buy a sufficient quantity cheaply and selling it to the colonists and speculators at the higher rate (Bloomfield 1961, 231; Burns 1989, 88-9). Spending would provide a steady stream of labourers with the sale proceeds used for their conveyance. After various political manoeuvres, designed to overcome opposition from the CO and missionary societies, the New Zealand Company³⁷ was enacted to begin the process of colonisation in 1838. Before this activity could begin, the British government had second thoughts about colonisation by private company and used French activity in New Zealand as a trigger to annex the islands in 1839. By vesting indigenous sovereignty in the British Crown, this act made the metropolis the only counterparty to Maori land transactions (King 2012, 157).

³⁶ Quoted in Bowle (1974, 289-90), Anne-Robert-Jacques Turgot [1727-1781], Baron de Laune, was a French philosopher-politician, best known for his 18th century ideas on republican government and is often compared to Adam Smith.

³⁷ In August 1838, the Association was wound up and replaced with two companies, the New Zealand Colonisation Company and the New Zealand Land Company, which in turn merged and became the New Zealand Company, the same title as an earlier venture of the 1820s.

Forewarned of this eventuality, in 1839 the Company dispatched agents in advance to begin negotiation with the Maori to purchase enough land to meet investor expectation (Bloomfield 1961, 231). However, the Treaty of Waitangi of 1840, concluded between representatives of the British government and the Maori, effectively nullified all previous land transactions (King 2012, 156). By way of compensation for its change of heart, the metropolis sold land to the Company at a discounted price and used the proceeds to convey labour to the colony (Bloomfield 1961, 229). Despite surrendering this responsibility in 1846, which was a key tenet of Wakefield's scheme, the Company later said that this agreement was "all that we could desire...our Company is really to be the agent of the state for colonising NZ" (Burns 1989, 292).

Nevertheless, the Company established many of the principal settlements in New Zealand including Wellington, Nelson, Wanganui, Dunedin, New Plymouth and Christchurch during the 1840s (King, 2012). However the Company's "colonisation" of New Zealand failed to deliver on expectations for at least two reasons: firstly, it was unable to achieve the correct proportion of labourers to land holders, and the colony was awash with unemployed workers whose passages were paid by the Company rather than the land holders (Burns, 1989). Secondly, the majority of land in the colony was bought by British speculators with no intention to develop their NZ holdings (Burns, 1989). This forced the Company to become the employer of last resort thereby further draining its capital. Indeed, upon winding up the Company in 1858, the directors issued a statement conceding it had erred in applying systematic colonisation (Burns 1989, 299). Wakefield himself criticised the Company for entering into the 1846 agreement with the British Government, and had the Company been left to its own devices, he felt the original aims of the scheme would have been met (Bloomfield 1961, 289; Burns 1989, 299). Again, government interference had denied him the opportunity to test his plan as he envisioned it but this perhaps betrayed a lack of understanding of the role that the metropolis played in the institutional framework of colonisation (see [Chapter 8](#)). Wakefield died in 1862 bitter to the end over the accumulated failures of the practical application of his scheme (Bloomfield 1961, 340).

The Northern Territory (NT) was formerly ceded to SA in 1862, and it has often been noted that the NT's subsequent planning and development as a systematic colony was undertaken by a systematic colony (Cross 2011, 22). The aim of the NT scheme was to capture a portion of the Asian trade similar to what Singapore had done from 1821 onward. This was to be achieved by attracting capitalists in the same way as they had been in SA; that is, through advance land

sales in a concentrated settlement. However, this time the sale proceeds would be used to pay for all of the initial set up costs of the new colony rather than the conveyance of labourers from Europe (Cross 2011, 22). This modification represented another significant departure from Wakefield's original scheme of systematic colonisation. It was built on the premise of being less expensive to the colonial (rather than metropolitan) taxpayer but it would nevertheless have implications for populating the territory with settlers. Indeed, the reasoning behind the modification was based on painful experience: SA's modified version of systematic colonisation and the subsequent public cost of establishing the colony had in fact almost ruined it during the early 1840s (explained in Chapters 5 and 6). Yet as the NT proposals would subsequently show, South Australians had failed to fully to comprehend the intricacies of Wakefield's systematic colonisation.

This scheme broke down on a number of fronts (Cross, 2011): the environment of the NT was even less suitable than SA for concentrated settlement being more favourable to large pastoral concerns and *private enterprise*; speculators purchased large tracts of land, sometimes sight unseen due to the lack of a formal survey, with no intention of developing their holdings, creating an employment vacuum just as it had in NZ; distance plagued rapid development given that the sea route did not give way to the shorter land route until 1872; and there was now no appetite in London for colonisation by private enterprise. Despite all, SA persevered in developing the NT until 1911 when it was handed over to the Commonwealth (Cross 2011, 371).

When considering these examples, and of course SA in the next three chapters, it should be borne in mind that Wakefield's ideas formed the basis of a package of colonial reforms that he himself was not in control of enacting. Wakefield was not a member of parliament and whilst many of his associates were, they were generally radical in political outlook and as a group considered with some distrust by the ruling oligarchies of Whigs and Tories. As a result, and despite intense lobbying, his influence over the adoption of his package of reforms was limited at best.

The common assumption is that Wakefield's theory and the detailed prescriptions he laid down for new settlements were never fully tested (Fieldhouse, 1999). For one thing, even though the metropolis was as anxious as Wakefield to halt the population dispersion that plagued NSW, the idea of attaching a high price to land was only selectively employed (Blainey 1977, 155). The principle of selling Australian land was adopted in 1832 through the Ripon Land Regulations, at a rate of twelve shillings per acre irrespective of location or quality (Burroughs, 1967). It was

not applied to all land usage however as Wakefield's insistence of selling pastoral land, instead of leasing it or squatting on it, would have checked the expanding wool industry, which was not only valuable but was supported by a strong lobby group in both Australia and Britain (Blainey 1977, 156). This position was supported by Torrens who, in a departure from Wakefieldian thinking, championed the leasing of un-appropriated land to pastoralists. As will be seen in Chapter 6, this approach was adopted shortly after SA was settled (Whimpress 2008, 113).

Whilst the price of land was to rise to £1 per acre over time, Wakefield felt that twelve shillings per acre was too low (Molony 1987, 64). This price was not low enough for the Swan River colony. Although this settlement pre-dated Wakefield's detailed colonisation plan, the imposition of a uniform price for all land in the colony, when before it had been free, brought migration, never strong, to a halt by 1832 (Statham 1981, 188). The idea of grafting Wakefieldian institutions of land sales over the existing structure was never likely to be a successful test of 'systematic colonisation'. On the other hand, his idea that the revenue from land sales be used to subsidise British emigration was ultimately adopted, with vital results for Australian economic development (Blainey 1977, 156). Significantly, only Australia and New Zealand – the countries of the new world that were most distant from Europe – adopted that part of his theory which answered the main problem created by their isolation: attracting migrants (Blainey 1977, 156).

The Single Tax proposal for financing self-government was abandoned in favour of the traditional method of indirect taxation because of resistance from the wealthiest colonists who would shoulder the burden of this taxation (Cameron 2008, 4). It was not politically palatable to the metropolis and neither was self-government at foundation a credible option. Cameron (2008, 1) states that in SA by 1899, 42 families controlled two million acres who could graph their pedigree back to foundation of the colony and Sutch (1941) also identifies similar hierarchical social divisions transplanted to NZ through 'systematic colonisation'.

Criticism of Systematic Colonisation

When considering the criticism of Wakefield's theory, detractors generally fall into two camps: those who attack the theoretical design, and those who focus of the results of 'systematic colonisation'. Of the former, arguably the most famous critic of colonialism in the nineteenth century was Karl Marx ([1867] 1999) whose final chapter of Book One of *Capital* 'Modern theory of Colonisation' examines Wakefield's system.

Wakefield and Marx both agreed that labour, rather than capital, was the vehicle that created wealth but they differed over the need for a *permanent* class of workers as the essential component for the development of a capitalist economy (Pappe 1951, 94; Whimpress 2008, 107). Wakefield argued that a social contract existed between owners of capital and labour but the balance of power had swung against labour in Britain during the 1820s, resulting in lower wages and higher unemployment (Gottlieb 1957, 287). Marx conveyed a similar understanding of the period, noting that the economic changes in the early 1880s had annihilated the ability to acquire private property through the use of one's own labour, and led to "in other words, the expropriation of the worker" (Marx [1867] 1999, 940).

Marx also conceded Wakefield's argument that Britain's colonies permitted a fairer bargain to be struck between capitalists and labourers because of the relative abundance of undeveloped land (Whimpress 2008, 105). Indeed, according to Marx ([1867] 1999, 848), the colonies gave self-sufficient settlers (who were granted their land or paid a nominal fee for purchase) an ability to produce their own goods and services, to "gain wealth for themselves by their own labour instead of working to enrich a capitalist".

However, Marx disputed Wakefield's assertion that potential settlers who had insufficient capital to purchase land at the 'sufficient price' would only be *temporarily* disenfranchised from the land (that is, until they had accumulated the cash to purchase land) (Whimpress 2008, 107; citing Robbins and Burroughs). Marx' scepticism was based on the perception that capitalist accumulation depends on the existence of a permanent labour class (Whimpress 2008, 105; Marx [1867] 1999, 765-774). "Why should systematic colonisation be called in to replace its opposite spontaneous, unregulated colonisation?" Marx ([1867] 1999, 765-774) asked and formed the answer that capitalist accumulation would not occur under the latter model because it did not involve the creation of a working class. Thus, in contrast to Wakefield's assertions to the contrary, systematic colonisation was perceived by Marx to depend on the creation of a working class or a set of *free* labourers. He therefore described it as a "pis aller" or last resort (Whimpress 2008, 106) and noted that Wakefield had inadvertently revealed the secret of capitalism, namely that capital is impossible without wage labour, and wage labour is impossible without the separation of the labourer from the means of production (in this case, land).

Marx aside, many modern criticisms stem from the design failures that became painfully obvious in practice (Pappe 1951, 88). The most trenchant reproach was the failure to articulate the "just price" for land especially when this key

component was sited against adjacent land that was open to speculative pastoral enterprises characteristic of Australasian economies (Fieldhouse 1999, 476). Another line of disapproval concerns the artificial creation of old-world society pitted against the natural forces of free development (Beaglehole, 1936; Fitzpatrick, 1941). Sutch (1941) blames 'systematic colonisation', and especially the transplanting of a hierarchical British society, to New Zealand as being directly responsible for the development of Social Security years ahead of its adoption in other settler colonies. Other critics of Wakefield's system continue to malign his character as Fieldhouse (1999, 476-77) has pointed out:

In the last thirty or so years his reputation has suffered considerably and he has come widely to be seen as an irresponsible scallywag, an abductor of young women, who knew very little about colonisation, and propounded methods which were almost never applied in full and were, in fact, largely inapplicable under Australasian conditions. In the New Zealand context he and his family have been described as cynical company promoters, out to make money by fraudulently acquiring land from unsophisticated Maori and selling it to uninformed emigrants, who seldom found that the reality conformed to the Prospectus. Two Maori contributors simply damn him out of hand as the man primarily responsible for the current plight of their people. Others emphasise his lack of knowledge of colonial realities and argue that he had little influence on event.

What is interesting about this quote is the criticism that Wakefield's "methods were almost never applied in full". It should be borne in mind that the power to enact any scheme of colonisation lay with the metropolitan government (Morriss, 2007; Boyce, 2012) and it had the final say over what elements of Wakefield's plan (or any competing alternative) would be adopted in new or existing settler colonies and what would be set aside through the terms of settlement. In the Australian context, the principle of land sales was grafted onto, instead of replacing, existing institutional structures such as the land grant system (e.g. in the Australian colonies of NSW, VDL and WA from 1832) at different times during colonial economic maturity except in SA. The results of these experiments in applied colonisation theory, whether they are labelled as successes or failures depending upon points of view, cannot be laid directly at Wakefield's door since colonisation is by virtue ex-ante innovation that can only be evaluated after-the-fact.

While many of these denunciations are valid, it's not all bad. The colony of SA was free of such anachronistic Mercantilist institutions that characterised earlier Australian colonies³⁸, and it was founded partly to demonstrate the superiority of 'systematic colonisation' over the folly of Mercantilism. Richards (1986) maintains that, despite the obvious failure of the full Wakefield program, SA benefitted from the

³⁸ The Port Phillip Colony (present day Victoria) was initially settled by an Association made up of wealthy capitalists based in Van Diemen's Land who sought monopoly rights over land to develop a pastoral economy.

tenet that the proceeds from land sales be used to pay the cost of migrants at a time when labour was scarce and expensive. As such SA probably represents a fairer test of 'systematic colonisation' against a colony founded around the same time (WA and SA were conceived within a year of each other) but organised under different principles.

As the brief sketch of post-Marxian criticism has shown, the Wakefield controversy is certainly not dead. What has not been examined, however, is how his system shaped the transfer of institutions vis-à-vis a non-Wakefield alternative where the original institutional choice set available to the colonists (i.e. Britain's) is held constant, and whether this transfer influenced subsequent economic outcomes.

Conclusion

This chapter has examined two of the three phases of modern European colonisation within the context of the evolution in prevailing economic doctrine from Mercantilism to Free-Trade. It focuses on Wakefield's theory of 'systematic colonisation' and how it promised to deliver the beneficial outcomes to both the metropolis and to the colonies that had eluded both parties under Mercantilism as critiqued by Smith. The discussion forms the basis of a case study to determine just how far 'systematic colonisation' delivered a better class of institutions to SA that allowed it to capture the gains from trade than was the case in WA which was organised under wholly different principles.

The colonisation of WA had its roots in Mercantilism, despite more than half a century passing between Smith's influential denunciations of that doctrine. Under this mode of organisation, the private sector, in return for a grant of land, and a monopoly on colonial output assumed the cost and risk of colonisation. This 'system' of economic formation, having been rejected in 1776 by Smith but adopted none the less in 1829, was in essence anachronistic yet expedient, and came about from a unique combination of events. As will be seen in subsequent chapters, colonisation as it applied to WA adopted and amplified the worst institutional elements that were distorting the economies of the older Australian colonies. It is for this reason that a full appreciation of Wakefield's 'systematic colonisation' can only be achieved when it is evaluated against its second-best alternative.

The nature of Wakefield's influence on classical economics was the self-financing aspect of emigration that effectively transferred the cost of colonisation from the metropolitan taxpayer, which garnered the most interest even above the doctrine of charging a sufficient price for colonial land (Kittrell 1973, 101). It also had the advantageous effect of creating private property rights in land which had

previously been absent in the Australian colonies under the grant system helping to transform their economies. However, the case for 'systematic colonisation' that triumphed towards the end of the Bleak Age was itself consigned to history several decades later when free trade became a political reality (Kittrell 1973, 102). Wakefield ([1849] 1929) himself later admitted that colonisation and free trade were competitive solutions to Britain's economic problems during the 1820s and 1830s but whilst this may be true, it was the institutional constraints on free trade that led to systematic colonisation in the first instance being adopted. This provided the platform from which free trade was to continue the process of economic development in Australia and New Zealand during the last half of the nineteenth century.

In recent years, there has been an effort to understand the interplay between colonialism, economics and institutions (Nunn, 2009). Notable works in this field include Acemoglu, Johnson & Robinson (2001), Engerman & Sokoloff (2002), Ferguson (2003, 2004, 2009), Lange, Mahoney & vom Hau (2005) and Prados de la Escosura & Smits (2007), and whilst they "are useful in highlighting correlations that exist in the data, they stop short of providing causal evidence of the effect of history on long-term [economic] development" (Nunn 2009, 72). One of the difficulties in determining the causal effect that institutions have on colonial economic development may be the lack of natural experiments in which the identity of the coloniser can be controlled and the mode of colonial organization (i.e. the institutional transfer mechanism) can be examined. The contrasting approaches to colonising WA and SA meets this deficiency and it forms the basis of a case study to be examined in [Chapters 6](#) and [7](#).

Chapter 5: The Foundation of Colonial WA and SA

"I call the whole island Australia, or *Terra Australis*"

Matthew Flinders, 1804

Introduction

The previous [chapter](#) explained how the development of British colonial thinking during the 1820s resulted in the founding of two colonies under different modes of organisation on the western and central portion of the Australian continent.

Having a neat theory on colonial economic formation was one side of the coin, putting it into operation was something else entirely. As Seeley (1883) pointed out, there was nothing simple or inevitable about the colonisation and occupation of so-called "empty countries". Indeed, it might also be added that there was no guarantee of success, for colonisation required motivation, the calculation of risk and uncertainty, funding, technology and organisation of a sophisticated nature to carry migrants to the destination of his or her (or somebody else's) choice (Darwin, 2012). In other words, colonisation possessed its own institutional character.

As already mentioned, the British model of colonisation by the 1820s had firmly rejected rule by private chartered corporations in settler colonies (as had occurred in America in the seventeenth and eighteenth centuries). In order to maintain strategic control, the metropolis had to provide any new colonial venture, at a minimum, with an administrative team to oversee land distribution (essential to economic formation), a legal system and a coercive mechanism to keep the peace (Statham-Drew 2004, 22). As will be outlined in this chapter, the seeding of legal institutions across Britain's empire followed a strict process that dated back to 1722 such that the English common law was indeed a familiar characteristic across its colonies (with a few exceptions). The advantage of providing a legal framework *before* actual settlement began avoided the worst excesses that typified Spanish colonisation, and the opening up of the western sector of the US (notably the Californian gold rush).

This chapter then outlines the method by which legal institutions were seeded in British settler colonies and the events that led directly to the establishment of the Swan River Colony and the Province of South Australia. [Appendix B](#) provides

contextual information about the initial explorations of the colonies prior to their foundation which highlights how little information was available prior to embarking upon the respective colonising expeditions.

Legal Institutions and British Colonial Formation

Prior to examining how each colony was established, it is worthwhile to pause and consider how Britain seeded its settler colonies with legal institutions. This is important because it provides a contrast with the Spanish mode of colonisation where a lack of formal legal foundation inhibited institutional evolution and hence economic growth (Bernstein, 2004). By the time of founding WA and SA, the British had a well-understood process by which metropolitan law applied in its colonies. The applicability of this process depended upon whether the colony had been conquered during a war with an imperial rival, ceded after a war by the losing imperial rival or settled by displacing the indigenous population. This section concentrates on the latter category and draws heavily upon the scholarly work of Castles (1963).

[Chapter 4](#) showed how the right for a corporation (or proprietor) to rule an overseas territory was enshrined in the monopoly charter conferred by the Crown. During the seventeenth century, the charter for a typical settler colony spelled out, in loose terms, the governance framework and also the system of law to be adopted. However there was no explicit requirement for institutions to be patterned after those in England although it was initially assumed that they would be, more or less, duplicates due to cultural inheritance (Stoebuck 1968, 396). In theory, such colonies were free to fashion institutions they saw fit subject only to the proviso that they should be agreeable to, and not contrary to, the laws and statutes of England (Stoebuck 1968, 393).

The process by which English law applied to a “settled” colony dated back to the Privy Council Memorandum of 9 August, 1722³⁹. Such a colony was defined as a territory, which, at the time of its occupation by the British, was uninhabited or inhabited by a primitive people whose laws and customs were considered inapplicable to a civilised race (Castles 1963, 1). Under this principle, British settlers took with them a body of un-enacted (i.e. common) and enacted (i.e. statutory) laws which could operate in the colony. This ensured that no legal vacuum existed when the colonists arrived but posed some difficulties, as Blackstone ([1769] 1979) himself indicated, in how to make those laws suitable to the environmental and social circumstances. These issues were invariably determined by the colonies but there was no mistaking the “superintending power” of the British government which

³⁹ Set out in Blackstone’s ([1769] 1979) *Commentaries on the Laws of England* which subsequently provided the foundation for the reception of English law in settler colonies.

reserved the right, if it so chose, to legislate for the settled colony on its behalf (Castles 1963, 5).

As WA and SA were to become “settled colonies” within the meaning of the common law, each directly inherited a vast body of English law (Castles 1963, 3). It was accepted that the general principles of common law applied to all the Australian colonies especially edicts relating to inheritance, torts, criminal law, mercantile law, private international law, real and personal property⁴⁰ and equity (Castles 1968, 7). The whole weight of common law was active in the colonies regardless of their state of development for it was assumed that the colony would “grow into” the full body of law as the economy evolved, and the powers of re-modelling specific elements devolved upon the local legislatures as and when the time came, subject to maintaining a harmony between metropolitan and colonial legal frameworks (Castles 1968, 8).

Unlike the applicability of the common law, the date of settlement was important in determining which British statutes were applicable in the colony (Castles 1963, 13): June 1, 1829 for WA and December 28, 1836 for SA. British statutes which specifically named the colony were automatically assumed to apply,; so too were statutes which could be construed as applying to colonies by “necessary intendment” (Blackstone [1769] 1979). Even amendments or repeal of such statutes subsequent to the date of settlement did not affect their operation in a colony unless special provision was made to make it applicable to the colony (Castles 1963, 13). In addition, British statutes that did not name specific colonies did not apply unless they were suitable to their circumstances and conditions. Not unexpectedly, considerable difficulty was often experienced in determining whether British statutes were suitable to the conditions and circumstances of an infant colony at the time English law was received. Statutes which contained “artificial distinctions and refinements” specially referring to British conditions might well be “neither necessary nor convenient” for a settled colony and could not be received into a colony under the common law (Castles 1963, 14).

The development of new representative and responsible legislative institutions in the Australian colonies from 1850 onwards led to difficulties relating to the power of local legislature to promulgate laws that conflicted with metropolitan common and statute law (Castles 1963, 22). Although it was clearly acknowledged that the colonial legislature was subordinate to its metropolitan equivalent, doubt surrounded the power of the colonial legislature to alter or repeal the English law (Castles 1963,

⁴⁰ Excluding land which was a carve out to the common law in the Antipodes due to the grant system. The Ripon Regulations of 1831, a Wakefieldian principle, remedied this situation.

22). Indeed, the operational rule for colonial legislatures was, according to Tarring (1893, 144); to enact laws in conformity to, and not in repugnance of, the common law.

It is clear from the foregoing discussion that both WA and SA were founded with identical legal structures which were independent of the mode of colonial organisation used to establish the economy. As such, differences in legal structure are unlikely to have been a source of cross-colonial difference in economic growth. The next two sub-sections outline the preparations made by the key stakeholders in Britain to launch the colonies of WA and SA under the modes of organisation designed for them: the former based on the historical precedent of land grants and private enterprise; and the latter on Wakefield's *Systematic Colonisation*. This discussion is integral to understanding the subsequent institutional and economic development that occurred once the colonies had been founded.

Establishing the Colony of Western Australia

Quick Facts	
	
- Founded as a Colony:	1829
- Responsible Government:	1890
- Federated:	1900
Area	
- Total:	1,021,478 sq. mi
- Land:	976,790 sq. mi
- Water:	44,687 sq. mi
Population in 1900	
- Total:	179,708
- Density:	0.18 / sq. mi
Gross Colonial Product in 1900	
- Total:	£18,751m
- Per Capita:	£104.34

The Swan River Colony was not the first European settlement in what has since become known as WA. In 1826, the year before Captain Stirling's exploration of the Swan River, NSW sent a military expedition under Major Edmund Lockyer to King George Sound on the south coast of WA, at the time a frequented whaling and sealing base, to establish a British settlement and to blunt French interest in the area (Green 1981, 75-6). No separate colony was formed and no British settler migration occurred. This isolated outpost was under the control of NSW and utilised convict labour but as Statham (1981, 181) makes clear, the settlement at King George's Sound (later Albany) was not a prelude to colonising the western third of the Australian continent at least from London's viewpoint.

Upon returning to Sydney in 1827, after spending less than two weeks exploring the Swan River of the west coast of New

Holland⁴¹, Captain James Stirling RN advocated full state-sponsored colonisation on the basis that the area possessed all the necessary attributes of a successful agricultural colony despite the fact that “previous accounts of Dutch and French explorers had been very unfavourable” and had found little evidence of fresh water, fertile soil, or a safe anchorage (Mills 1915, 53). Whilst the proposal was endorsed by Governor Darling, it was received with markedly less enthusiasm in London where a third Australian colony was deemed “quite out of the question on grounds of expense” as well as the adequacy of its existing penal requirements in eastern Australia (Statham 1981, 182).

Upon rejection of Stirling’s initial colonisation scheme, he was told that if the private sector would invest at the Swan River then the CO might yet authorise settlement (Statham-Drew 2004, 21). Galvanised by this advice, Stirling employed a two-pronged attack which consisted of a) developing a scheme of settlement that transferred the cost of colonisation from the metropolitan taxpayer to the private sector through the use of land grants; and b) emphasising the suspicious nature of recent French exploration in the Indian and Southern Oceans (Mills 1915, 5).

By releasing certain (favourable) details about his 1827 exploration of the Swan River to the British press in October 1828, Stirling hoped to attract a large number of wealthy investors (Statham-Drew 2004, 21). Hearing of the proposed settlement was one Thomas Peel⁴² who was intending to emigrate to NSW. He quickly formed an Association with three other wealthy investors. They had to move fast because the CO was receiving a steady stream of enquiries ever since *The Times* had serialised Stirling’s report (Statham-Drew 2004, 22).

During November 1828, the CO received two investment proposals regarding development of the colony, which were based on land grants. The first requested a proprietary charter (i.e. monopoly) similar to the ones granted to Pennsylvania and Georgia in the US, and the second, Peel’s, was essentially a ‘proprietary party’ scheme whereby the ‘leaders’ bid for a large parcel of land on highly favourable terms bringing out a pre-defined number of settlers at their own risk by paying for their passage⁴³ (Darwin, 2012). It should be noted that this scheme went against the

⁴¹ The Dutch name of New Holland essentially applied to the western portion of the Australian continent not yet annexed to NSW at the 135th meridian east (later changed to 129° east in 1825 and currently WA’s eastern border). The name of New Holland gave way to Australia in 1804 following Flinders’ circumnavigation and was formally adopted, as applying to the whole continent, in 1817.

⁴² Thomas Peel was cousin to the then Home Secretary, Sir Robert Peel, instigator of the metropolitan police and future Prime Minister who, as a moderate conservative, abolished the Corn Laws in 1846 thereby instituting free trade, a move which, though economically sound, cost him his job at the subsequent election.

⁴³ This was a scheme with a long if dubious record of colonial success. For example, the Western Australia Company, formed in 1839, purchased land around the Leschenault Inlet, at Australind, south of Perth,

grain of Wakefield's ideas and both Wakefield and Marx condemned its subsequent failure. The specifics of this proposal were to invest around £300,000 in transporting 10,000 labourers and the requisite amount of goods, equipment and livestock to the colony over a four-year period and, in return, the Association sought a grant of land to the tune of four million acres with a priority of selection. Stirling was not involved in any of these plans directly but was aware of Peel's proposal (through political connections) and was convinced that the Swan River could be settled at minimum government expense (Statham-Drew 2004, 22). On 5 November 1828, egged on by a rumour of an impending French strategic threat in the area and nine days before the Peel Association's proposal was *officially* submitted, a decision was made by the Government to formally annex New Holland (Statham 1981, 182).

Whilst the CO was convinced that existing land grant policies being pursued in other colonies could be used as an incentive for the private development of new colonies (Statham 1981, 183), there were certain civil servants, most notably James Stephen⁴⁴, who voiced their misgivings as land grants had almost ruined the chartered colonies in North America over a century earlier (Cross 2011, 3). In considering the above two proposals, the CO refused the first offer because of its distaste in allowing private interests to control a British settlement⁴⁵ and the second proposal, Peel's, was significantly modified (Roberts 1924, 48; Statham-Drew 2004, 21). Essentially the Peel Association's grant was to be limited to a maximum of one million acres, half of which was to be given on arrival of the first vessel, provided not less than 400 settlers were sent out. The other half was to be granted by degrees as fresh settlers arrived (Mills 1915, 55). Furthermore, the Association was refused a priority of selecting land selection over the other settlers.

These revisions discouraged three of the four members of the investment syndicate but Peel, who remained, accepted the revised conditions after protracted negotiations and proceeded alone with an allocation of half a million acres. The grant, which he was allowed to mark out on a map (of an unsurveyed land), was conditional upon his arrival before 1 November 1829 with his settlers (Mills 1915, 57). If he failed to land his settlers on the due date, or if he arrived late, his priority of choice lapsed, and he was to be on exactly the same footing as any other settler investing in the colony (Mills 1915, 57). Peel, in his turn, issued a set of land regulations providing for farms of 200 to 1,000 acres, which would be taken up by his labourers

from one of original grantees at a price that was not supported by the description of the land (Battye 1924, 154).

⁴⁴ Interestingly, Stephen's [1789-1859] views against land grants prevented chartered companies from exploiting the Northern Territory when it was annexed to South Australia in 1863.

⁴⁵ Britain was to revisit this type of "colonisation" later in the century when a charter was granted to Cecil Rhodes for the development of what later became Rhodesia (Thomas, 1996).

within three years of their five-year terms of indenture. By this mechanism, he thus provided for a hierarchy of middle-class farmers and small peasant proprietors in WA, and, assuming that the indenture could be enforced, allowed expansion of agriculture in proportion to the growth of the settlement (Roberts, 1924).

In December 1828, the CO published a draft of its "Conditions of Settlement" (the Old Terms) pursuant to the settlement of the Swan River Colony. With the aim of shifting the cost of colonisation from the metropolitan taxpayer to the private sector, any investor (other than Peel whose arrangement was negotiated separately) was offered a land grant of 40 acres for every £3 invested in physical (non-monetary) assets that local authorities considered applicable to productive land use. Given the high cost of conveying labourers to Australia, investors were offered an additional 200 acres for every labourer introduced (Statham 1981, 183). Not until 1830 was this ratio reduced, although two new sets of regulations were introduced in 1829 (Roberts 1924, 49): the first withheld ownership rights to land until such time that it was brought into production to the value of 1s 6d per acre⁴⁶; the second, a punitive sanction, imposed fines on settlers who failed to improve at least a quarter of their grant within three years of initial occupation and grants not wholly improved within ten years were to be resumed by the Crown (Statham 1981, 184). The terms of annexure also reserved land for the Crown, as well as for the ecclesiastical and educational establishments, and rationed the amount of land that could be claimed on the banks of the Swan and Canning Rivers (Statham-Drew 2004, 33).

In addition to the conditions attached to land grants, one other factor influenced land policy at Settlement. The government of the colony was devolved to Stirling, as the project's main sponsor. He forwent a salary until the colony became self-sufficient and then he was to be paid from local (that is WA) revenue only. In lieu of wages, Stirling received a grant of 100,000 acres, subject to the same conditions as other settlers, except that he was given a priority of choice of where his land was to be located (Mills 1915, 56). Other civil and military officials attached to the administrative party were remunerated in land according to the value of their cash salaries which would only be paid as (and when) the colony became solvent (Roberts, 1924). This method of land grant was independent of the "Conditions of Settlement" applying to general investors (i.e. not Peel, Stirling or the other administrative officials).

⁴⁶ It is not clear how the valuation for land improvement and the price for 40 acres were derived by the CO though it seems likely that they were influenced by land tenure in Canada and NSW in use at that time but as will be shown in [Chapters 6](#) and [7](#) these determinations appeared to undervalue colonial land in WA with serious implications for economic development.

This meant then that settlers embarking for the Swan River Colony were faced with three sets of government land regulations, with a fourth added in 1830, and one private code (Peel's) specifying and assigning property rights to colonial land. The plan of colonisation based upon a system of land grants offered potential colonists the promise of eventual land ownership if they succeeded in fulfilling the improvement terms of the grant. The appeal of this promise was a powerful inducement at the time since in Britain land ownership represented status, security, wealth and political influence, privileges that belonged to only a very small minority of the upper class (Statham 1981, 184). The "Conditions" help to explain the haste with which some colonists made the actual decision to emigrate based on scanty evidence. All went awry from the beginning, as will be noted in [Chapter 6](#), as not one of the premises on which the arguments were based, pertaining to the use of land grants as an effective mode of colonial organisation, was true in fact and not one of the clauses of land regulations resulted in the type of settlement originally envisioned (Roberts, 1924).

In the *Quarterly Review* for April 1829, an article appeared based on Stirling's 1827 official report, further embellishing the advantages of the colony: it was recommended as a remedy for domestic over-population; as a means of creating new markets for British manufactures due to its favourable location vis-à-vis Europe and India; it supposedly had a better climate and soil compared to New South Wales; and it was to be free of convicts; (Mills 1915, 58). The article created the impression that the colony was to be founded by the government, and it was suspected of being officially sanctioned. Throughout 1829 the words "Swan River" conjured visions of paradise and as the year progressed, "media testimonies...appealed not only to the adventurous but also to more solid farmers" (Statham 1981, 184). As a result of this intense media scrutiny, the government received numerous applications for free passages from interested emigrants but all these were refused due to its determination not to incur expense (Mills 1915, 59).

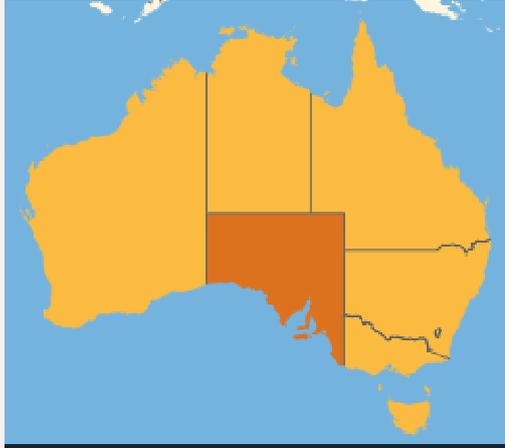
Amid the buzz of "Swan River Mania", the administrative party, consisting of Stirling, the surveyor Roe, the colonial chaplain and 100 soldiers of the 63rd Regiment, left England in February 1829, only thirty-seven days after the publication of the settlement conditions gave official blessing to Swan River Colony's foundation. In May 1829, Captain Charles Fremantle was dispatched from the Cape of Good Hope in HMS *Challenger* and annexed New Holland from the south head of the mouth of the Swan River (De Garis 1981, 297). A month later the first party of 658 settlers arrived and colonisation under a system of competing, and often contradictory, land laws began (Statham 1981, 184).

Launching the Province of South Australia

As detailed in [Chapter 4](#), South Australia's foundation began life as an experiment to prove that systematic colonisation was a superior way of combining land, labour and capital to exploit colonial assets (Mills, 1915). If implemented correctly, there would be flow-on benefits for the metropolis by relieving the glut of capital and labour, and opening up new avenues for commerce (Wakefield [1829], 1929).

The idea of a SA colonial experiment began in January 1829 when Wakefield met Robert Gouger and first conceived the idea for a new, non-convict, colony on the Australian continent. Following the successful publication of Wakefield's *A Letter from Sydney* by October 1829, he and Gouger formed the National Colonisation Society along with Torrens (Bloomfield 1961, 114). Its stated aim was to raise awareness and promote the benefits of systematic

colonisation (Dutton, 1971). The society achieved its first success in January 1831 when the metropolitan government adopted one of Wakefield's measures by making a change in the disposal of waste lands in the Australian colonies (including WA) at a price of not less than five shillings an acre, the so-called 'Ripon Regulations' (Mills 1915, 155) whose implications for WA are examined in the next [chapter](#). The society also sought to establish a new Australian colony where Wakefield's full theory could be implemented. The reports of Sturt's explorations of the land to the west of Bass Strait apparently convinced the Society that the southern-central portion of the continent would be admirably suited to systematic colonisation (Mills 1915, 218). In marking out the boundaries of this new colony, the Society chose "that part of Australia which lies between the 132nd and 141st degrees east of longitude, and between the southern ocean and the tropic of Capricorn, together with the islands adjacent thereto" (Bloomfield, 1961, 119). The first plan put forward by the Society was turned down by the British Government and then, realising that cost was the issue driving a reluctance to sanction a new Australian colony, the Wakefieldians

Quick Facts	
	
- Founded as a Province:	1834
- Responsible Government:	1857
- Federated:	1900
Area	
- Total:	402,903 sq. mi
- Land:	379,725 sq. mi
- Water:	23,178 sq. mi
Population in 1900	
- Total:	362,107
- Density:	0.95 / sq. mi
Gross Domestic Product in 1900	
- Total:	£18.446m
- Per Capita:	£50.94

formed a chartered company, in order to be independent from the CO (Bloomfield 1961, 122).

The resulting South Australia Land Company counted several bankers and no less than fourteen MPs among its members, including Torrens (Bloomfield 1961, 122). It was incorporated in the summer of 1831 with a paid up capital of £500,000 which was not only to manage land sales and emigration, but also the government of the colony (Mills 1915, 220). A prospectus was issued which called for one-quarter of the paid-up capital to be spent on acquiring land in the colony; another quarter in making advances to settlers; and the rest in employing labour on its own land (Bloomfield 1961, 122). All colonial land was to be disposed of by auction with a minimum "upset price" – that is the lowest price at which parcels of land will be sold – of 5s, to be increased in subsequent years "until the price demanded for land shall be that which will ensure the cultivation of all land granted" (Mills 1915, 220). This initial price for land was considered by Wakefield as being too low to fulfil the aims of his colonisation scheme with respect to deterring labourers from too soon acquiring land and ensuring a steady stream of immigrants to the colony. Indeed Pike (1857, 80) quotes Wakefield advocating a price per acre of 40s "to be the very lowest that ought to be required for the objects in view" as far back as 1829. However, Wakefield ultimately agreed to the initial price of 5s despite threatening to abandon the South Australian venture over alternative prices of 12s and 20s (Pike 1957, 80).

Despite the differences of opinion between the systematic colonisers over the price, the proceeds from the land sales were to defray the cost of the survey and provide for the conveyance of a gender-balanced labour pool (Mills 1915, 220). Various provisions for the colony were made, including: liberty of the press; freedom of trade; and choice of religious association (Mills 1915, 221). In September 1831, the plan was submitted to the metropolitan government who objected to the request for immediate provision of responsible government (i.e. through a Charter which would render the colony independent of metropolitan oversight). Seeing that there was to be no compromise on this point, the Wakefieldians resolved "to abandon the political part of [their] scheme" in order to make progress (Bloomfield 1961, 123). A revised plan which contained a vague guarantee that the colony "would not be repugnant to the laws of England", even though there was a stipulation for immediate responsible government remained, was submitted to the metropolitan government in May 1832. These were during "the Days of May" when political agitation over the parliamentary reform was reaching its peak (Bloomfield 1961, 124-5). Between May and June, the sitting government resigned over its frustration of obtain consent for a measure of expanded voting franchise only to be returned

when an alternative administration could not be formed, and this political uncertainty was attended by riots in London (Woodward, 1939). As such, the CO set aside any further consideration surrounding the establishment of SA in order to concentrate on those political measures. Once the Great Reform Act⁴⁷ had become law in June of 1832, the CO, bolstered by the legal assistance of James Stephen rejected Wakefield's amended plan due to the perception that the proposed colony would be independent of British control (Bloomfield 1961, 125). As such, domestic political upheaval had wrestled the political momentum away from schemes of colonisation and the founding of SA was once again delayed.

Not to be deterred, however, another attempt was again in 1833 hot on the heels of the interest generated by the publication of Wakefield's *England and America* (Bloomfield 1961, 126). This tract, initially published anonymously, was designed to place Wakefield's theories in a coherent and accessible format that would help to bolster the case for a fourth Australian colony (Harrop, 1928). Meanwhile, the South Australian Association, chaired by Torrens, was formed with much the same personnel and capital as before. It proposed to incorporate; adopted a plan not too dissimilar to the earlier Land Company; and issued a prospectus in early 1834⁴⁸. When approached again, the metropolitan government objected on three points: an unwillingness to run the political risks of colonial expansion; the anxiety of Evangelical pressure groups about the well-being of indigenous populations in settler colonies; and the reluctance of the Treasury to incur expense in colonial formation (Bloomfield 1961, 127). There were also additional questions raised about the extent of political powers to be delegated to the Association in administering the colony, originally to be funded by the metropolitan taxpayer through the Association, but these were addressed by a re-working of the colony's proposed charter by Wakefield who suggested that its administration be met through local revenues (Bloomfield 1961, 127).

The CO promised to sponsor a Bill for colonising SA subject to the Association raising a minimum of £105,000 in capital of which £50,000 was to be subscribed by intending settlers for investment in the colony; £35,000 of land was to be sold; and the remainder had to be set aside with the metropolitan government as a surety (Mills 1915, 229). A further £200,000 had to be raised by a loan guaranteed from the ordinary revenue of the colony and the security of the land fund in order to pay for the colonial administration over a ten year period from inception (Mills 1915, 233).

⁴⁷ The *Representation of the People Act* (UK) 1832 sought to extend the British electoral franchise and stamp out the abuses that prevailed in the election of members of parliament i.e. the notorious "rotten borough".

⁴⁸ A replica of the original prospectus can be downloaded [here](#).

The Bill drafted by the Association, but later modified by the CO, was introduced to Parliament in June 1834. The Act authorised the creation of the province of South Australia, and the appointment of one or more resident Commissioners (agents for the Association to be based in the colony) to make laws. Three or more metropolitan Commissioners were to be appointed to carry out the Act and were authorised to sell land by auction at a minimum price of 12s, and to employ the proceeds in emigration. They also had the power to let unsold land for pasturage (Mills 1915, 233). In many respects this plan mirrored the one originally proposed by the South Australian Land Company in 1833.

After pivotal assistance was provided by the Duke of Wellington⁴⁹ (a keen empire builder and key influence in both colony's foundation), the South Australia Bill received Royal Assent on 15 August 1834. The new province was established on the basis of Wakefield's land scheme; no convicts were to be sent to the colony at any time or under any circumstances; and when the population amounted to 50,000 a constitution might be granted to the colony (Bloomfield 1961, 130). In the meantime, however, the Act specified that the governance framework was to be divided in two ways: first, the governor was controlled directly by the metropolis in the usual way, and also indirectly by the Commissioners' control of finances; next, the Resident Commissioner had control of land sales and was solely responsible to the metropolitan Commissioners (Mills 1915, 233). In this way both the metropolitan government and the private shareholders were politically represented in the colony (Gibbs 1984, 26) but not in a complementary way, and on the question of who had control of local expenditures, the Act was ominously silent. The implications of this governance structure are discussed in the next [chapter](#).

On 5th May 1835 the Board of the Colonisation Commission was gazetted and commenced planning the colonisation project. Wakefield, by this time, had walked away from all aspects of the project due to a number of disagreements over the plan, including the use of auction rather than outright sale of land, which he saw as being detrimental to the determination of the 'sufficient price'. Unfortunately, when the Commissioners opened sales of land in June at Exeter Hall in London, buyers balked at paying 20s for an acre of wilderness, even when lured on with a city acre for the same price with every 80-acre section of country land (Dutton 1971, 149). With the main tenets of the plan unfulfilled (and the Act dormant), an independent South Australian Company, chaired by George Fife Angas, was formed which raised the capital required to purchase the unsold land which thereby saved the colony, "a

⁴⁹ Wakefield promised the Duke that the capital city of SA would be named in his honour but the Duke had to wait for the foundation of New Zealand during the 1840s for this promise to be fulfilled (Bloomfield, 1961).

bleeding mitigated by the introduction of a third power in the control of the still unsettled colony" (Dutton 1971, 149). But with the successful deposit of £20,000 placed in a government fund, the conditions of the Act were fulfilled, and by November 1835, the way was clear for the foundation of the new colony (Mills 1915, 241).

There were nine ships, carrying 658 colonists and administrators, which left Britain separately between February and July 1836. After a five-month journey, a temporary settlement was erected on Kangaroo Island while the main survey was undertaken on the mainland. A geometric grid formed the basis of the town plan which was situated on a flat plane straddling the Torrens River and nestled at the foot of Mount Lofty, was eventually selected and christened Adelaide in honour of King William IV's wife. Subsequently on 28th December the province of South Australia was proclaimed and was the fourth colony established on the Australian continent since 1788. Now though the difficult and challenging task of colonial economic formation began.

Conclusion

The principal attributes of these two colonies were the applicability of British law and their modes of colonisation. Prior to foundation, a legal hierarchy of English Common and statute law applied thereby ensuring that economic development did not exist within a legal vacuum. Colonisation provided the mechanism by which the institutional matrix could take root and develop within a framework of legal rules common to both colonies. As a result, legal institutions are not an explanatory variable in the economic development of WA and SA.

Table 3 (p.114) shows the key design principles for each method of colonisation used to established WA and SA respectively: two approaches affected the degree to which land, labour and capital, three essential elements to colonial economic formation, could be efficiently combined. Wakefield felt that the Mercantilist approach led to the under-exploitation of colonial assets due to the fact that many outcomes were left to chance. His alternative was to link the sale of land for cash to the supply of labour and the creation of a cash-based economy.

As the discussion on the founding of the two colonies has shown, a great deal of effort, funding and organisation was needed to carry migrants to the destination before economic formation could begin. Overall, colonisation was an activity that required a sophisticated institutional framework and acted as the causal link in the transfer of economic institutions from Britain to the Australian continent. Many of the

elements of colonisation and their institutional implications on economic development are explored in greater detail in the next two chapters.

Table 3: Comparison of Colonisation Methods at Settlement

		Western Australia	South Australia
Colonisation Type		Mercantilist	Systematic
Land	Method of Land Disposal	Grants	Cash Sales
	Improvement Conditions	Yes	No
	Unconditional Title to Land	No	Yes
	Common Law Protection	No	Yes
Labour	Assisted Migration	No	Yes
	Indentured	Yes	No
	Convict	Yes (from 1850 to 1868)	No
	Gender-balanced	No	Yes
Capital	Economic Exchange System	Barter	Monetary
	Banking facilities	No	Yes
	Credit Advanced Against Land	No	Yes

Chapter 6: The Economic Institutions of Colonial WA and SA

“These wretched colonies...are a millstone round our necks”

Benjamin Disraeli, 1852

Introduction

This chapter examines the economic institutions of colonial WA and SA from foundation to 1900 using measures derived from the primary data assembled from the directly comparable *Blue Books* and the *Statistical Registers*. The chapter also explores the way in which the resulting evolution of institutions over the course of the century influenced the patterns of economic growth of the two colonies.

Colonisation was a conduit through which Britain’s institutional framework could pass, over time, to geographically unfamiliar surroundings. Subsequent institutional development was free to take on alternate trajectories, subject to certain imperial constraints, due to the fusion of pre-colonial institutions, geography and cultural adaptability. Colonial institutions retain many key elements of their imperial antecedents but exhibit a whole host of unique traits reflective of the local environment.

If the two methods of colonisation, contrasted in the previous [chapter](#), resulted in the same transfer of property rights, capital markets, governance and cultural institutions then it is likely that the resulting economic performance of these two independent colonies would be similar and any variance would be attributable to factors such as the natural endowment, the labour market, transport and communications.

However, if there was a difference in colonial economic development, did the method of colonisation affect the path of institutional transfer, and if so, is the institutional influence a more convincing explanation of the contrasting patterns of economic growth than say the traditional factors usually associated with development and prosperity? This chapter will shed some light on these questions.

The structure of this chapter mirrors that of [Chapter 3](#) by analysing the four institutions comprising the matrix from their foundation (via the method of colonisation) to 1900. It charts how these institutions evolved, or reformed themselves, during the course of the nineteenth century. Each institutional and

economic element discussed in this chapter is by colony and in chronological order. All price data is stated in current, that are, nominal prices unless otherwise specified.

Property Rights

In [Chapter 3](#), private property rights were defined as a complex set of rules and norms that determine the allocation and use of resources. They comprise four essential attributes over assets: the right to exclusive use (and free from arbitrary expropriation); the right to derive an income; the right to acquisition and disposal; and the right to call upon enforcement to protect ownership. This section examines how property rights were assigned to land and intellectual property, and how they evolved to take advantage of changed economic conditions in colonial WA and SA.

Land Alienation

For the purposes of this section, land alienation is described as the sum of land grants plus the sum of land sales plus unallocated acres of land⁵⁰. In turn, unallocated acres of land consist of surveyed Crown land by the colony's Surveyor General plus any resumption of expired land grants. This model of land alienation applies equally to both colonies; however the grant system that applied in WA (and other Australian colonies) was not part of SA's system of land tenure.

Western Australia

The "Conditions of Settlement" for the Swan River colony – discussed in [Chapter 5](#) - contained a number of features which were seriously to hinder the colony's early development (Statham 1981, 183). Firstly, the rules for determining which assets (stock and equipment) to be introduced to the colony that qualified for land grants were not clearly specified by the Colonial Office (CO). This enabled colonists to receive grants by introducing assets wholly inappropriate to land development⁵¹ and they received an over-allocation of land as a result. In 1829, during the first year of settlement, land alienation stood at an enormous 805 acres per capita, peaking at 836 by 1838, before rapidly falling away as the population increased after 1840. As can be seen from Chart 1 (p. 122), because of the faults inherent in the land grant system, over 1.25 million acres were distributed across 1,782 settlers, at an average of 700 acres per person, in the five years to 1833. Furthermore, the allocation of grants was uneven as by the end of September 1829, 455,332 acres⁵² (87 per cent of the total grant of 525,000 acres for that year) of the

⁵⁰ This model was discussed with P. Statham-Drew (personal communication January 12, 2013) and deemed representative of Australian land tenure system during the nineteenth century as per our joint understanding.

⁵¹ For example, Statham (1981) states that two rabbits even qualified the owner to land in the colony.

⁵² Battye (1921) lists the names, location and size of land grant for each of these 32 "investors" many of whom were members of the administrative party and were thus rewarded for services rendered by grants of land independent of any amount of assets they introduced to the colony to improve their holdings.

best lands along the Swan and Canning Rivers were held by 32 of the largest investors (5 per cent of the colonial population) leaving just under 70,000 acres available for the remaining 620 colonists (Battye, 1921). While some of the grantees possessed wealth and the determination to develop their land, this unprecedented distribution of land far exceeded the collective capital, stock and labour brought out by the original 652 colonists in 1829 to fully develop 525,000 acres of bushland.

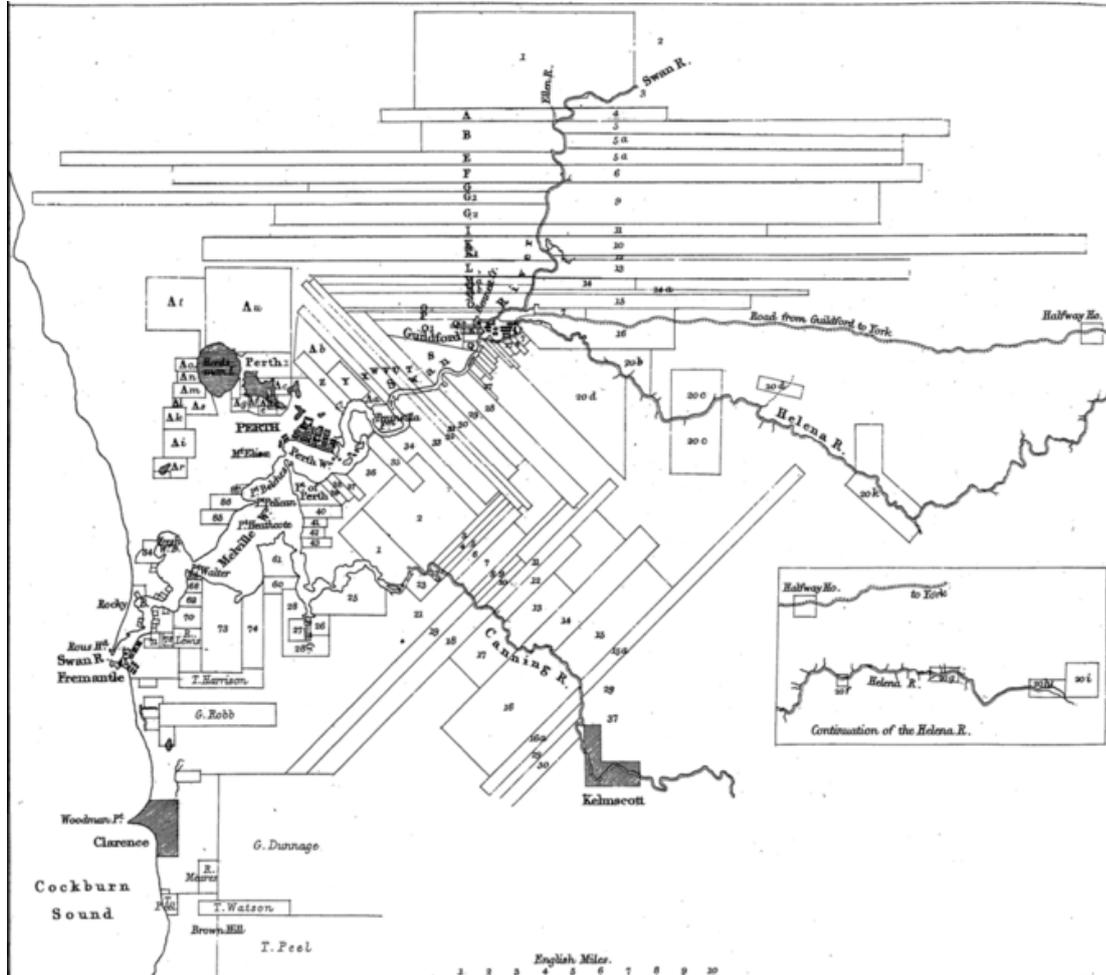
Secondly, the tendency to virtually give land away without reference to an ordered ex-ante survey led inevitably to dispersion of settlement. The "Conditions of Settlement" mandated that river frontages be rationed but some of the wealthier capitalists such as Peel, as well the administrative party including Stirling, had a priority of choice in selection and naturally chose the best land along the rivers. In an attempt to alleviate the shortage of riverfront land, Surveyor-General Roe drew up long thin strips of land along the banks of the Swan and Canning rivers, the so called "ribbon grants", and located the remaining sub-divided portion in unsurveyed areas beyond the (known) bounds of settlement (Roberts 1924, 50) as per Figure 3 (p. 118). Naturally, development of river front plots began at the portion that had access to the river but it became difficult to fully develop the entire grant the further land was from water. Thus, whilst the ribbon grants got the settlers onto the land, their fragmented nature had a detrimental effect on economic organisation and agricultural development. As Lewis (1960, 126) has discussed, fragmentation results in the dissipation of resources: wasted labour time in travelling between plots (assuming roads exist); inability to adequately supervise non-contiguous plots leading to a decline in productivity due to disease, theft, or simple neglect; and finally capital must be duplicated on equipment, or cattle stalls, or water troughs. These losses became reality in WA. Fragmentation and the scarcity of labour ultimately forced the consolidation of disparate holdings through the development of an active secondary market⁵³ in land as grantees swapped or traded parcels of land (Crowley 1960, 17).

In addition to fragmentation, the granting of enormous parcels of land, to Peel and Stirling for example, around the port and town hindered the development of basic infrastructure such as roads and bridges and compelled the settlers to spread themselves over a larger geographic area than would ordinarily be desirable (Pike 1957, 53). The land still available was usually of lesser quality being further from the rivers and bordering the existing grants (Boyce 2011, 150) as can be clearly seen in Figure 3 (overleaf). Moreover, access to roads, water and markets was difficult for

⁵³ When the colonists swapped or sold portions of their grants, in an effort to consolidate their holdings, the original conditions of the grants remained in force.

new settlers surrounded by huge amounts of unimproved land held by grantees. Effectively, many settlers were cut off from their fellow colonists and this hindered the development of dense social networks conducive to knowledge transfer.

Figure 3: Swan River Colony Land Grants Map, 1839



Source: Appleyard, R. and T. Manford. 1979. *The Beginning: European Discovery and Early Settlement of Swan River Western Australia*. Nedlands: University of Western Australia Press.

A further barrier to economic development was the specification in the land grants that that every acre granted had to be improved prior to receipt of title. This effectively prevented settlers from averaging their improvements over the entirety of their grants (Statham 1981, 183). The majority of capital tended to be spent by settlers on a dwelling and the remainder on piece-meal improvements to as much of the grant as possible in order to avoid a loss of land after the ten-year improvement period (discussed in [Chapter 4](#)) that expired in 1839. In effect, the system of land grants was akin to Usufructs – outlined in [Chapter 3](#) - whereby the individual has a right to use the resource (land) but its control (and ultimate ownership) rests with the governing authority, and can lead to underinvestment in, and overexploitation of, resources (Saleh 2004, 11). Furthermore, the system of land tenure prevented colonist from using their grants as loan collateral as it was not certain that

mortgagors could gain clear title since the grant ultimately belonged to the metropolis (until certain conditions were met), and in turn the use of land as collateral prevented the development of capital markets (as will be discussed later in this [chapter](#)).

As the Swan River colony struggled, changes in the system of Australian land tenure, as a result of lobbying by Wakefield in London from 1829 on behalf of SA, imposed further constraints on its economic development. Land grants in Australia were superseded by the requirements of the Ripon Regulations in 1832⁵⁴ and land in the colony had to be sold at the minimum price of 5s⁵⁵ with the proceeds used to fund immigration – a central Wakefield tenet. For existing and intending colonists in WA, the prospect of paying for previously free land from 1832 became an extremely unattractive proposition that, when combined with negative feedback filtering back to the metropolis from the first wave of colonists (Cameron, 1973), shut off the flow of immigrants and capital to the colony. Grafting parts of Wakefield’s program onto the WA’s land grant system were never likely to be successful as “the great evil had been wrought before the first vessel left England” (Roberts 1924, 50), referring to the inappropriate theory adopted for the colony’s design.

A further barrier to WA’s early economic development was the uncertainty over proposed changes to the pre-1832 grant conditions. Settlers had requested the right to average improvements to their grants and thereby gain title to the improved sections, and to exchange unproductive lands on an acre for acre basis for newly surveyed Crown land (Statham 1981, 186). Until the outcome of these requests was known, few settlers were prepared to purchase new land or sell untitled allotments. In the first seven years only 20,000 acres, of mainly urban land, had been sold but over 1.5 million acres was either assigned or held in reserve for the promoters of the colony, and the metropolis had been obliged to contribute over £145,000 to the cost of settlement (Pike 1957, 39) which was supposed to cost the British taxpayer nothing.

In response to settlers’ requests, the Glenelg Regulations of 1837 allowed settlers, granted land prior to July 1831, to exchange three acres of their original grant for one acre of new Crown land. This mechanism allowed settlers to surrender unproductive land in undesirable locations for better situated land without monetary outlay, and in response, one-fifth of the 1.5 million acres of land initially granted was

⁵⁴ The regulations themselves were introduced in 1831 but did not take effect until 1832 because of travel time between Britain and Australia.

⁵⁵ Boyce (2011, 150) described how Lord Howick at the CO, in promulgating the Ripon Regulations, described the Australian land grant system as “entirely contrary to both reason and experience” yet the disposal of colonial land via grants was the product of prevailing British economic thinking up to the early 1830s.

surrendered between 1837 and 1841. Consequently, rural land sales temporarily ceased for two years and the only revenue came from the continued sale of town or urban lots (Statham 1981, 194).

The increase in price of Crown land to £1 per acre saw sales fall sharply from 13,866 acres in mid-1841 to 1,538 acres in 1846. Private transactions increased because secondary land was cheaper than Crown land with the *Inquirer* reporting in 1843 “the price of pasture lands [ranging] from 4/- to 7/6 per acre according to the quality and local advantages” (Statham 1981, 199). This secondary market activity led the colonial government to introduce a 1 per cent transfer duty on all secondary land transactions to offset the decline in Crown land sales (Statham 1981, 199).

Crowley (1960, 11) estimated that the land grant hangover lasted about twenty years from foundation before land sales provided a dependable, if erratic, revenue stream that funded immigration or public works. Despite the Ripon Regulation of 1831 outlawing grants of land by Australian colonial governments, parcels of land continued to be granted in WA up to 1880 (and possibly beyond). Both the *Blue Books* and *Census* data show that between 1832 and 1880 land grants were made in 36 of the 49 years. Some were significant, such as those in 1850, when grants to the British government-sponsored convict establishment in WA constituted almost 88 per cent of total land alienation; in 1869, 1.2m acres of colonial land was “granted free, without purchase”; in 1879 grants, mainly to the WA Timber Company⁵⁶ during the 1870s, accounted for 77 per cent of all land alienated; and in 1880, when land was granted to a private company to construct the Great Southern Railway between the towns of Albany and Beverley (Battye, 1921). By 1900, over 6.75 million acres (1.07 per cent of total land area) had been alienated generating total revenue of £2.63 million for the colony and helping bring in over 313,000 immigrants

South Australia

To the systematic colonisers launching SA, “the Swan River Settlement was the best example of the worst method of colonisation” and they were determined to demonstrate the efficacious effects of Wakefield’s theories on colonial economic formation (Crowley 1960, 11). Land in SA was subject to sale from its very inception but its terms of settlement came with a different set of problems. By the time the first settlers arrived, Crown land was being sold at a minimum upset price across Australia. This mechanism ensured that the buyer received full ownership rights, including alienability, under English common law which was free from arbitrary

⁵⁶ A syndicate of Victorian investors was granted a timber concession of 181,500 acres on Geographe Bay in the south west of Western Australia in 1870 (Gunzberg and Jeff, 2008)

confiscation and conditions of improvement. The sale, rather than granting, of land ensured that the colonists could only purchase as much land as their available capital would allow and was designed to concentrate settlement in a combinable (but not necessarily efficient or optimal) supply of capital and labour. In theory, with secure ownership rights, settlers in SA would utilise their land to its full productive potential.

As with WA, the original terms of settlement envisaged an agricultural economy based on British intensive farming practices, and called for purchases of 81-acres lots comprising one town acreage and 80 country acres. This original configuration was championed by Wakefield when planning SA during the early 1830s as this farm size was common in England prior to the mid-nineteenth century (Deane 1965, 44-5). However, such small holdings hampered sustainable and economic farming since they were too small to allow Australian farmers to capture the economies of scale and scope to compete in the British market. Again, as with WA, the lack of a complete survey also hampered settlers from occupying their grants, and this led to speculation in land prices⁵⁷. An article in the *SA Gazette* at the end of 1838 (i.e. only two years after settlement) announced that there had been an increase in the value of some preliminary town sections of nearly 1,400 per cent (Dutton 1971, 274).

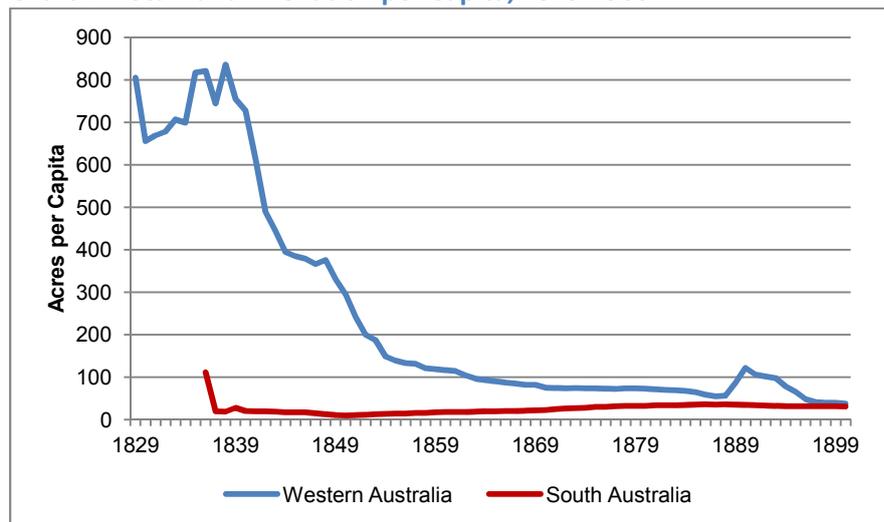
Despite these setbacks, early applications for land were made by tendering at a fixed price and over 325,000 acres (19 acres per capita) of land had been thus disposed of by 1843, when sale by auction was introduced. By 1857, 1,758,345 acres (16 acres per capita) had been alienated at an average price of £1 5d 3s per acre. All land sold prior to 1869 was conducted strictly on a cash basis (i.e. either for a fixed price or by auction) after which sales on credit were introduced, with payments initially spread over four years and later extended to 20 years (discussed in detail in the next section) (Aitchison 1970, 102). As leasing, as a method of alienation grew in popularity, the SA government appointed a Land Board in 1886 and the Pastoral Board in 1893 to manage the various methods of land alienation (Aitchison 1970, 102). The Principles of Closer Settlement, whereby the Crown repurchased and subdivided suitable lands, were introduced in 1897. By 1900 a total of 11.3 million acres of land (4.6 per cent of total) had been sold which had raised a total almost £14.7 million – at an average price of £1 5s 0s per acre – that helped to introduce 1.3 million immigrants to SA and to developed infrastructure throughout the colony.

⁵⁷ Both Pike (1957, 516) and Cross (2011, 14 f.n. 23) show that concentrated settlement led to rampant land speculation as many pastoralists misused this cherished tenet of Wakefield's system for personal aggrandisement.

Comparing Land Alienation in WA and SA

Chart 1 plots the total land alienated per capita for both colonies. The effects of the grant system in WA - discussed in the previous section - can clearly be seen. By 1839, the average rate of alienation was 836 acres per colonist before consolidation of dispersed grants. The resumption of unimproved grants after the first 10 years reduced this ratio; however, it took some time before the large land holdings were reduced to sustainable levels. Increases in population (both mechanical and natural) particularly after 1850, continued to help reduce per capita land alienation, as did sub-divisions of original holdings into more manageable blocks. However, as Chart 1 shows, the duration of the land grant hangover lasted longer than the twenty years estimated by Crowley (1960). By 1850 the ratio had only halved and was still higher than all the other Australian colonies. Importantly, the colony's economic output was still negligible in 1850 - only a seventh of SA's at the same time.

Chart 1: Total Land Alienation per Capita, 1829-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

The contrasting pattern of land alienation in SA is stark. This colony established relatively small parcels of land in the earliest years of settlement mirroring the British farming practices of the early nineteenth century. As the agricultural potential of the land improved, these parcels increased slowly to a scale whereby Australian farming exports were cheap enough to compete in the British market. The fact that WA (and VDL and NSW) ultimately adopted a similar pattern demonstrates the superiority of the SA model - and suggests that its system of land allocation was a spur to its economic development. At Federation both colonies converged to an amount of about 30 acres per person (averaged over town, urban and rural holdings). The trend in Chart 1 for WA, similar to the experiences of NSW and VDL, shows that the large holdings of land per capita ultimately gave way to

smaller parcels under market conditions. This is evidence that the system of initial land allocation was never going to offer sufficient incentives to maximise colonial assets (Mills 1915, 332).

By encouraging a distribution of land based on grants WA colonists acquired land out of all proportion to their ability to bring it into full production without secure property rights thereby hampering economic formation. In SA, the amount of land acquired by sales was limited to the colonist's financial capacity to pay the asking price per acre. This gave the SA colonist a better than evens chance to derive a living from their land.

Institutional Innovation in Colonial Land Tenure

A further contrast in the two colonies' approach to assignation of property rights to land – with consequences for economic development – relates to their systems of land tenure. Colonists who *purchased* Crown land after 1831 in WA and 1836 in SA were forced to endure a transfer process which was slow, expensive, often failed to create certain title, and was particularly unsuited to fledgling colonies with a large number of landowners with high frequency transactions (Aitchison 1970, 102). However, to combat these deficiencies, SA recognised the need to reform its land tenure system toward the end of the 1850s whereas in WA similar changes did not occur until 1875.

The English institution of land tenure that was imported into the colonies was widely known as General Land Law and consisted of a series of deeds called a "Chain of Title" (McLeods n.d., 3). At common law, land owners had to prove their ownership of a parcel of land back to the earliest grant by the Crown to its first owner (Hill and Hill, 2005). Documents relating to transactions with the land were collectively known as the "title deeds" or the "chain of title" (Victoria 2012a, 1). In England the first grant could have occurred hundreds of years earlier and could have undergone dozens of changes in ownership. In the early days of Australian colonisation, difficulties sometimes arose in establishing the true owner⁵⁸ of a grant despite the relatively short length of time involved. Under such a system of land tenure, a person's current proprietorship could also be challenged, resulting in prohibitively high transaction costs (in legal fees) to defend the title, which hindered development of the land (Hill and Hill, 2005). Even an exhaustive title search would not give the purchaser complete security of ownership, largely because of the

⁵⁸ See Ellis (1972) for an example involving the NSW government in a dispute with Francis Greenway concerning the title to a land grant in Cockle Bay during the 1820s not more than 50 years after settlement.

principle, *nemo dat quod non habet* (“One cannot give what one does not own”) and the ever-present possibility of undetected outstanding interests (Baker, 1990).

The effect of registering a deed under the General Land Law was to give the registered *instrument* (as opposed to title) a priority over all other instruments that were either unregistered or not registered until some future date (Baker, 1990). Moreover, though a land ownership register was maintained, it was generally considered unreliable (due to the number of land disputes litigated in the courts of equity both in colonial Australia and England) and could be challenged in the courts at any time (Baker, 1990).

The Torrens Title System

In order to resolve the deficiencies of the General Land Law and improve the security of private property rights, Robert Richard Torrens [1814 – 1884] - the son of the noted economist and former chairman of the Colonisation Commission (see [Chapter 4](#)) - was a one-time South Australian Collector of Customs (Aitchison 1970, 102; Dutton 1971, 149) and introduced a new title system in 1858. His solution combined certain merchant shipping tenure principles (Aitchison 1970, 102) with ideas from Prussian mortgage practices (Robinson, 1979). It seems likely that Torrens Junior drew upon Wakefieldian ideas of recombining existing processes that subsequently led to institutional innovation in areas that were delivering sub-optimal economic outcomes.

His proposals led to the establishment of “title by registration” which dispensed with the need for deeds because the State became guarantor of the land title. The guarantee was supported by a compensation scheme for those who lost their title due to the State’s operation of the land tenure system (South Australia, 2008). All transfers of land were recorded on a central register, as under the old English system, but ownership was established by recording the purchaser’s name against each tranche of land in the colony (South Australia, 2008). Each tranche was labelled with a *folio* that identified it against a registered plan, or survey, and recorded the land’s key attributes (i.e. dimension, boundaries, registered owner and any legal interests etc.) that affected its title (South Australia, 2008). Once land was registered it could not be withdrawn and changes to the register could only be made by the State. A certain level of documentation had to be provided for a change in ownership to occur but this did not affect the *title* as the characteristics of the land remained the same. This is referred to as the *Mirror Principle* (South Australia, 2008) and forms the basis of the colony’s guarantee of the register’s accuracy – known as the *Insurance Principle* – designed to minimise uncertainty and risk in land transactions. To determine legal ownership, a prospective purchaser of land only

needed to consult the certificate of title held on the government register - known as the *Curtain Principle* – to determine *current* ownership (Aitchison 1970, 102).

As a result of the adoption of the Torrens Title, transaction costs (information search and legal fees) involved in land tenure fell significantly when compared to the earlier English institution operating in the Australia colonies. Following SA's lead, QLD adopted the system in 1861, VIC and TAS (VDL) followed suit in 1862 with NSW a year later, but it took until 1875, that is a full seventeen years, for the idea to be adopted in WA (Crowley 1960, 62). This is a prime example of institutional agility which is a hallmark of SA's colonial economy, to restructure and adapt to changed circumstances. It is also an early indication of WA's reluctance to adopt institutional reform which held back its economic development as that colony was saddled with a system of land tenure containing the remnants of the grant system operating alongside the disposal of land by sale. In addition, the conveyance of land was still based on the cumbersome "chain of title" principle.

The Credit Selection System

The reform of the title system by SA in 1858 allowed for further institutional innovation in land tenure. Prior to the late 1860s land could only be purchased for cash but the neighbouring colony of Victoria – a convict offshoot of NSW - brought in more liberal conditions including the purchase of land on credit and this saw a large number of farmers leave SA to take advantage of this offer (Roberts, 1924).

In order to arrest this precious migration, SA introduced the *Waste Lands Amendment Act*⁵⁹ in January 1869 whereby land could be sold for credit requiring a 20 per cent deposit with the balance payable four years later but the maximum purchase could not exceed 640 acres (Leadbeater 2011, 1). At the same time, Agricultural Areas (AAs) were proclaimed in various locations throughout the colony where the land could only be sold on credit (Gibbs 1984, 71). The price was set equal to the value of the best land in the AA (usually above £1 per acre mandated by the Ripon Regulations) with unsold sections being gradually reduced in price at regular intervals until the minimum price of £1 an acre was achieved (Leadbeater 2011, 1). Applicants were required to reside on their land, to cultivate it and to make specified improvements (Gibbs 1984, 71). Over the next few years changes to the conditions included: an extension to the term of credit to five years; a reduction in the deposit to 10 per cent with a further instalment of 10 per cent due three years later; a minimum of one-fifth of the land had to be cultivated annually; and the residency clause was relaxed (Leadbeater 2011, 2). In 1877 all previous land Acts were

⁵⁹ More commonly known as the *Strangways Act*

superseded by the *Crown Lands Consolidation Act* (SA), which increased the maximum size to 1,000 acres with a nine year payment term. In a way this method shared some similarities with the old grant system, in that failure to abide by the conditions resulted in potential forfeiture of lands.

After a *twenty year* delay, the WA government began establishing AAs in 1889 to encourage farming in response to the rapid increase in population caused by the discovery of gold and surveyed land in at least 40 localities (Burvill, 1979b, 19). In 1893, the *Homesteads Act* (WA) granted small holdings to bona fide settlers. Further land could be acquired under "Conditional Purchase" at 10 shillings per acre with 20 years to pay the outstanding balance. In return the purchasers were subject to certain conditions including mandatory residency and making improvements equal in value to the cost of the land within five years (Burvill 1979b, 21).

The Economic Effects of Institutional Changes in Land Alienation

The colony of SA played an important first-mover role in institutional innovation in land tenure. The introduction of land sales on credit gave the small SA farmer the opportunity to own land with a reasonable chance of success. In the first three years following passage of the *Waste Lands Amendment Act* (SA) over a million acres were sold in SA, 60 per cent of which was on credit (Leadbeater 2001, 2). The rush to take up land within the AAs directly spurred the development of new towns and railheads (Burvill 1979b, 21). For instance, in SA the AAs resulted in the extension of railways and tramways to transport grain to the ports on Spencer and St Vincent Gulfs where new wharves and jetties were needed; towns flourished with flour mills, schools, churches and local newspapers being established (Leadbeater 2011, 3). Similarly in WA, the railway extended to the east and south east following the establishment of AAs (Burvill 1979b, 19), which made gold mining in the Kalgoorlie region feasible. The increased focus on farming allowed for the introduction of new varieties of wheat, methods of cultivation and the application of superphosphate fertiliser which increased the yield of existing crops and allowed for significant diversification of agriculture produce across both colonies (Burvil 1979b, 19). Thus, this is a clear example of how institutional innovation was a spur to economic development.

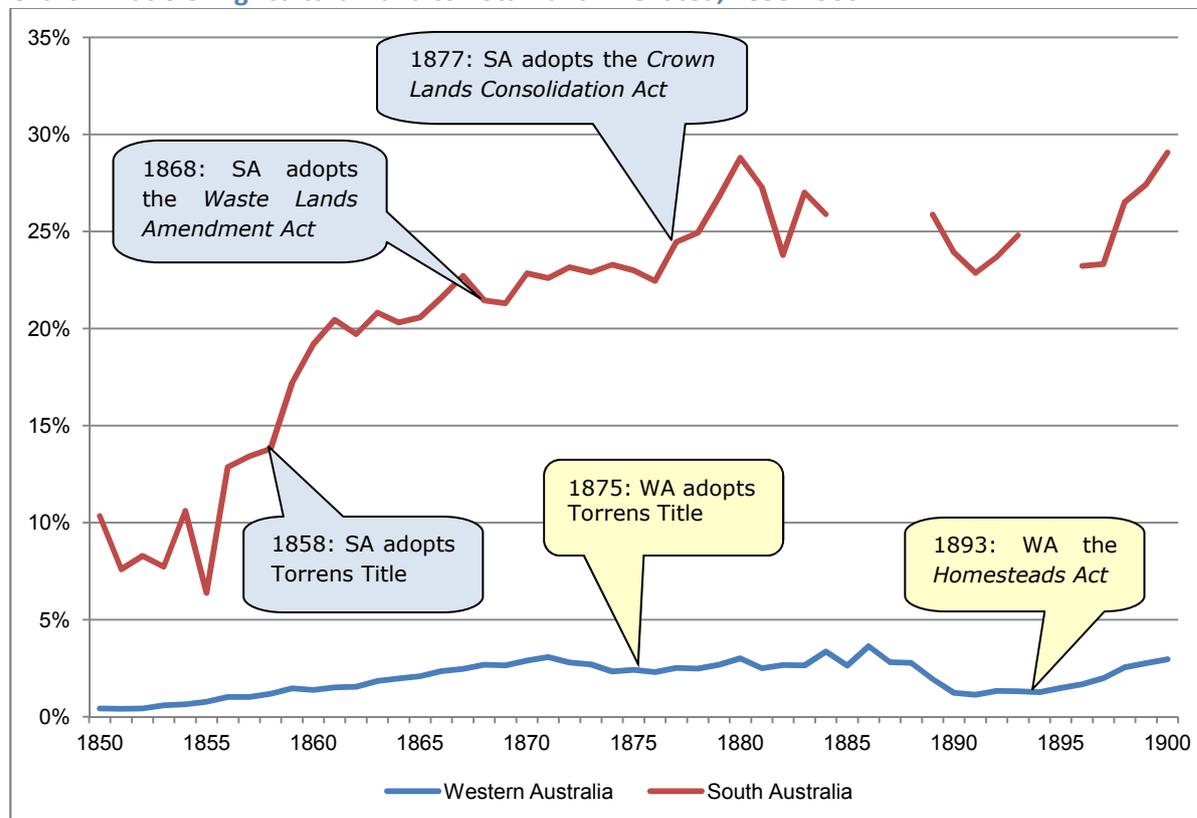
A further way to measure the effects of these two institutional innovations of land tenure and credit selection on economic development would be to examine how they affected the use of land. Whilst detailed and concise statistics for pastoral and mining activities covering both colonies are not readily available or comparable, farming data can be used as a proxy for land use. Data on farming is likely to proxy the capital intensity of land use because farming was the one land-based activity that

required the purchase of land (at least until the close of the nineteenth century when farming could be done on leased land).

Brunt (2007, 4) argues the impact of property rights can be examined via the ratio of agricultural land use to total land alienated. He observed that when the security of property rights were strengthened in South Africa in 1843 after switching from civil to common law, there was a marked step-up in the amount of land devoted to agriculture. He argues that the secure property rights encouraged farmers to engage in fixed agricultural activity involving significant capital outlays rather than pursue itinerant farming practice as settlers had done in South Africa under Dutch law.

Farming data in both colonies provide *prime facie* evidence of the cumulative effects of the higher security of property rights over a longer period in SA as compared with WA. It shows the amount of land devoted to agriculture by 1900 averaged about 1.6 per cent of total alienated land in WA as opposed to 17.3 per cent in SA. Additional support for the hypothesis that property rights were stronger in SA over a longer period of time, and this had a beneficial effect on the colony's economic development, comes from Chart 2.

Chart 2: Ratio of Agricultural Land to Total Land Alienated, 1850-1900



Source: *Blue Books of Western Australia & Statistical Register of South Australia*

By plotting the ratio of agricultural land against total land alienation in the two colonies between 1850⁶⁰ and 1900, it identifies the timing of major institutional reforms in land tenure. As can be seen, there was a marked increase in land utilised for agriculture in SA after the adoption of the Torrens Title in 1858. There is a further increase in agricultural use after the *Crown Consolidation Act* (which effectively codified the credit sale of agricultural land). Both changes in land tenure are consistent with the hypothesis that the institutional reforms promoted economic expansion in SA.

The evidence of the benefits of land tenure reforms in WA are less clear cut. Agricultural land use in WA reached a peak in the mid-1880s, suggesting a less favourable institutional environment. Furthermore, the advent of belated institutional reforms had a relatively small impact on the ratio as it revived after 1893, three years after self-government and in conjunction with the mining boom. Despite Crowley's (1960, 62) assertion that the Torrens Title greatly benefitted "future" generations of West Australians, its initial introduction seventeen years after its innovation in SA, is almost unrecognisable, in terms of encouraging agricultural use, increasing from 2.42 to 3.63 per cent in the eleven years to 1886 compared with activity in SA. However, it must be noted that this reform was introduced to WA at a time of agricultural decline, due to the cessation of convict transportation, and so its immediate and lasting benefit was perhaps not immediately apparent. The combination of gold, immigration on a scale never before witnessed, and favourable government incentives designed to increase internal food production, saw land use doubling from 1.3 per cent in the seven years following the introduction of the *Homesteads Act* but it was not enough to guarantee internal food supply for another thirty years (and required many additional institutional reforms).

In short, the adoption of the credit selection system in SA was an important example of the agility of SA's institutions, perhaps responding to the competition posed by neighbouring colonies to gain economic advantage, and the adaptability of its institutions to respond to changed economic circumstances. By contrast the delay in adopting the latest institutional innovation on land tenure continued to hold back WA's economic development by adding search risk and legal fees to land transactions, and is likely to have contributed to WA's reliance on imported food stuffs until the 1920s (Burvil, 1979).

⁶⁰ Data prior to 1850 are fragmentary and distorted by the massive grants of land in WA that marked their settlement and its inclusion is misleading.

Leasing

Another example of institutional innovation in property rights that affected the allocation of land resources in the Australian colonies, and that was a potential source of difference in the economic performance of WA and SA, was leaseholds. A lease is a form of land tenure that creates a contract between a colonial lessee and the metropolis to conduct certain and specific activities on unsurveyed Crown land (Productivity Commission 2002, 2). In return for an annual rental payment, the lessee receives an exclusive right to graze or to mine, and to develop the necessary supporting infrastructure (e.g. fencing, water wells, housing, tillage etc.). This unique institutional mechanism enabled pastoralists and miners in colonial WA and SA to exploit the resources of the land whilst avoiding the significant capital costs associated with land purchase.

Pastoral Leases

Pastoral leases evolved during the 1840s as colonial governments used them “as an expedient...for asserting ongoing Crown ownership of land in the face of rapid, uncontrolled, pre-emptive pastoral occupation” (Holmes 2000, 213). Leasing, which represented a significant departure from Wakefield’s theories on colonisation, allowed colonial governments to retain both flexibility and control over the vast tracts of land outside the bounds of settlement for pastoral purposes (Productivity Commission 2002, 6)? Colonial governments received revenue on otherwise vacant land and were able “to preserve the option...for future allocation and use of the land” (Holmes 2000a, 217).

In 1851, with the rapid expansion of the pastoral industry driven by the demand from the British textile industry that placed a premium on Australian wool due to its quality, the metropolitan government published regulations which formally established standardised pastoral leases in the Australian colonies. These allowed colonial governments to set the size and form of the leases, rental rates and terms to suit local circumstances. They conferred an exclusive right of occupancy of the land for pastoral purposes and permitted the cutting of timber for domestic uses and construction. The regulations reserved to the metropolis rights to the natural resources (timber, soil and precious metals), as well as the right to resume the land and to develop public infrastructure (Productivity Commission 2002, xiii).

The lease itself gave the pastoralist a level of regulatory certainty around the occupation of “waste land”. However, pastoralism was always seen as a “passing phase towards an agricultural economy” (Webb and Webb 1983, 4), meaning that such land would be eventually given over to agriculture or urban development, and such occupation by the pastoralist was transient. Despite many attempts during the

nineteenth century by graziers to improve the set of property rights associated with their leases, the lessee was always subject to constraints on conditions on development and management, and was never able to obtain exclusive ownership unless the land was purchased outright. In this manner, the lease itself shared some of the characteristics of the Usufruct discussed in [Chapter 3](#) and, as there was no exclusivity of ownership, there was less incentive for natural resource management⁶¹. Nevertheless, so long as pastoralists accepted such terms, the lease system encouraged the expansion of the wool industry well into the 20th century.

The WA pastoralist had a choice between an annual lease term and a fixed eight year term. According to Clement (1998, 2), the latter type came with “no application fee, no charge for a permit to land stock, and no requirement to pay rent in the first four years”. The lease was non-renewable and cost 5 shillings per 1,000 acres for the remaining four years. These terms were designed to attract pastoral investment in the remote north-west and south-east of the colony where there was with no guarantee of services or protection (Clement 1998, 2). However, the first settlers in the 1860s quickly found the potential of these areas overstated and were faced with prohibitive transportation costs. The government reworked the pastoral lease in 1878 and again in the 1880s. The term was extended to 14 years and the lessee was given pre-emptive rights to purchase the land at the end of the term which was, as before, non-renewable. While the increased term gave greater security, the reworked lease did little to address the principal concerns of the pastoralists in these remote regions (Clement 1998, 2-3).

Across the Nullarbor, SA adopted a system of fixed-rent medium-term (14 years) leases in 1851 designed to give greater permanence to the pastoral landscape (Bell 1998, 7). Such leases proved popular among pastoralists spurring on a number of additional modifications. For example, the term of the lease was extended to 21 years in 1864 and to 42 years in 1890, far longer than in WA. In addition, the right to purchase leased land was introduced in 1888 as was the perpetual lease, and by 1893 rents became fixed in perpetuity (Aitchison 1970, 102).

Table 4 shows the take up of pastoral leases from 1851. In WA, during the first year of operation, no lease applications were made but from 1852 the data show a steady growth in the area of land given over the grazing. In the four years to 1854, WA lease applications covered 12,636 square miles compared with 19,392 in SA and both show an increasing trend. Clearly the rental price per square mile in both

⁶¹ This is illustrated in the arid north of SA where the high failure rate of pastoralism beyond Goyder’s Line of Rainfall, purely on the back of a few good seasons during the 1870s, resulted in the destruction of the land that today remains unproductive (HistorySA, 2012).

colonies during this brief period ($\mu_{WA} = £1.74$ vs. $\mu_{SA} = £1.77$) compares favourably with the price of freehold land (£1 per acre), giving the pastoralist *control* of the resources of a much greater parcel of land at a fraction of the price of freehold land. As of 2011, pastoral leases account for 87 per cent of WA's total productive land capacity⁶² and about 88 per cent in SA, testament to their importance as a method of land tenure (ANRA, 2011).

Table 4: Return of Pastoral Leases, 1851-1858

Year	Western Australia			South Australia		
	Area of Lease	Amount Realised	Average Price	Area of Lease	Annual Rental	Average Price
	Sq. Mi.	£	£ / Sq. Mi.	Sq. Mi.	£	£ / Sq. Mi.
1851	0	0	0	14,017	8,289	£1 13s 9d
1852	3,682	2,055	£1 15s 10d	444	152	£2 18s 5d
1853	4,140	2,300	£1 16s 0d	1,855	928	£1 19s 11d
1854 ⁶³	4,814	2,897	£1 12s 2d	3,076	1,538	£2 0s 0d
1855	n.a.	n.a.	n.a.	1,684	842	£2 0s 0d
1856	n.a.	n.a.	n.a.	3,642	1,821	£2 0s 0d
1857	n.a.	n.a.	n.a.	2,968	1,483	£2 0s 0d
1858	n.a.	n.a.	n.a.	3,935	2,000	£1 19s 4d

Source: *Statistical Returns of Western Australia, 1854*; *Statistical Register of South Australia, 1858*.

The pastoral lease is, arguably, one of the most important institutional innovations in Australian economic history. With a lack of complete and comparable time series data on leasing for both colonies, however, it is difficult to assess the quantitative impact that this subset of property rights had on the direct economic performance. It must have been considerable though since both colonies were enthusiastic adopters of the pastoral lease; and both made micro-adjustments to key terms of the lease to suit local conditions. SA initially offered a longer-term lease compared with WA, which, perhaps, assigned stronger property rights to the pastoralists. In turn, this may have encouraged a greater level of investment in sheep runs (i.e. improving water and food supplies, fencing and eradicating pests etc.) that helps to account for the disparity in sheep numbers and wool yields between the colonies, as detailed in [Chapter 7](#).

Mining Leases

The mining industry was the apex of the colonial economic pyramid and was built on the back of pastoralism. As the search for fertile land and grazing areas for the ever expanding sheep population pushed out from the major population centres,

⁶² This is defined as total land mass of each state (colony) minus the area given over to nature reserves, protected areas including Aboriginal reserves and minimal use land (e.g. desert). This information was provided by the Australian Natural Resource Atlas (ANRA) website that as of 31 May 2013 was decommissioned by the Australian Government.

⁶³ Nine months to September 1854.

new towns came into being which acted as supply bases for further exploration of the hinterland of all the Australian colonies (Blainey 1970). Equally applicable to all the colonies was the fact that farmers and pastoralists discovered minerals either on their land or on adjacent unsurveyed tracts, and, on average, many deposits lay within one mile of homesteads and, above all, on roads leading into the interior, which, of course, reduced the costs of recovery compared to districts inaccessible to sheep (Blainey 1970, 300). The 1851 metropolitan regulations that standardised the pastoral lease allowed all the colonial governments to offer leases for mining purposes.

As discussed below, both colonies understood the importance of mining to their economies and also realised the need for systematic exploitation of minerals that resulted in a public benefit. In addition, both colonies were quick to clarify the ownership status of mineral found on Crown land and in this respect WA shows an unusual institutional agility. Table 5 (p. 133) provides a snapshot of mining leases in SA and WA as of 1900 at a time when WA's mining boom was approaching its peak and SA's copper mines were all but exhausted.

Western Australia

The WA government sent a request to the metropolis seeking to clarify its position regarding the ownership of precious metals in 1847. The subsequent revision, issued in the following year, exempted coal, iron and lead (T. Reynolds, personal communication January 4, 2012) from the definition of precious metals reserved to the Crown. The timing of the clarification coincided with the discovery of coal near the Irwin River in 1847, as well as copper and lead in 1848 (Battye, 1921). The gold rushes in the eastern colonies were viewed with some suspicion by the leading magnates of WA who were "unsure of the benefits brought by a hoard of fortune-seekers who contributed little or no capital [to the colony]" (Western Australia 2004, 9). They insisted on mining laws that encouraged deep mining and therefore required highly capitalised companies. To this end, a WA ordinance (No 17 of 1854) empowered the colonial government to regulate goldfields (that had not yet been "discovered"), which was superseded by the *Auriferous Land Regulations* (WA) in 1884 and the *Goldfields Act* (WA) in 1886 (T. Reynolds, personal communication January 4, 2012). This set of mineral legislation detailed, among other things, the terms and conditions governing the various classes of mineral and gold leases and, as a result, WA avoided the worst of the excesses of the eastern gold rushes.

Table 5: Snapshot of Mining Industry, 1900

Colony	Western Australia	South Australia
Active Mineral Fields	20	70
Active Leases	2,898	689
Area (acres)	84,760	27,000
Men Employed	21,374	~4,000
Number of Ore Types	10	7
Export Earnings	£5,604,469	£2,494,114

Source: Western Australia. 1901, 13-19; *Statistical Register* of South Australia.

South Australia

In 1831 the Ripon Regulations reserved ownership of all precious metals found in the Australian colonies for the home government which effectively disbarred private investment in mining. The view was considered by the systematic colonisers of SA to be an anachronism of the Spanish Empire, and they also held some hostility to the unearned income from mineral deposits enjoyed by Britain's landed aristocracy (Pike 1957, 398). It was never really enforced by the metropolis and was easily circumvented by enterprising colonists. For example, when sizeable copper deposits were found at Kapunda in 1842, they were initially kept secret from the colonial government until the land could be purchased at a price less than its fair value (Gibbs 1984, 97). Apparently this was common practice and the SA government, aware of the issue and of the location of certain minerals, proposed to withhold the land for sale until its worth could be ascertained and sold at a fairer price. However, the suggestion was not adopted by the metropolis (Pike 1957, 398).

In July 1852, the SA government, stung by recent land frauds perpetrated by mining speculators, placed an advertisement in the *Sydney Morning Herald* (July 31, 1852) that reported the key terms and conditions for a mining lease. In essence, the government offered 80-acre sections - like the farm plots - for a term of up to 14 years for an annual rental of 10s per acre. Leases came with a one-year option to walk away if no minerals were found. If ore was found then the lease term began at the start of the second year. At the end of the lease the land would be sold by public auction, but in the event that a sale was unsuccessful the lessee would be compensated for any improvements made on the land. A number of lease applications were made by pastoralists, who found copper ore on the Yorke Peninsula at the start of the 1850s. However, due to the high wool price, mining was dormant in this region until the 1860s (Blainey 1970, 308). As wool prices fell and the richness of the copper deposits became known, there was a rush to obtain leases to exploit the Yorke Peninsula mines.

As with the pastoral lease, the lack of time series data on the issuance of mining lease applications makes it difficult to assess the impact that the institutional innovation of the mining lease had on the economic development of the colonies, but, as [Chapter 7](#) will show, the cumulative export earnings from mining were virtually identical by 1900 in WA and SA implying that differences in institutional innovation around mining leases were not large enough to cause major differences in mining investment.

Intellectual Property

Although most discussions of property rights focus on land, rights over intellectual property are, as the theoretical discussion in [Chapter 3](#) shows, also critical determinants of economic performance. North (1981, 5-6) has pointed out that invention produces both private and social benefits. If the law does not reserve a high enough return for the inventor, innovation will be stifled, productivity will stagnate, and the economy will fail to grow. So by rewarding the inventor, society rewards itself (Bernstein 2004, 82).

Whilst data on early innovation in Australia is scarce, it has been possible to access information on the number of patent applications, which is a reasonable proxy for the rate of technological change in the economy (Shane 2003, 24). However, patent data do not say anything about the productive significance of new inventions, for, as Deane (1965, 128) points out, not every patented invention “breaks a current bottleneck, or reduces some of the limiting factors to expansion of supply, or meets an unsatisfied demand”. Some scholars prefer to interpret patent applications in the role of innovation as an index of “people perceiving the need to resolve a problem”, and the rate of growth in patent applications indicates the number of economic roadblocks facing society and the incentives to invent (J. Stanley Metcalfe, personal communication July 2, 2013).

Most early forms of innovation in Australia sought to do more with less; especially less labour as this commodity was both scarce and expensive for the labour-intensive farming practices that characterised the period (Burvil 1979a, 8). As outlined in Chart 3 (overleaf), the data on cumulative patent applications ascribed to each colony show further substantial differences between SA and WA over the period to 1900.

The system of granting patents in the Australian colonies was based on British law, which has its roots in the English *Statute of Monopolies* of 1623 (Victoria, 2012b). Prior to colonial self-governance, inventors applied directly to the metropolis for patent registration and protection (Victoria, 2012b). Britain’s patent system prior

to 1852 was cumbersome and expensive: the cost of an application was £100 and it had to be filed in person, that is, in London (Kahn and Solokoff, 1998). If a patentee wanted to cover Scotland and Ireland as well as England, the cost could exceed £300 (Mokyr 2009, 404). As a result the cost of applying from the colonies would have been prohibitive.

When the colonies gained self-government, inventors were permitted to apply to the governor for a patent, by way of a private bill (Victoria, 2012b). The first colonial patent was granted to an Adelaide inventor in 1848 for a 10-year term, and a further three private patents were granted in SA; and several were granted in WA prior to the adoption of specific patent legislation based on the revised metropolitan *Patent Law Amendment Act (UK) of 1852* (Victoria, 2012b).

SA was the fourth Australian colony to enact the UK patent legislation in 1859 whilst WA followed suit in 1872. WA was again slower at adopting important institutional innovation to the detriment of its economic development. Patents protected the entrepreneur from disclosing the invention for up to 14 years; the right to earn income (by licensing their innovation); the right to dispose of the invention; and the right to call on the State to enforce the entrepreneur's protective rights. By the time the Commonwealth assumed responsibility for the State patents acts in 1904, SA had recorded 9,245 patent applications since 1848 whilst in WA there were 4,857 applications from 1863 (Victoria, 2012b), which includes patents granted in the period before the specific adoption of the UK patent legislation.

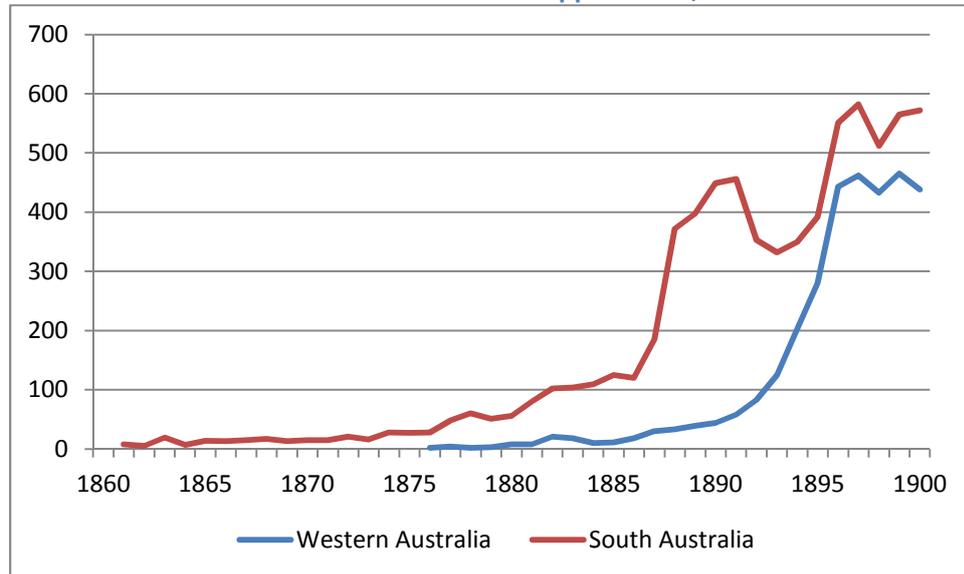
Patent law wasn't the only institutional factor promoting innovation in SA. With its compact urban society, this colony rode in the vanguard of technological innovations in farming, such as Ridley's stripper⁶⁴ of 1843, chemical fertilisers and selective wheat breeding. Each of these increased farming productivity and thereby freed up labour to engage in a wide range of other activities. All were conducive to economic growth (Bernstein 2004, 93).

Chart 3 (p. 136) details the growth in colonial patent applications from 1860 when data on the number of annual patent applications was first released. The advantage of adopting first-mover institutional reform can clearly be seen with at least a seven year gap separating the entrepreneurial propensity of the two colonies. The dip that occurred in the number of SA's patent applications from 1891 to 1896 is a result of an economic recession that had its roots in the Victorian banking crisis. Nevertheless, with intellectual property rights thus protected, the colonists had the

⁶⁴ Unsurprisingly Ridley never patented his stripping machine but a generation later there were 30,000 or so in south-eastern Australia (Fitzpatrick 1947, 147-8).

necessary incentives to innovate safe in the knowledge that the fruits of their labour would not be expropriated by competitors and governments.

Chart 3: Number of Annual Colonial Patent Applications, 1860-1900



Source: Vamplew, W. 1987. *Australian Historical Statistics*. Fairfax, Syme & Weldon: Sydney. ES 236-241.

Summary

From the foregoing discussion, it appears obvious that property rights, in land particularly, were a key institutional determinant in colonial economic development, and that two distinct systems of rights were in evidence. In WA, the grant system allowed colonists to amass land based on the value of their capital assets with cash exempt from this valuation at the rate of 40 acres of colonial land for every £3 of assets invested. The ratio of land to colonists was unprecedented during the first 10 years of settlement, before falling away over the remainder of the century. The grant system was inherently insecure, for the colonist was required to improve the land up to a certain threshold within 10 years. Failure to meet these requirements resulted in forfeiture of the grant. Furthermore, the system forced colonists into pursuing farming by creating a society of landlords without labourers to work the land, and with a dispersed population, there was little chance (or incentive) of fulfilling the terms of the grant.

Even innovations in land tenure such as the Torrens Title and the Credit Selection of Land were adopted in WA many years after their initial development and hindered efforts to become self-sufficient in food. The amount of land devoted to agriculture was certainly much lower in WA compared to SA across the century. Leasing for pastoral or mining purposes took some time before their potential was realised and patent applications only became popular during the 1890s. WA's system

of property rights cast a long shadow over its economic development until the gold rush that began after 1885.

Across the Nullarbor, land in SA could only be alienated by sale and colonists could only amass land up to their available capital, which brought about concentrated settlement. The sale, rather than granting of land, brought common law rights to the title of property, an innovation in Australian land tenure that was free of improvement conditions and arbitrary confiscation. With their rights to property secure, SA colonists had sufficient incentives to develop their land to its full potential and this is shown by the amount of land devoted to agriculture in the colony. The ratio of land to colonists never exceeded 30 acres throughout the nineteenth century.

In addition, SA embarked on numerous institutional innovations designed to reduce search and information costs, increase security of title, and grant farmers easier access to the land through sale on credit. Furthermore, there was significant institutional pressure from SA (and NSW, VIC and VDL) on Britain to introduce a standardised lease and, when available, SA was a rapid adopter of pastoral and mining leases. Lastly, SA recognised the value of intellectual property and took steps to provide the appropriate protection to innovators. This brought many new techniques and processes to market, particularly in agriculture and, thus provided the opportunity for workers to seek employment in specialised trades and industries. Such innovations included the use of natural and artificial fertiliser, adopted earlier than in WA, which contributed to a higher yield of wheat. Overall, property rights in SA were better specified and more widely diffused which encouraged a greater level of economic activity in agriculture compared to WA.

Capital Markets

The theoretical framework developed in [Chapter 3](#) also highlighted the importance of institutional innovation in capital markets to economic performance. A successful market for capital depends on good information and low risk at a minimal cost (Bernstein, 2004). Capital market institutions offer an open source of funding that facilitates the large-scale development and production of new inventions and industries. Since almost no entrepreneur has enough money to mass produce inventions, industrialisation and economic growth is impossible without substantial capital injections from outside sources (Bernstein 2004, 15). This section discusses how capital market institutions may have influenced economic performance in WA and SA through the colonial money supply, banking competition, the market for public debt and the cost of money. This section draws upon the scholarly work of Sid Butlin's *Foundations of the Australian Monetary System: 1788-1851* (1953), but also uses a significant amount of original financial data available in the *Blue Books* and

the *Statistical Registers* to highlight how capital market institutions differed between the colonies.

Colonial Money Supply

Western Australia

As noted earlier, the “Conditions of Settlement” encouraged colonists to spend their available capital on stock and labourers in order to maximise their land grants. The WA government had very little cash of its own as the metropolis naïvely expected the colony to be self-supporting through the taxes on trade. The governor was allowed only £1,000 for the administration of the colony. Various attempts by private individuals to alleviate the currency shortage by offering private notes were unsuccessful (Butlin 1953, 386). With capital assets and livestock serving as purchasing power, the colony thus had insufficient liquidity to develop a functioning exchange economy⁶⁵ (Statham 1981, 184). McDermott (1874, 39) left a poignant illustration of how transactions took place in early WA:

If you required a team of horses, the person desirous of selling one did not want what you could offer in exchange but wished for sheep. You then applied to an owner of sheep who desired something you did not possess; and frequently two or three exchanges were necessary before you could procure the articles you wanted.

It was not uncommon to see the price of a boat, for example, advertised at “35 guineas cash or 40 guineas in barter for livestock or useful articles of provisions”; for house rent “store will be taken at the market price”; and land was frequently offered in exchange for livestock (Butlin 1953, 386). Even the government on occasion accepted payment in kind (Butlin 1953, 387).

A small scale commissariat function – a military department charged with the provision of supplies, both food and forage, for the troops - was set up in 1831. This stimulated the internal market demand for colonial produce and boosted cash reserves, as did the annual metropolitan fiscal subsidies to help meet the costs of the colonial government (Butlin 1953, 380). Private funds were introduced into the colony through the victualling of foreign ships and by immigration, but the principal income was generated from wool exports, with the merchant community acting as a broker (Statham 1981, 195) during the absence of formal banking institutions.

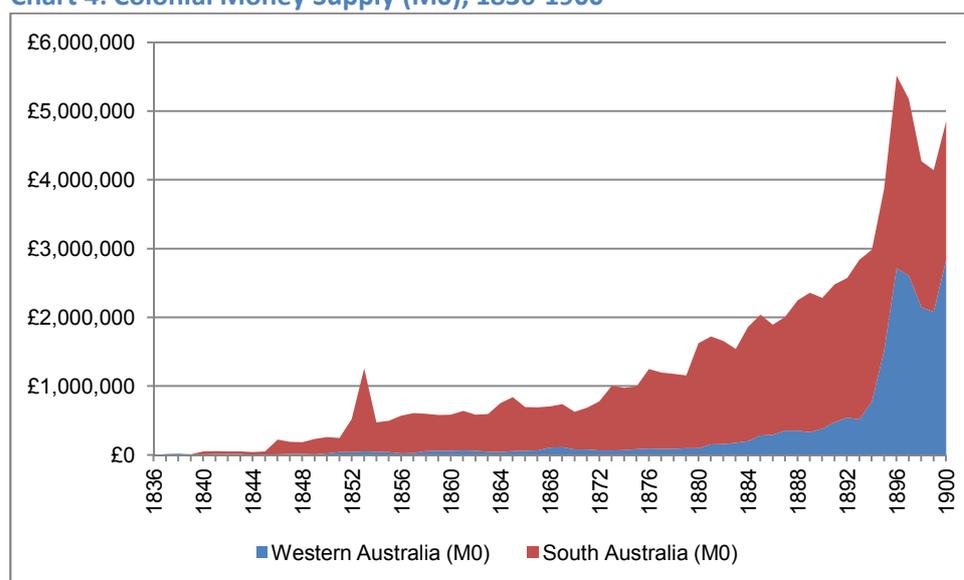
The expenditure involved in running the convict system, amounting to some £2 million by 1868, was met by an increase in the metropolitan fiscal subsidy (Crowley 1960, 41) which saw the circulation of money increase by a factor of eight to £110,000 at a time when domestic banking was still uncertain (the first bank

⁶⁵ In a barter economy with N commodities there are $N(N-1)/2$ transactional pairs (Bernstein 2004, 136).

being established in 1837). However, cash continued to leak from WA due to its unfavourable balance of trade: of the 72 years to 1900, the colony ran an annual net export deficit 59 times. Chart 4 compares the amount of coin and notes – collectively known as M0 – circulating in both colonies from 1836. For WA the growth in M0 is almost imperceptible until 1880 when the stock of M0 grew strongly as the mining industry developed.

The mining boom that began in the mid-1880s attracted a massive amount of cash into the colonial economy. This income was used to meet the demand for public goods and services, including infrastructure, that couldn't be met internally. Inflation soared as a result, driven partly by a wildly fluctuating gold price on the secondary market despite its global fixed price in the metropolis. Prices soon settled when a branch of the Royal Mint opened in Perth in 1899 and stabilised the local price paid for gold (Crowley 1960, 134).

Chart 4: Colonial Money Supply (M0), 1836-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

South Australia

As Chart 4 shows, SA was less affected by a lack of money. This contrast can be attributed to better institutional planning at the time of foundation. The South Australian Company brought with it £20,000 in notes and coin (Serle, 1949) to enable it to pay its employees, and this fund formed the basis of an embryonic capital market at foundation in 1836. A short time later, the Union Bank of Australasia and the South Australian Banking Company commenced operations and their presence quickly brought much needed liquidity and financial intermediation to the economy (Serle, 1949). Despite the availability of cash currency in the colony, during the first two years of settlement traders had trouble disposing of goods

imported to SA because, lacking any exportable products, early SA was little more than a consumer economy and the settlers quickly spent their savings on food and shelter (Dutton 1971, 275).

The M0 circulation in Chart 4 shows a much stronger growth compared to WA which is indicative of how quickly SA developed a diversified export economy comprising of wheat, wool and copper especially after 1845 when such products were sold on consignment to London. The cash income was spent on an increasing demand for imports that grew in proportion to economic expansion.

The sudden peak in M0 that occurred in 1853 was due to the operation of the *Bullion Act* (SA) which attempted to address the currency drain caused by the exodus of labourers to the Victorian goldfields (Fitzpatrick 1949, 107). By offering a higher price for gold in Adelaide, compared to Sydney and Melbourne vis-à-vis the official London price, miners brought 219,373 oz. of bullion to the value of £778,774 to Adelaide in the first six months of 1852. A government Assayer cast coins from raw bullion which the banks were obliged to receive at a £3 11s per oz. and give their notes in exchange (the current price of gold being £3 per oz. in Melbourne and £3 3s in Sydney). The banks were required to hold a reserve of 'gold or silver coin equal in amount to one third of the notes issued', which was declared legal tender during the twelve-month operation of the Act (Fitzpatrick 1949, 107). As a result of the Act, abundant capital was now available to develop wheat production on a scale to meet the demand for foodstuffs by the other Australian colonies (Van Diemen's Land (Tasmania) excepted). This example of economic opportunism is another illustration of SA's unique ability to adapt its institutions to changed circumstances.

The dips that occur in M0 tend to correlate closely to episodes of drought that affected two of the colony's three primary economic bases - agriculture and pastoralism - but, overall, cash reserves continued to rise strongly during the latter part of the century, helped along by institutional reform in land tenure which strengthened the agricultural sector. Both colonies experienced a spike in M0 in 1896 as a result of the WA gold rush which had a beneficial effect on the SA economy due to its role in providing finance to companies engaging in reef mining and mining equipment.

Banking Competition

Australian banking has an intriguing history which Butlin (1953; 1986) has detailed extensively. As in the early development of financial markets in Britain, colonial bankers had not clearly differentiated themselves from merchants; and local governments were much more dependent on both for their financing requirements

than is the case in the modern economy (Stirling-Taylor 1933, 193). The first Australian banks were formed by merchants (Butlin, 1953), who acted as middlemen between primary producers and visiting ships. Providing trade credit was simply an extension of their core activities but as their businesses grew it became necessary to attract additional capital which could be achieved through partnerships.

Prior to 1856, the formation of joint stock companies, with its limited liability protection, could only be authorised by Royal Charter or Acts of Parliament (Mokyr 2009, 357). Applications for incorporation by banks in colonial NSW had generally been refused by the metropolis due to the *Bubble Act* 1720 (UK) and the numerous stock market panics of the 18th century that had tainted all companies as inherently fraudulent (Mokyr 2009, 357). However, until 1856 banking partnerships were risky ventures for those involved and growth was restricted to the capital of the fully liable partners.

The *Joint Stock Act* 1856 (UK) swept away these restrictions and resulted in a sudden rise of banking organisations across the Empire during the second half of the nineteenth century (Butlin 1957, 10; Mokyr 2008, 221). This growth mirrors the high degree of adaptability of private-order British institutions operating in the Australian colonies; banking was not a coordinated activity nor was it supervised by any central authority, and no political event was necessary to bring it into existence (Mokyr 2009, 221). But it was certainly receptive to supply and demand dynamics at work in the colonies. This subsection then outlines how each colony responded to this institutional environment in developing its banking services and expanding its economic development.

Western Australia

In the first eight years of the colony's existence, the acute currency shortage, resulting from the land grant scheme of colonisation, hindered the development of banking and the expansion of credit. Private note issuers "were unready to commit themselves to promises to pay coin which might be unavailable, and creditors were disinclined to accept promises of fulfilment of which was extremely doubtful" (Butlin 1953, 382). Those colonists who wished to borrow money in order to expand their primary industries, or develop other home-grown activities, found that the shortage of available currency translated into rates of interest of up to 25 per cent, in the early years of settlement (Butlin 1953, 386).

Economic expansion was given a boost when the first bank commenced operations in 1837 (Butlin 1953, 386). The Bank of Western Australia provided short-term funding by discounting bills not exceeding three months at the rate of 12.5 per

cent per annum (Butlin 1953, 392) and deposits were paid five per cent per annum. Due to its uncertain capital base, the bank refused to lend against bills of lading⁶⁶ for exports or on mortgage securities (despite much pressure), which were the principal forms of collateral in typical British-planned economies (Butlin 1953, 393). This reliance of short-term capital handicapped farmers and pastoralists because of their need for longer term financing. By the late 1840s however, the prohibition against export bills of lading had been relaxed. But this only applied to certain commodities such as wool, whale-oil, bone and timber (Butlin 1953, 402). Cautious lending, which discriminated against customary forms of collateral, helped to prolong barter exchange and money continued to exit the colony (Butlin 1953, 402).

Due to the fear of competition, the Bank of Western Australia, whilst profitable, lasted only four years before the directors resolved to disband the company (Butlin 1953, 396). A branch of the Bank of Australasia operated in the colony from 1840 to 1845 and was in direct competition with the new Western Australia Bank, but after 1846 only the latter continued to operate (Butlin 1953, 402). Whilst only one trading bank operated in the colony from 1846 to 1863, competition was boosted when the government-owned Post Office Savings Bank commenced operations by offering generous rates of interest for a fixed-term deposit (Butlin 1953, 463-4).

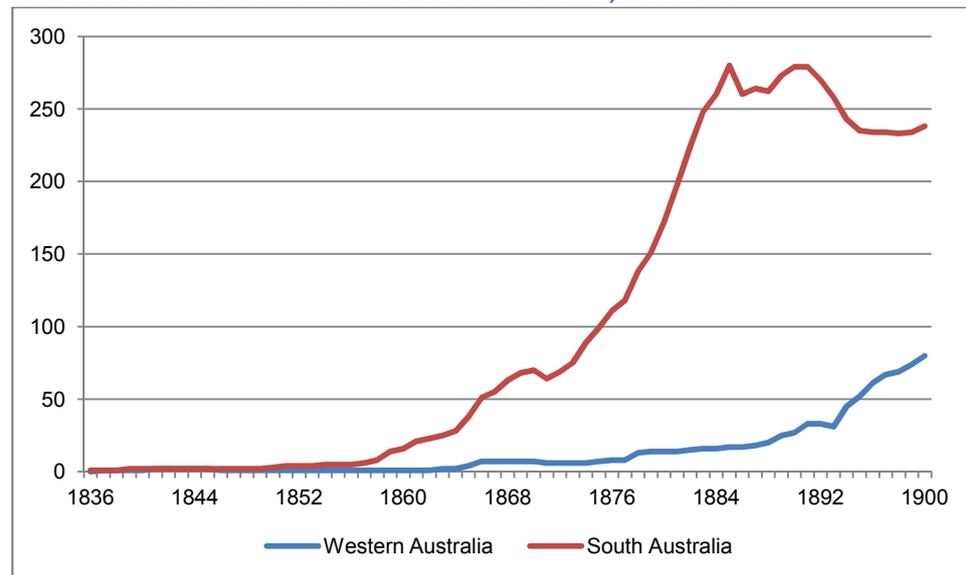
This duopoly of banking was broken in 1878 when the Union Bank of Australia commenced operations. The Bank of New South Wales opened in 1883 followed by a branch of the National Bank of Australasia in 1886 and Commercial Bank of Australia in 1888. The Western Australia Bank remained the one home-grown institution (Butlin 1953, 396-8) and declared a dividend for 48 consecutive years to 1900, averaging 20 per cent on capital invested. The government established the Agricultural Bank in 1894 to provide financial assistance to farmers located in the Agricultural Areas (AAs) with the loans being used to clear the land and plant the first crop (Burvil 1979b, 21). Government help became necessary because private banks would not lend without stronger collateral than could presently be provided (Crowley 1960, 105).

The slow growth of commercial banking in WA constrained the growth of credit and is likely to have impacted on the colony's early economic performance: from 1837 to 1886 net banking assets grew seven per cent per annum to reach £33,348 but with considerable volatility ($\sigma_{WA} = £12,767$) particularly during the ten years to 1851 when they were significantly negative. By 1887 net banking assets

⁶⁶ A bill of lading, or BOL, is a document used in the transport of goods generated by a merchant that requires the carrier (usually a ship) to deliver the goods to the buyer.

increased ten times and grew to £1,289,587 in 1897 before finishing the century at a modest £544,128. As shown in Chart 5, at this time, there were around eight financial institutions operating over 80 branches in the colony a wide variety of banking facilities including foreign exchange in most of the major population centres.

Chart 5: Total Number of Colonial Bank Branches, 1836-1900



Source: Butlin (1956; 1986)

South Australia

In the original plans for the settlement of SA the promoters faced two problems: how to pay their employees in the colony, and how to meet requests by its migrants that the South Australia Company should receive their funds in London for payment in the colony (Butlin 1953, 268). Banking functions were subsequently established in the colony, making loans on land or produce, and accepting deposits (Butlin 1953, 269). Banking operations commenced April 1837, the same year as in WA, offering ten per cent discounting for loans and seven per cent on deposits; including the government account (Butlin 1953, 270).

An important difference in the institutional framework associated with banking between the two colonies was the ability of colonists in SA to access the credit market using land and bills of lading as collateral. However, in 1848, the CO disallowed an application by the SA government to designate wool liens⁶⁷ and stock mortgages as suitable loan collateral, as had been adopted in NSW. Such collateral was deemed to be detrimental to competition for lending and would encourage speculation in the price of the wool clip (Butlin 1953, 344). At the micro level, local tradesmen and shopkeepers gave customers personal credit (“paying on tick”),

⁶⁷ See Fitzpatrick (1949, 143) for a comprehensive discussion on how this institutional development aided the rise of the pastoral industry in NSW.

farmers signed short-term notes, landlords mortgaged properties, and merchants used bills of exchange (Hoppit, 1986). This expedient proved successful because, unlike in WA, coin was available in regular quantities to meet note redemption and promises of debt fulfilment were more credible.

By 1850 there were two trading banks operating in SA: the original South Australian Company and the Union Bank of Australia, which opened a branch in 1839 (Butlin 1953, 298). A plan for a savings bank was an early part of the proposals of the South Australian Company but the scheme didn't eventuate until 1841 (Butlin 1953, 454).

As Chart 5 shows, banking growth in SA was particularly strong after 1856 when the colony was granted responsible government (p. 153). A steeper climb in the number of banks occurred during the mid-1860s when SA adopted the *Joint Stock Act 1856* (UK) that allowed for the creation of companies with limited liability. Banking formation in SA reached a peak of 280 in 1885 before falling to 235 ten years later where it remained steady until 1900 (c.f. 74 in WA). The dip was a result of the Victorian financial contagion effect and the drought which crippled the agricultural industries. The contraction would have been more severe but for the Broken Hill mine⁶⁸.

Public Debt

A critical part of the institutional matrix in relation to capital market institutions is public debt. As Bernstein (2004) explains, capital market institutions are supported by the existence and size of public debt for two reasons. Firstly, the creditworthiness of the State is widely known and, thus, public debt is the simplest to price and sell. As commercial debt is essentially the same as public debt, the market for the latter acts as a nursery to the former. Secondly, government debt is "sovereign" i.e. of the highest security available and is used to price all other non-sovereign debt.

There was a general consensus among Australian capitalists during the 1850s that government should undertake the responsibility for providing essential utilities that were unattractive to local and metropolitan investors, especially railways which were begun by private interests but usually completed and invariably operated by governments (Irving 1974, 136-7). Statham (1995, 35) argues that public funding was integral to the development of private enterprise in all the Australian colonies for two reasons: the former was best placed to achieve economies of scale and scope in

⁶⁸ The town of Broken Hill is located 1,100 kms from Sydney and is actually closer to Adelaide. The mines founded on the Broken Hill Ore Deposit, from the 1880s onwards, contained the world's richest lead-zinc ore and gave birth to the BHP Billiton Group. The significance of this mine to SA is discussed in [Chapter 7](#).

providing public infrastructure to small populations distributed over large areas; and Australian private enterprise was not large enough to access the London Money Market (LMM) unlike their metropolitan and North American counterparts. As will be shown, it took a long time for WA to access the LMM and its public debt was much lower and more expensive compared to public borrowing in SA.

Western Australia

Small loans were raised by the WA government in the mid-1850s and early 1860s to support the convict establishment but the small population constrained revenue raising and effectively shut the colony out the LMM. Essentially the transfer payments made by the metropolis in respect to its convict establishment in the colony were used to develop public works that were desperately needed. Up to this point the colony's public facilities were virtually non-existent.

Given that much of the colony's infrastructure had been built during the convict period, and the population increase wasn't pressing, the government saw little reason to expend costly loan capital on public works after 1869. What little public revenue was raised was spent on maintaining the existing government infrastructure. The onset of representative government in 1870 improved WA's credit worthiness and the government began borrowing on the LMM as shown in Chart 6 (p. 146). The loans funded the construction of telegraph links to SA, an internal railway network (the amount of capital raised for railway construction was especially large during the period 1884-87, and totalled £6.6 million to 1900), roads, bridges, harbour works and public sanitation. All of which became urgent following the immigration pressure due to the mineral discoveries of the mid-1890s (Appleyard 1981, 217). This resulted in £124 million in gross capital formation from 1873 to 1900, with transportation infrastructure accounting for almost two thirds and communications an additional 15 per cent. By the end of the century, the population of 180,000, spread across almost a million square miles, had £11.7M of LMM loans outstanding equating to £65 per capita that were employed in providing a wide range of public goods and infrastructure.

South Australia

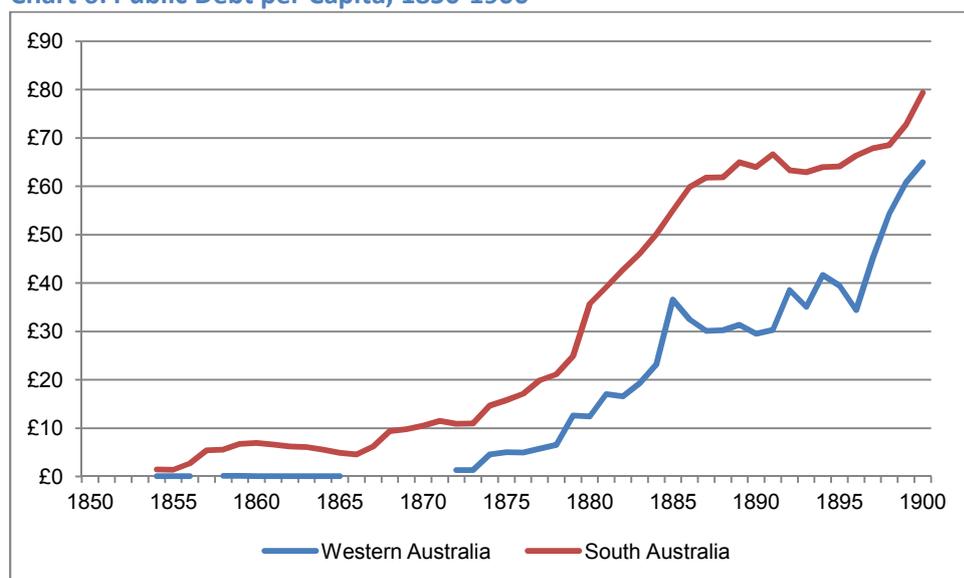
The level of public debt in SA was substantially higher from foundation as shown in Chart 6. Whilst SA had the Emigration Fund (the brainchild of the elder Torrens), there was ongoing debate about how it should be used. Its original aim was to bring immigrants to the colony financed by land sales but there was a growing call for the money to be spent on public infrastructure (Gibbs, 1984). As the two aims could not optimally coexist, the government, supported by a diversified revenue

base, entered the LMM after being granted responsible government in 1857 and raised loans to improve transport and communication facilities.

During the 1850s and early 1860s, the first loans were spent on railways, maritime infrastructure and water supply. In fact these three works represented the largest expenditure category totalling just under £12 million by 1900. Significant works were begun to improve harbour facilities and general navigation of the colony's waterways including the Murray River. SA was the pioneer of in-ground plumbing and water supply (Gibbs 1984, 161-2), spending just under £6.5 million. Loans were raised for the construction of the Overland Telegraph, which was completed in 1872.

Gross capital formation was significant at £41 million, with just under 60 per cent devoted to improvements in shipping and land transportation with another 13 per cent on water and sewerage. All up, by 1900, SA had over £28.5 million in loans outstanding (£80 per capita) at an average interest rate of three per cent per annum, representing about 1.54 times the colony's GDP, and supported by strong public revenue as Chart 6 indicates (c.f. £11.7m at 3.45 per cent).

Chart 6: Public Debt per Capita, 1850-1900



Source: *Blue Books of Western Australia & Statistical Register of South Australia*

The Cost of Money

As North (1991, 69) has argued, the existence and institutional effectiveness of capital markets can be traced by the spread between interest rates on government and commercial debt. A nation's interest rate plot is a thermometer of economic, social and military progress: a falling trend indicates a decrease in uncertainty caused by information asymmetry, an increase in credit worthiness of borrowers (for certain economic sectors) and increased competition for credit and customers

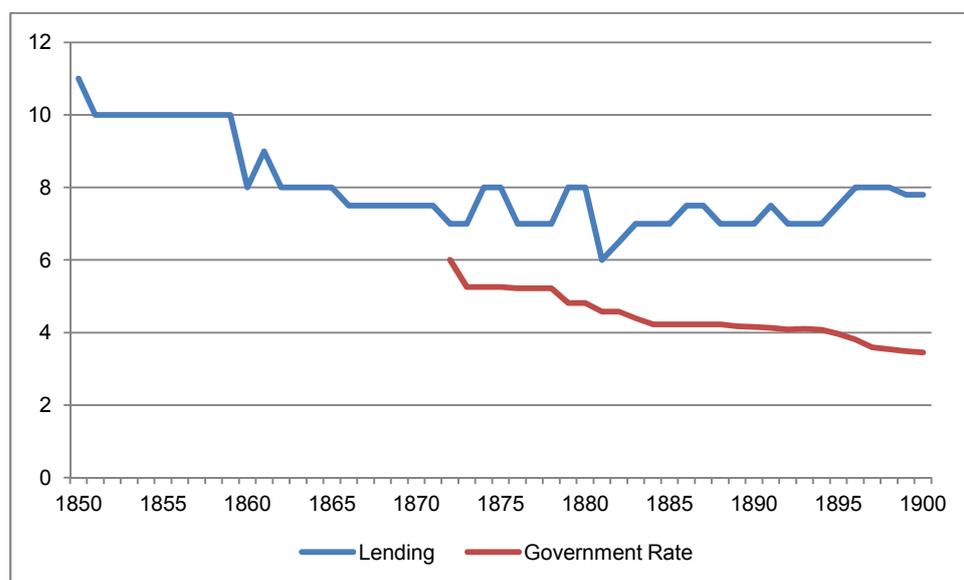
seeking investment capital (Bernstein 2004, 129). Graphs of the public and commercial lending rates for each colony measure of the effectiveness of capital market institutions, and important differences between the colonies are, once again, evident.

Western Australia

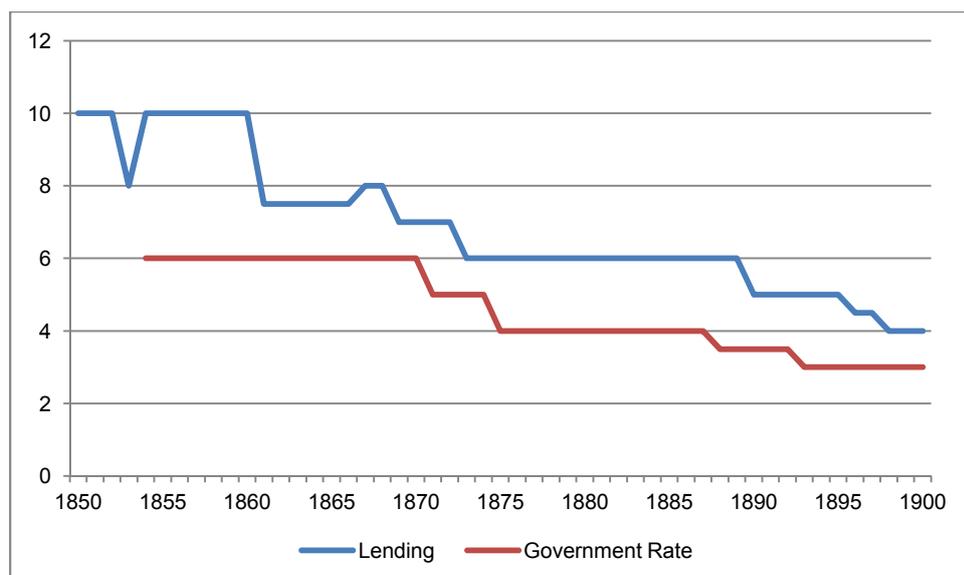
Chart 7A (p. 147) plots the interest rates in WA that applied to government and commercial debt. In 1844, under the *Imperial Acts Adopting Act (WA)*, interest rates charged by banks in WA broke free of the metropolitan usury laws and banks were free to charge interest based on a risk assessment of the borrower. The graph for WA confirms the historical record that its barter economy was hampered by a lack of cash money and a restrictive lending policy keeping commercial rates relatively high (Butlin 1953, Crowley 1960, Statham 1981). Even when the colonial government entered the LMM in 1872, effectively providing a benchmark for determining the risk premium for non-government borrowers, the dispersion of settlement may have continued to hamper the flow of pricing information to market participants. Indeed, Chart 7 shows that after the telegraphic link to SA in 1877 (improving the flow of information and price signals) and the gold discoveries (increasing the volume and value of trade) at the end of the century, the spread between public and private borrowing actually widened to 4.35 per cent when in fact a contraction would have been expected. This indicates that banks continued to be plagued by moral hazard and information asymmetry in a colony with a dispersed population. This inability to effectively price commercial credit risk is reflective of a poorly functioning capital market.

Chart 7: Cost of Capital (%), 1850-1900

A. Western Australia



B. South Australia



Source: Butlin (1953, 1986); *Blue Books* of Western Australia and *Statistical Registers* of South Australia

South Australia

By contrast, the spread between government and commercial debt in SA not only declined over the study period but narrowed as the depth and availability of capital expanded as shown in Chart 7 (p. 147). One of the most significant factors driving rates lower was the improved communications link with the LMM following the construction of the Overland Telegraph⁶⁹ in 1872 that sped up the flow and quality of pricing information between metropolitan lenders and colonial borrowers. The risk premium between government and commercial borrowers stabilised between 1875 and 1895 at 2 per cent before halving by the end of the century.

Summary

The system of property rights set up in the two colonies had significant implications for the development of capital market institutions. WA's defective property rights effectively starved the colony of money since cash was not an eligible asset that qualified its owner to a grant of land. As a result, the first colonists were undercapitalised and barter became the chief mode for exchange during the 1830s (Butlin, 1957). The uncertain property rights attached to a land grant effectively disbarred its use as a form of loan collateral which restricted the use of credit throughout the economy. Accordingly, banks, when they commenced operations, were conservative, risk averse and, not surprisingly, short of liquidity. Banking was further hampered by the dispersed population which hampered the free flow of

⁶⁹ When the telegraph connected the Australian colonies to global markets, consumers no longer had to meet face to face or even reside on the same continent. Participants increasingly perceived prices as fair, transactions were completed almost instantaneously and Australia attracted capital in ever greater quantities (Bernstein 2004, 134-5). The importance of the telegraph to both colonies is discussed in [Chapter 7](#).

information and pricing signals throughout the colonial economy. The metropolitan government boosted circulating cash in WA through annual financial grants, through the commissariat and, for 18 years, by paying for the convict establishment. As the colony's public finances became less reliant on British taxpayer subsidies, it began drawing loans from the LMM, and as the economic prospects improved the government's creditworthiness the cost of public debt declined. The factors noted here that affected the evolution of capital market institutions in WA can readily be observed in the *divergence* in the prevailing lending rates of private and public borrowing.

Banking operations commenced upon SA's foundation but were somewhat undercapitalised despite vigorous competition. Nevertheless with its colonial economy based on cash commodities: farming, pastoralism and, after 1842, copper there was a significant amount of cash circulating throughout the colony. In addition, land in SA, with its title guaranteed by the common law, was an eligible form of loan collateral. Furthermore, SA's compact population encouraged social networks (more in [Chapter 7](#)) in which trust was an important component. This reduced information asymmetry in financial transactions as is shown by the trend on commercial lending rates which fell from around 12 per cent in 1839 to 4 per cent by 1900 (average 7.3 per cent for the period). Government lending rates also fell from 1855 and the spread between public and private lending narrowed to about 1 per cent by 1900 indicating that international lenders (the largest providers of foreign direct investment) rated SA's sovereign and commercial credit risk as low vis-à-vis WA. This allowed the SA government to borrow heavily on the LMM to fund infrastructure and provide many public goods including telegraphic connection to Britain and railways and as a result SA citizens carried a much higher level of debt than in the west.

State Institutions

The next aspect of the institutional matrix considered in the examination of WA's and SA's early economic development relates to the institutions of the State. As will be recalled from [Chapter 3](#), North's (1990) view of the State is one of a contract between the ruler and the ruled. This contract gives rise to positive transaction costs because of the need to establish a constitution, a private property rights structure, the rule of law, an independent judiciary, and representative political institutions. However, the role of the State is not merely to tax and spend but to maintain institutions that are designed to encourage economic development (Reinert, 1999). On the other hand, government failure can occur when it intervenes in the market and allocative efficiency is reduced rather than enhanced (Fekete 2005, 6); or when it misuses its coercive power. This section examines the role of governance

institutions in colonial economics from the angles of political evolution, revenue and expenditure, the provision of public goods and market intervention.

Evolution of Political Markets

The transaction cost approach that forms the basis of NIE can be applied to political markets to answer questions about the relationship between voters and their political representatives, and the level of engagement between various stakeholders in political markets. As mentioned in [Chapter 3](#), political competition over the right to exercise public authority shapes the evolution of institutions through the protection of property rights which can encourage, or discourage, varying types of economic activity.

Western Australia

In the rush to establish the Swan River colony very little thought had been given to its form of governance. It took two years for the colony to receive Crown status and be administered in much the same way as NSW and VDL (Butlin 1953, 379). In 1832, the Legislative and Executive Councils met for the first time (Pike 1957, 44) and its members, appointed by the governor, were authorised to make the necessary laws in the colony (Crowley 1960, 109). This basic form of governance endured for the next 40 years and effectively denied the colonists any form of representation whilst the metropolitan government exercised a general level of supervision through the CO.

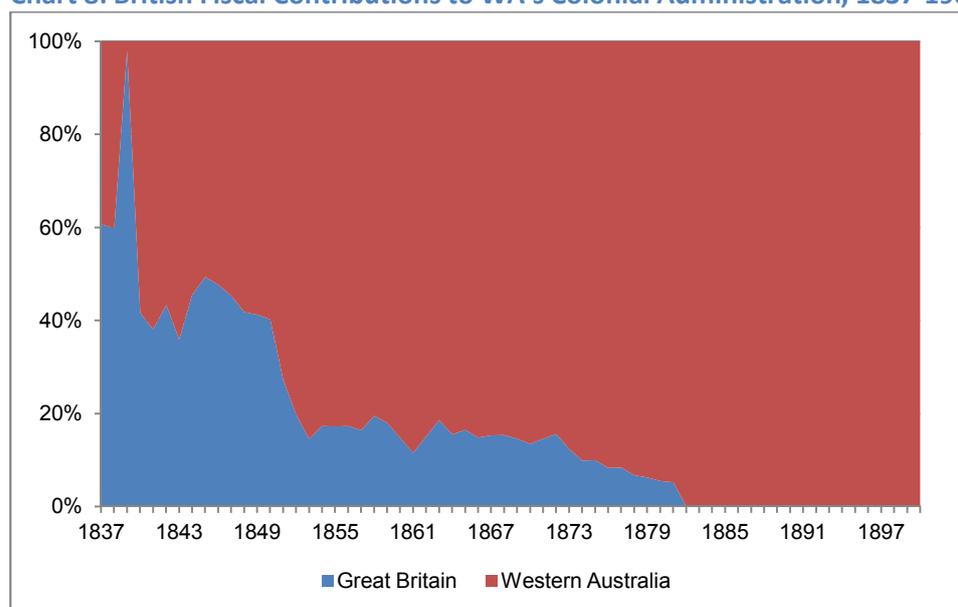
It was the inability for the colony to pay its way, shown in Chart 8 (p. 151), that led to the persistence of autocratic rule in WA long after its abandonment in the other Australian colonies; such was the view of the metropolis in May 1849 (Crowley 1960, 31). As a remedy, convict transportation was expected to boost population and stimulate trade (and therefore taxes), and by 1868, the population increased by a factor of four to 22,733, of which net migration added two-thirds, gross domestic product (GDP) grew by a factor of seven to £1.6 million and government earned three times more revenue compared to its earnings for the twenty years to 1849.

As colonial prosperity increased, the system of government effectively remained static. The governor held the supreme authority and called together the Executive Council and Legislative Assembly; it was he who put an end to their sessions; who proposed the necessary bills; and organised the government's finances (Crowley 1960, 70). The Council had no power to pass bills which dealt with such matters as Crown lands, divorce, the salary of the principal officials, currency, and defence. The Assembly could propose bills but unless they aligned to the governor's vision of the colony they seldom became law (Crowley 1960, 70). There was little

political will among the colonists to change this system because, for one thing, the dispersion of settlement resulting from the land grant system effectively prevented the colonists from engaging in widespread political participation (Crowley 1960, 73).

Nevertheless, there was a nucleus of change. In 1870 the colony was granted “representative government”, similar to that given to NSW in 1842, whereby members of the Legislative Assembly were elected on a limited franchise with significant property qualifications (De Garis 1981b, 326). The governor retained the power to propose revenue bills but otherwise this elected assembly held significant legislative freedom (De Garis 1981b, 327). The Executive Council consisted of the leading colonial politicians including the governor, all of whom were appointed by the latter (De Garis 1981b, 329). While the franchise was limited to a little over a third of the population before 1899 (before doubling with the addition of the female vote that same year), the colonists finally won a stake in how their colony was being governed (De Garis 1981b, 326).

Chart 8: British Fiscal Contributions to WA’s Colonial Administration, 1837-1900



Source: *Blue Books of Western Australia*

It wasn’t until 1882 that WA was able to defray the cost of its own administration without recourse to metropolitan fiscal aid (Chart 8). In 1887, a new constitution was drafted, providing for the right of self-governance, which was subsequently passed by the metropolis three years later. On the eve of the new century, legislation in 1899 was passed for triennial parliaments and votes for women, bringing the colony in line with most of its eastern peers, and after a protracted struggle the colony agreed to enter the Federation (De Garis 1981b, 346). Table 6 shows the enrolment and voting characteristics in WA prior to 1900. In the

three elections held during this last decade only adult males over the age of 21 were eligible to vote, representing about a third of the total population; of those enrolments only 42 per cent actually cast a vote for the contestable seats when averaged across the decade. The key trend shows a decline in the ratio of turnout to enrolment, indicating a fairly low level of constituent engagement with political institutions. This negative drift is surprising given the fact that the colony was the last, by a margin of 30 years or so, to receive political independence. Three possible, compatible, explanations are available: that the novelty of representative government in WA after years of being ruled autocratically wore off; the 1890s was a time of substantial economic and institutional transformation as a result of the gold rush; and that population dispersion continued to hamper cost-effective political interaction.

Table 6: Western Australia Election Enrolment & Turnout, 1890-1900

Election Year	Total Seats (lower house)	Total Enrolment	% Population	Turnout / Enrolment
1890	30	5860	32%	50%
1894	33	12884	39%	40%
1897	44	23318	36%	37%

Source: Vamplew. W. 1987. *Australian Historical Statistics*. Sydney: Fairfax, Syme & Weldon, POP 98-109.

South Australia

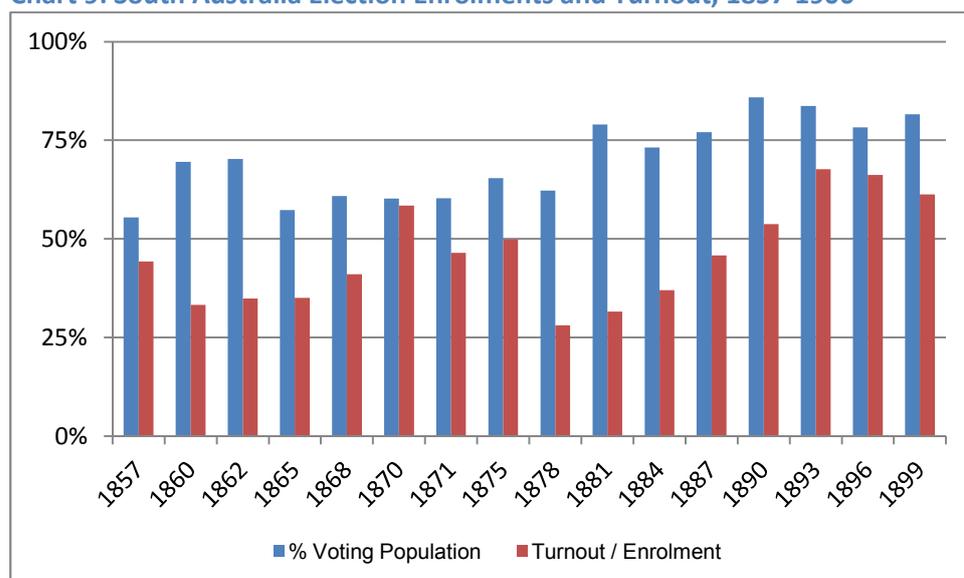
Similar to WA, deteriorating economic conditions in the 1840s influenced the relationship between the colonial administration and the metropolitan government. In SA, power was initially divided between the governor, appointed by the metropolis, and the South Australian Company (Gibbs 1984, 28). The former held the executive and legislative powers in the colony while the latter was given power to dispose of land and to apply the funds towards immigration (Aitchison 1970, 73). Colonial government had to rely on the company for funding but this power structure quickly broke down and resulted in many financial difficulties (Aitchison 1970, 73-6).

Through metropolitan intervention, the next governor, appointed in 1838, was given the powers of land disposal and was advised by a paid executive council (Gibbs 1984, 42). Although this change bought about unity of action between the two authorities, it failed to resolve the issue of dividing the land sales revenue between the cost of government and the cost of attracting immigration (Aitchison 1970, 73). Indeed, in a contravention of Wakefieldian thinking and the 1834 *South Australia*

Colonisation Act (UK), Robert Torrens⁷⁰ the elder in his capacity as chairman of the Board of South Australian Commissioners (see [Chapter 5](#)) authorised funds in the Emigration Fund to be used to defray the costs of government which impacted the ability of the fund to supply migrant labour (Whimpress 2008, 255).

The drought of 1840 that affected the eastern Australian colonies caused the cost of living to rise rapidly in SA and the colonial government increased public expenditure to stave off collapse, but this resulted in bankruptcy. Loans (later made gifts) totalling £231,219 were made by the metropolitan government between 1840 and 1844 in return for a change in the governance structure and, with a new governor, the colony was ordered to get its house in order (Pike 1957, 189). The *South Australian Government Act* 1842 (UK) established a new mode of governance and vested authority in the governor and a nominated legislative council of at least seven members (Aitchison 1970, 74). By this, SA became part of the metropolis' general reorganisation of its Australian colonies and was placed on the same footing as other Crown colonies (Aitchison 1970, 74).

Chart 9: South Australia Election Enrolments and Turnout, 1857-1900



Source: Vamplew, W. 1987. *Australian Historical Statistics*. Sydney: Fairfax, Syme & Weldon.

In contrast to the experience in WA, colonists in SA actively petitioned for popularly elected representation and by 1849 the colony achieved financial independence, and its population exceeded 50,000 (an important pre-requisite for self-government). Consequently, the metropolis agreed to devolve more powers of self-government on SA (Aitchison 1970, 74). A metropolitan act was passed in the following year authorising the colony to establish elected legislative and executive

⁷⁰ Torrens voluntarily ended his turbulent association with SA affairs, specifically his responsibility as an emigrant commissioner, in 1839 after declaring a conflict of interest because of his land holdings (valued at £1,000) in the province (Meenai 1956, 57-8).

institutions (Aitchison 1970, 74). SA was also granted a representative constitution that was among the most democratic in the world (AEC, 2011), providing for: adult male suffrage (including indigenous men); secret ballot voting; one man, one vote; no property qualifications for Assembly members; and a relatively low property qualification for members of the Council (Gibbs 1984, 115). These political innovations were followed up in 1861 when propertied women were granted the vote in local elections (Parliament of SA, 2011). They became eligible to vote in parliamentary elections in 1895 and were allowed to stand for political office in 1897 - SA was the first in the world to pass such legislation (Gibbs 1984, 118).

Whilst SA achieved engagement between its people and government relatively early, this was not without its difficulties. After the first meeting of parliament in 1857 SA endured 36 governments in the 44 years to federation (Gibbs 1984, 110). This was due in part to the poor division of powers between the two houses which resulted in a good deal of political conflict, and to the fact that no strong political parties developed within parliament - many of its members being independents and without enough great aims to bind them together (Gibbs 1984, 117). Despite this seeming turmoil, self-government was received favourably in SA as Chart 9 shows. An average of 70 per cent of eligible colonists enrolled to vote in the 16 elections that took place, reflecting the popular clamour in earlier decades for a say in the affairs of government - a key Wakefield principle. The final decade of the nineteenth century saw voter enrolments exceed 80 per cent and remain consistently high especially after women were granted the vote in 1895. The turnout numbers also show a trend of growth from a low of 28 per cent in the 1878 election to about two-thirds of total enrolments during the 1890s.

In sum, the assembled evidence indicates that political transaction costs were lower in SA than WA although the periods of time that were examined do differ. Low political transactions costs are desirable from an economic perspective because they foster a positive feedback mechanism in which political agents and their constituency actively engage each other to enhance the predictability of government decisions, reduce information asymmetry and contractual uncertainty allowing markets to flourish.

Public Revenue

The size and diversity of public revenue in each colony, taxes raised to fund administration and public works, are additional differences in the economic development between WA and SA. Trade was the key to public revenue and the government had to balance the need for revenue without distorting market incentives upon which trade was based (Bernstein 2004, 235). In the colonial setting,

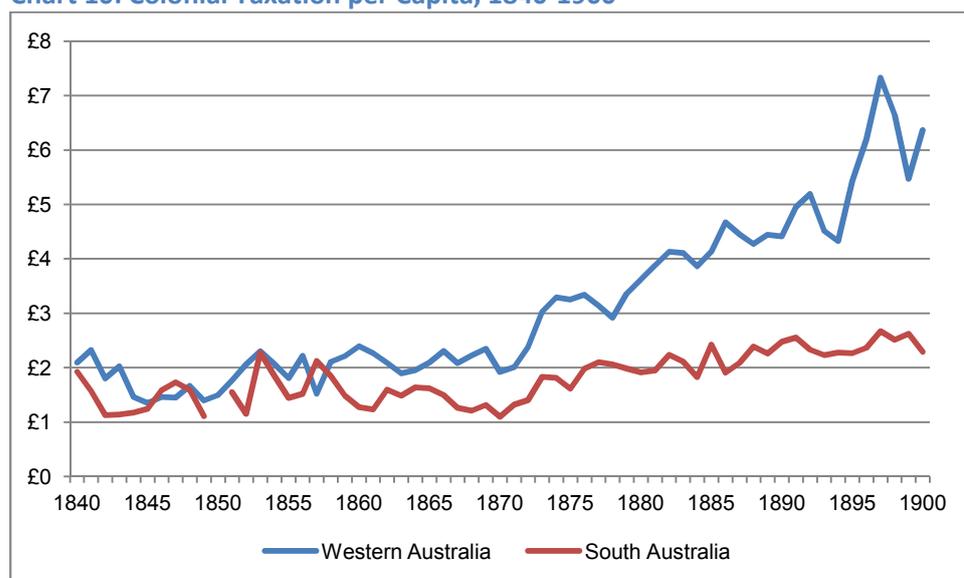
government performed not just a wealth redistribution function but it was frequently active in providing services, that the private sector was unable or unwilling to provide, so the revenue pool typically consisted of taxation and service profits from government-owned enterprises.

Western Australia

Since WA was not on any of the major trade routes at foundation and produced too little to justify the diversion of ships to Fremantle, customs and excise duties on interchange – both broad based taxes – netted the government insufficient revenue to meet the cost of administration and the provision of public goods.

The available pool from which to levy taxes was extremely limited. By 1837 there were two revenue categories: licences for pastoral grazing and taverns, and customs duties – established in 1831 as a revenue raising measure (Fraser 1983, 213). Twelve years later, the volume of shipping at the settlement allowed for harbour fees to be levied in order to maintain the facilities. However, even by 1886 there were only six revenue sources, with wharfage, stamp duty and probate taxes being added in the previous two years. Regardless, by this time, taxation made up about half of all public revenue sources whereas it constituted about a third in SA. Although following the mining boom the WA government introduced a company tax to augment its revenue pool (Fraser 1983, 215). Chart 10 shows clearly how reliant WA was on taxation (as opposed to fees) to fund its government and provide public services as its economy transformed.

Chart 10: Colonial Taxation per Capita, 1840-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

South Australia

The taxation per capita was significantly lower in SA compared to WA, and averaged about £1 16s 0d for the entire period, as Chart 10 (p. 155) shows. As the century progressed, the proportion of revenue collected from taxation fell from a high of 91 per cent to just under 30 per cent as government charged fees for the providing certain public functions e.g. tavern licences, port dues, pilot charges, tolls, railway and telegraph dividends.

Compared to WA, public revenue in SA appears to have been “easy”, in Smith’s (1776, [1976], 173) words, in as much as it was based on a mix of customs, excise and profits from State-owned enterprises. Taxation was both evenly distributed and certain. It grew as the population increased and tended not to interfere in market incentives or necessarily restrict economic activity (as will be shown in the analysis of the terms of trade in [Chapter 7](#)). In addition, the characteristics of SA’s public revenue was deemed by the LMM as excellent collateral as reflected in the declining course of interest rates and helped to support the government’s borrowing commitments as explained in the previous section.

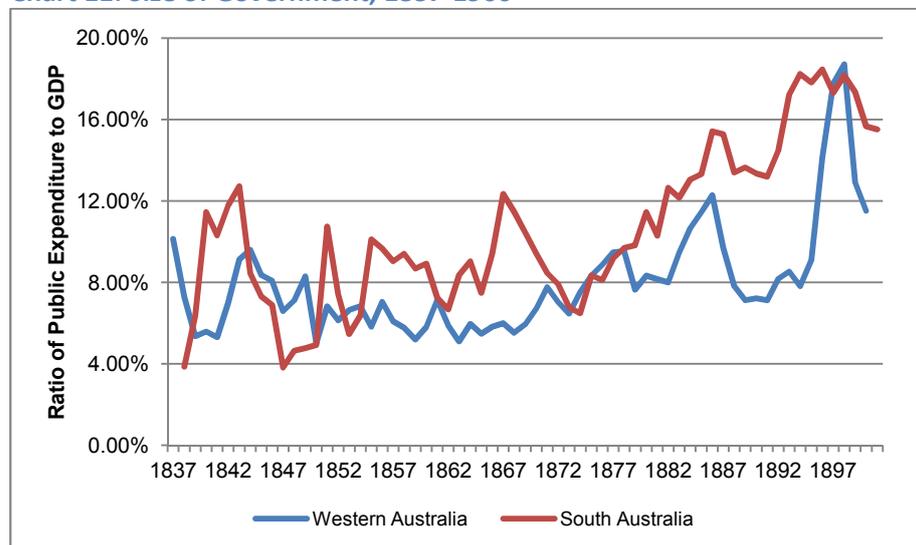
Size of Government

As mentioned in [Chapter 3](#), the State involvement in an economy is evidenced by the level of government taxation but also by expenditure, as a percentage of GDP. The *modus operandi* of the two private settlements of WA and SA was minimal government expenditure and free market institutions (Statham 1995, 35). However, private sector failure was a regular occurrence and this necessitated considerable government intervention, defined here as the ratio of public expenditure (including expenditure of debt proceeds) to GDP, in the economy which is traced out in Chart 11 (p. 157). Despite the choppiness of each graph, there are two immediate observations: WA state government spending in the economy was lower than SA but the trend for both colonies rose towards the end of the nineteenth century as their respective economies grew and became more specialised, gentler in SA but explosively so in WA.

There is also evidence in Chart 11 of different approaches to the macroeconomic management of the colonies. In WA, government involvement in the economy fell with the depression of the 1840s. However, reflecting a more interventionist attitude, government involvement grew strongly in SA as the government attempted to compensate for the rapidly escalating cost of living. This action resulted in bankruptcy, which explains the rapid fall in government spending after 1843/44. This also coincided with a demand by the metropolis for significant austerity measures after it rescued the colony (Pike 1957, 189). However, when the

Victorian gold rush drew off labour and capital in the 1850s, there was a further spike in government purchases, which remained over eight per cent for the rest of the decade.

Chart 11: Size of Government, 1837-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

Until 1875 the size of the WA government rarely exceeded seven per cent of GDP but afterwards intervention grew considerably: the spike of 1886 coincides with gold discoveries in the Kimberley but as this was short-lived it fell back below eight per cent from 1883 to 1893 after which it shot up on the back of the Coolgardie discoveries in the mid-1890s. SA became deeply embedded in global markets following the completion of the Overland Telegraph Line in 1872; its economy was subject to greater levels of volatility; and government intervention began to increase systematically.

Summary

The institutions of the state for both colonies were essentially autocratic at the time of their foundation. In WA this situation continued for 60 years as its tax base was insufficient to cover the cost of administration and the balance was made up by the British taxpayer (Appleyard 1981, 216). It wasn't until 1890 that self-government was granted to WA, the last of the Australian colonies. Public revenue was similarly constrained and the government relied heavily on customs duties and other import tariffs, leading a relatively higher taxation burden, but this was insufficient to fund administration and infrastructure development.

Examining the ratio of government expenditure to GDP, the size of the government sector in the WA economy was relatively low. Once gold had been discovered, the government became more heavily involved in the economy as shown

by a significant increase in spending relative to GDP by the end of the century. In SA, the taxation base was relatively wide, fuelled by strong immigration and with a lower reliance on customs duties. Furthermore, the tax burden was virtually flat throughout the nineteenth century and was lower than WA.

With a strong economy and growing population (both natural and from immigration), especially after 1845, SA received the right to self-government alongside the more established eastern colonies, less than 20 years after its foundation and 33 years earlier than WA. Unlike its population, which was compact, political power was widely dispersed. This precluded the formation of the party system until almost the close of the century, and resulted in considerable instability in elective government: 36 in 44 years. Nevertheless, political markets were fluid and innovative and included a liberal constitution based on universal suffrage (AEC, 2011) and the right of women to vote (Gibbs 1984, 118). This had a positive effect upon voter enrolment and turnout, which was much higher than in WA and still higher than many Australian voting patterns today. Government involvement, as measured by the ratio of public expenditure to GDP, was always higher in the SA economy than in WA reflecting a more interventionist approach by its administrators.

Culture

As will be recalled from [Chapter 3](#), culture is an important component of the institutional matrix and includes what North refers to as the informal constraints on human action, such as social norms, conventions and beliefs. However, as yet, there is no consensus on how best to measure culture in studies of economic performance. Religion, when treated as a dimension of culture, provides one possible indicator of the causal links between culture and economic outcomes (Guiso et al., 2006). In this section the impact of religious institutions on economic development is evidenced through the level of denominational diversity; how religion acted as a social network; and how it framed attitudes toward education. This analysis again highlights important differences between WA and SA.

Religion played a more important role in society and the economy in the nineteenth century than it does today. Up to the 1830s Britain hadn't entirely separated church from State: many Anglican bishops sat in the House of Lords and were actively involved in secular politics (Butler 1973, 516). There was significant civil and political discrimination against Catholics but also against Protestant nonconformists (Mokyr, 2009). The *Test Act* (UK) of 1678 only allowed persons professing adherence to the Church of England (CoE) to be eligible for public employment.

This discrimination against Catholics and Protestant nonconformists was removed by the Wellington ministry in 1829 (Mokyr 2009, 361), but many Britons still thought that the CoE had too much power in the nineteenth century (Gibbs 1984, 22). Emigration to the colonies, where such power was weaker, was an attractive proposition to those experiencing religious persecution or civil discrimination. Among these “religious refugees”, the most conservative were Wesleyan Methodists (Pike 1957, 15) who established a significant presence in the Australian colonies during the 1800s.

Religious Diversity

Western Australia

Since WA was the first non-convict settlement based on private British investment and its early men of mark were drawn from the lower gentry, this colony remained more heavily under British influence than the other colonies (Maloney 1987, 63). As such, the Protestant religion was a significant feature in the colony’s culture. Indeed, the census data from 1848 reveals that the Church of England (CoE) represented about 70 per cent of the colonists, although over the course of the next 50 years this proportion declined steadily to 44 per cent. The relative waning in the CoE’s dominance benefitted the other Anglican and Protestant denominations whose proportional representation rose from 20 per cent to 31 per cent over the half decade to 1901. Similarly, the number of Catholics rose from 337 colonists to over 41,000 by 1901 and came to represent about 25 per cent of the population. So, taken together, the “dissenters” and the Catholic religions made up over half of all religious denominations in the colony. As Table 7 (p. 160) shows, the number of religious groups in WA grew relatively slowly to reach ten distinct denominations by 1900. Aside from the CoE and Catholics, the remaining categories are made up of six non-CoE and protestant denominations.

Until 1844 the colonial government helped the various religions with an annual grant towards the payment of stipends and the building of churches, and provision had always been made by the Survey Department to reserve land in each new town for churches, rectories and cemeteries (Crowley 1960, 28). However, State aid was abolished in 1844 due more to the straightened fiscal circumstances of the colony rather than from any moral pressure (Fitzpatrick 1949, 79).

Table 7: Number of Religious Denominations, 1837-1900

Decade	1830s	1840s	1850s	1860s	1870s	1880s	1890
WA	2	3	4	5	5	5	10
SA	9	10	14	14	16	16	16

Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

South Australia

Two key founding principles in SA were freedom of conscience regarding religious beliefs and churches that weren't dependent upon State support (Gibbs 1984, 171). The colonists would be free to worship in whatever way they chose, and each denomination would maintain itself by contributions from its members (Pike, 1957). By this principle, SA thus became the first British colony to cut the Gordian knot between the temporal and secular states (Gibbs 1984, 114).

The freedom of worship principle was a powerful incentive for prospective migrants and Anglican dissenters came from all over the British Isles. Many of the first settlers were educated, and were also Anglican and Nonconformist (Dutton 1971, 156). Much as in other societies, successful businessmen and entrepreneurs were overly represented from the ranks of social classes outside of the CoE (Mokyr 2009, 361). In addition, the Lutherans - Prussian Protestant dissenters - called SA their home from 1838 (Fraser 1983, 434), the same year that records on religious diversity began. After two years of settlement four religions were identified in the colony, but this quickly expanded as the century progressed to exceed 16 by 1900 (18 in the 1901 census), as Table 7 indicates. The historical record shows that many dissenting groups splintered even further as conflict arose over questions of theology, interpretation and form. For example, in 1846 the German Lutheran church split into rival denominations (Fraser 1983, 435). Some rival denominations also merged, as the Primitive Methodists, Wesleyans and Bible Christians did in 1893 (Fraser 1983, 437).

Reflecting upon these developments, although the CoE remained the pre-eminent religion in SA and was still the largest single denomination in 1901, its dominance was much lower than it was in WA and it diminished over the study period. The census data show that CoE affiliations fell from a high of 55 per cent in 1844 to 31 by 1901, whereas dissenters in total rose from 39 to 54 per cent (almost half were Wesleyan). The other major denomination, Catholicism, grew from six to 15 per cent. Overall though, and in contrast to WA, there were far more denominations active in SA and this is likely to have contributed to higher rates of participation in religious activity and, thus, denser social networks.

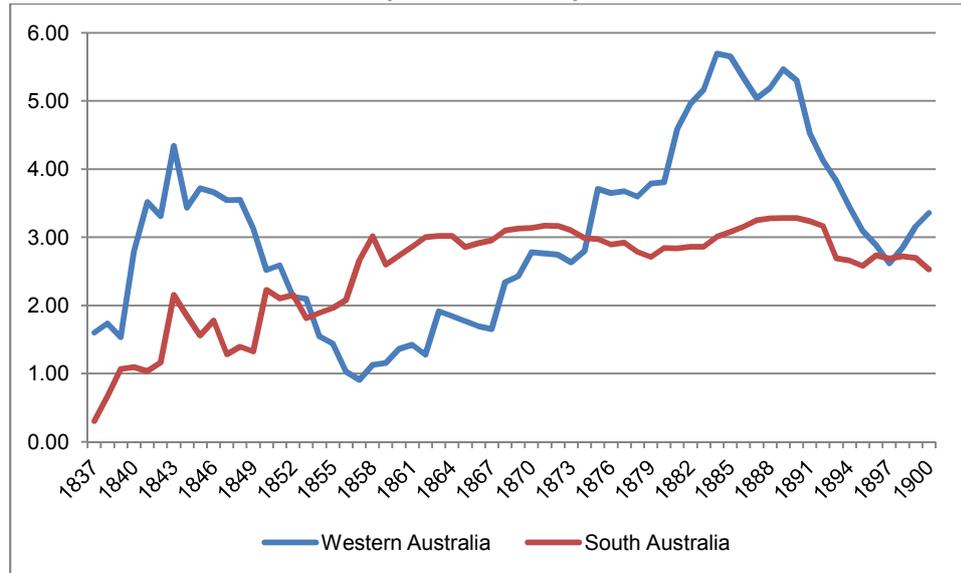
Religion as a Social Network

As mentioned in [Chapter 4](#), by placing a relatively high price on land, systematic colonisation was designed to prevent the dispersion of settlement, which Wakefield ([1829], 1929) in part blamed for underperformance of NSW's colonial economy. Social networks affect economic outcomes in at least three ways: first by the flow and quality of information, given that agents often rely on people they know rather than impersonal sources; second, they are an important source of reward and punishment through the actions of peer pressure; and, thirdly, they build trust. People may pursue a course of action despite contrary incentives if the action occurs in a social network (Granovetter 2005, 33).

Measuring the concentration, or otherwise, of social networks in each colony is admittedly difficult especially in this context but insight can be gained by examining the increase in the number of church buildings relative to the growth in population. During the nineteenth century, the church was the key organisation in establishing social networks and maintaining community cohesion. They were situated in almost all population centres, provided a central location for worship and communal interaction among colonists who shared the same beliefs and ideas, and enabled the dissemination of legal, financial and economic information (Granovetter, 2005). In effect the church, and the religious institution backing it, was one of the focal points of colonial society (Pike, 1957). It is of course self-evident that church building lags behind population growth. However the attitude to, and demand for, religious institutions by the colonists are factors in determining the rate of church building relative to the population. If there is a strong attachment to religion, the closer church building keeps pace with population growth, and as a result the number of churches per capita should be relatively flat and stable. Where the religious attachment is weak or where there are rapid and sudden increases in population (caused by immigration) the number of churches per capita will fluctuate. The low number of churches per capita, in a society with strong beliefs in religion, *ceteris paribus*, encourages higher attendance rates per church across the denominational spectrum (through peer pressure) and should reflect a tighter social network, and vice versa.

As can be seen in Chart 12 (p. 162), the graph in WA is highly volatile ($\sigma_{WA} = 1.30$) reflecting a divergence between church building and population growth from a long-term average of three churches per 1,000 of population. The spikes in the graph represent periods where church building increased rapidly in relation to population growth, as in 1884 when the ratio peaked at 5.69, and the trough of 1857 when the ratio fell to 0.91.

Chart 12: Number of Churches per 1,000 of Population, 1837-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

In contrast, the graph for SA is less volatile ($\sigma_{SA} = 0.73$). From the 1860s onwards, the voluntary subscription principle appeared to meet the funding demand for constructing religious dwellings, averaging about 3 churches per 1,000 of population (long-term average of 2.53). Indeed, the speed and spread of total church numbers (not shown here) throughout SA traces an almost perfect linear trend⁷¹ ($\beta=19.3$, $r^2=0.964$) starting at four in 1838 and reaching a peak of 1,061 in 1891 before denominational mergers, drought, depression and declining attendance closed about 120 churches within the colony. Overall, the stability in the relationship between church numbers and population suggests denser and more stable social networks that ensured church building took place as the population grew. In turn, this network might explain a number of other phenomena in which the colony was dominant (e.g. the high take up of education, technological innovation and the lower reliance of printed media as primary communication channel) all of which are discussed presently.

Education

The basis of economic growth is the ability to innovate, develop, market and deliver new products and services to society. This requires a supportive intellectual foundation at the societal level. Religious denominations were instrumental in offering other services beside divine instruction and, as discussed in [Chapter 3](#), the significant effect of religious institutions on economic performance was through the provision of education and its effects on technology, which in turn assisted labour specialisation. The link between religion and economic development becomes starker

⁷¹ Indeed, the growth in population year-on-year has an r^2 of 0.9905 adding, on average, 6,370 colonists per annum.

in states where there is a wide diffusion of religious markets; and where religions place an important emphasis on education. As with other institutional transfers, denominational education prevailed in the early days of both colonies (David, 1908; Pike, 1957): it was entirely voluntary and privately supplied (Mokyr 2009, 232). Later, the colonists of WA and SA demanded alternative publicly-funded, non-denominational education institutions similar to what was being provided by the metropolis, where successive Whig governments had, from the 1830s onward, introduced significant education reforms (Aspinall [1929] 2005, 354-5). The demand for universal education was predicated on three factors: whether education was considered valuable to colonial children; the costliness of education; and the demand for child labour on the farm, the sheep run, or the mine (Mokyr, 2009).

Western Australia

In WA, with State aid to religion up to 1844 and then educational subsidies to denominational churches from 1849, religious orders in WA weren't wholly dependent upon the contributions of parishioners to survive. As a result, there was less incentive to offer value-adding services, such as Sunday school or other educational offerings, to the community outside of regular church services. Nevertheless, two denominational schools opened in 1831 and by 1837 there was a total enrolment of 65 boys. In 1846 a General Board of Education under the governor's patronage was established whose aim was to teach "general Christian principles" to all children regardless of denomination; that same year the first Benedictine monks founded the New Norcia Mission promising several schools (Green 1981, 140); and the government made an educational grant to the Catholic orders noting that their "schools in proportion to their numbers...were beneficial to the community" (De Garis 1981a, 320).

As a result of these developments, the *Blue Books* show that the number of schools in the colony rose from 2 to eleven with enrolments exceeding 420 pupils from 1831 to 1850. However, as late as 1849 only half the children in the colony were receiving any form of education, and what they did receive was elementary (Crowley 1960, 28). Teachers were hard to find and retain, and few children growing up outside of the main urban centres had any chance to go to school (Crowley 1960, 28).

In order boost the spread and depth of education that the colonists demanded, state aid to denominational schools commenced from 1849 to 1855 when it was terminated for reasons of financial austerity (Fletcher 1981, 554). Educational institutions were still not formally constituted and the period from 1855 to 1869 saw

a dual system of government (notionally Anglican) and Catholic school systems emerge. The idea was for the two systems to encourage interdenominational attendance by diluting the principles of religious teaching (i.e. by eliminating points of sectarian conflict) patterned after the Irish national school system (circa 1831). However, the WA version contained a number of flaws: firstly, the religious safeguards found in Irish schools were not replicated; secondly, the clergy were prevented from offering religious instruction in colonial schools; and thirdly, without state-aid, the Catholic Church was unable to provide its own system of interdenominational schools in areas without a government school.

In 1870, WA became aware of the Elementary Education Act (UK) in which districts without any form of education could petition the state for a grant to set up a school board that would then provide the requisite facilities. State aid to denominational schools was already a lingering feature of the UK educational landscape. A modified version of this Act was adopted in WA the following year that finally “provided a legal framework and intelligible ground rules for the organisation of the education of the people” (Fletcher 1981, 563). It also re-established state-aid to Catholic schools for the next 24 years and this led to a divergence between government and Catholic school systems, with the latter effectively independent of government supervision (Fletcher 1981, 563). At the same time, primary education was made compulsory for all children aged between six and fourteen who lived less than three miles from a school (Crowley 1960, 77). These changes did not wholly exclude religious instruction from State schools as the government conceded the “right of entry” to the religious ministers who were permitted to give special spiritual instruction to children of their own denominations, at stated times in the week (David 1908, 176-7).

With the increase in immigration after 1885, many settlers from the eastern colonies, which had long since abandoned state aid for denominational schooling, began questioning WA’s continued adherence to this system of education funding. In addition, official reports published in 1888 and 1893 found that government schools consistently under-performed denominational schools in both attendance and achievement. One proposal to “bridge the gap” included replacing the amateur, part-time Central Board of Education, established under the 1871 Act, with a minister responsible to parliament (Fletcher 1981, 566-7). However, when a plan to increase public spending on colonial schools, as a way of boosting productivity, was rejected

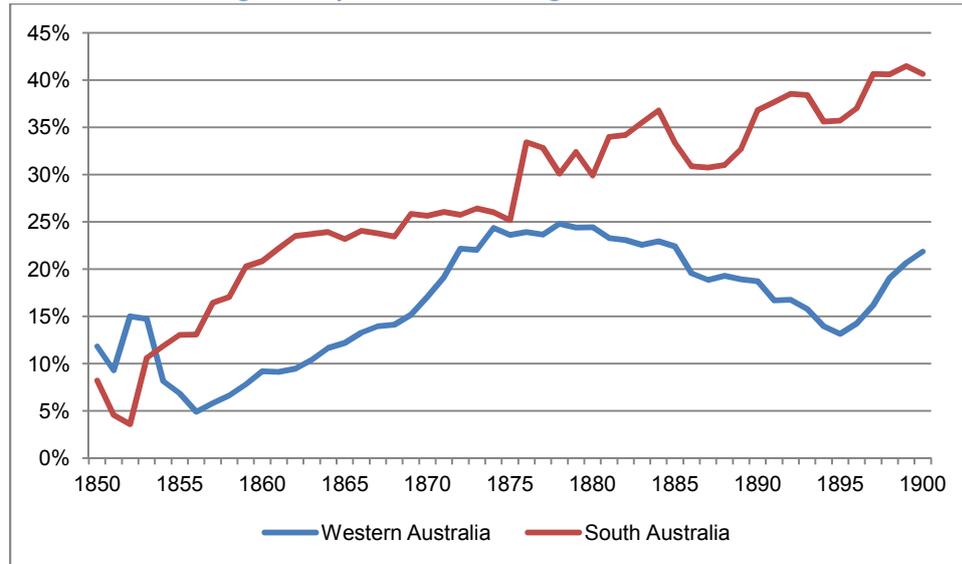
by parliament a year earlier, state aid to denominational schools was finally abolished in 1895⁷² (Nunn 1947, 9).

During the second half of the nineteenth century, the *Blue Books* show that the number of schools across WA grew steadily from 11 to 84 in the 24 years to 1874 where it remained steady. In 1890, the number finally exceeded 100 but then almost tripled in the 10 years to 1900 (Vamplew, 1987). As can be seen from Chart 13 (p. 166) the ratio of school enrolments to total population rose strongly from five per cent in 1856 to 25 per cent in 1879. From 1880 to 1895 this proportion fell despite a doubling in the number of enrolments, which is attributable to the rise in the adult population due to immigration relative to the number of children in the colony. From 1896 onwards the recovery in proportional enrolment – trebling in five years – was due to an increase in the birth rate as the immigrants from the 1885/6 gold rush settled in the colony. The constant increase in school enrolments from 1850 appears to have created a literate society by the end of the century, as seen in Chart 23C (p. 212). Using the decennial census data for the years 1861 to 1901, the ratio of school enrolments to the population aged 0 to 19 are, on average, a third higher: 13 per cent in 1861, rising to 36 per cent by 1901. For this 40 year period about one quarter of the population in this age group were receiving an education.

Public spending on education, as a proportion of GDP, was flat until the beginning of the 1870s before growing strongly and peaking in 1877 and then falling away sharply again until the late 1890s. Gross spending on education from 1850 actually increased year-on-year and the reason for the apparent fall in education spending as a percentage of GDP was the rapid expansion and diversification of the WA economy driven by the discovery of minerals, an increase in immigration and the dawn of responsible government, all of which effectively completed the institutional matrix. The average amount of public spending on school enrolments, as a proxy for the cost of public education per child, was £2 1s 1d between 1850 and 1900 rising to just under £3 by the end of the century.

⁷² Limited state aid to denominational schools was gradually reintroduced by Australian states and territories after the Second World War (Fletcher 1981, 567).

Chart 13: Percentage of Population Receiving Education, 1850-1900



Source: *Blue Books* of Western Australia & *Statistical Registers* of South Australia

South Australia

SA placed a strong emphasis on education and science which was fuelled by the nonconformist element of colonial society who, generally, deployed their physical and human capital to better effect in earning their living (Mokyr, 2009). Many were successful entrepreneurs in their own right and had been educated in Scotland or in their own academies, which provided a useful background in business and applied science (Mokyr 2009, 361). In addition, they recognised the value of educational institutions in creating new scientific knowledge which, when diffused throughout SA's dense social networks, formed the basis of many entrepreneurial opportunities (Shane 2003, 32-3).

The competition for patronage resulted in many denominations expanding their religious offerings to include formal yet voluntary education to the children of parishioners (Pike 1957, 250). The colony's first Sunday school was opened in 1838 and 11 elementary schools were recorded three years later. By 1850 there were 3,354 children distributed across 66 Sunday schools and 1,867 pupils in 64 elementary schools representing a total of eight per cent of the population. By 1900, the number of schools (of all types) across SA had mushroomed to 1,761 before decreasing afterward. According to Mokyr (2009, 232), the higher patronage figures for SA can be explained by the norms and beliefs towards education that were characteristic of the nonconformist middle class both in the Britain and SA.

Limited state aid to denomination schools was available for a short time: in 1847 an educational board was established to superintend them. However, by 1852 the government permanently ended this aid (43 years before WA) and, henceforth,

denominational schools had to be supported purely by private subscription (Gibbs 1984, 173). By 1875, however, 25 per cent of the population was receiving an education in one form or another (approximately 53 per cent of the population aged between 0-19 using census data), and when the government brought in the *Education Act 1875 (SA)*, 70 days of compulsory education each half-year for children from seven to 13 was mandated five years after similar UK legislation and four years after WA.

The University of Adelaide was founded with donations by the colony's leading pastoralists and commenced academic work in 1876 (Gibbs 1984, 87; Fraser 1983, 419). Five years later, a branch of the Royal Society was established to provide a forum for the promotion of scientific discovery and by 1900 the number of memberships had reached 411 (in WA there were no memberships during the nineteenth century and the first university was not founded until 1907) (Vamplew, 1988, 345). The tertiary sector was firmly established in SA with the opening of Roseworthy College in 1882 to undertake specialist agricultural research and with Australia's third faculty of medicine opening two years later (Fraser 1983, 448). Following a careful survey of the colony's mineral wealth in 1888, the government established the School of Mines which trained miners from all over the continent (Gibbs 1984, 109) many of whom arrived in WA and played a pivotal role in developing the goldfields. While the build-up of the tertiary sector continued, education reform was high on the colony's agenda with Watton Grasby's *Teaching in Three Continents* published in Adelaide in 1891 outlining ideas for applying new education reforms in Australia which infused recent US innovations (Fraser 1983, 420).

By 1900 the percentage of the population receiving some form of education exceeded 40 per cent and the 1901 census data shows the ratio of enrolments to the proportion of the population aged 0 to 19 was 87 per cent, more than 2.5 times greater than WA. In addition, SA's spend on education as a percentage of GDP increased strongly (unlike WA) after the education reforms of the 1870s exceeding one per cent in 1897 but were punctuated by deep troughs during 1886-91 and after 1897 due to recessions and drought respectively. Furthermore, the average amount of public spending on school enrolments, as a proxy for the cost of public education per child between 1850 and 1900 was £1 10s 10d. This cost fluctuated considerably between £1 and £2. 10s but was about 13 per cent lower than WA on average.

The evidence indicates that educational institutions in SA were highly valued by the colonists and ably provided by the government. They were better funded

(ratio of public spending on education to GDP); resources were more efficiently deployed (cost per enrolment); educational markets were highly competitive (growth in the number of schools); and, as a result, the reliance on child labour was lower than in WA (higher percentage of enrolments). These SA institutions continued their experimental and pragmatic approach to science inspired by Enlightenment thought; and their impact helps to explain why non-conformists played a leading role in SA (and wider Australian) entrepreneurship during the nineteenth century (Mokyr, 2009). In addition, the early abolition of State aid to denominational schools from 1852 may have influenced SA's drive for an all-inclusive society by opening up education (and the [workplace](#)) to women which ultimately led to female suffrage in 1895. Investment in education between 1850 and 1900 resulted in a higher level of human capital which appears to be an influential factor in SA's development (Gibbs 1984, 174).

Summary

Religion played a key role in the lives of colonists during the nineteenth century and was the focal point of social cohesion, both inclusive and divisive. In WA, the dispersion of the colonists which plagued economic development, and created apathy in political markets, hampered the reach of religion and education. At foundation, the Anglican religion dominated but its influence weakened over the century due to immigration, both free and convict, benefitting Protestant dissenters and Roman Catholics alike. By 1900 there were about 10 distinct denominations. In SA, one of the founding tenets was the complete freedom of worship that was free from State interference. The survival of denominations was entirely dependent upon the financial aid supplied by the church attendees themselves. Many struggled to survive as Pike (1957) has detailed but toward the end of the 1850s after responsible government had been established religion by voluntary subscriptions flourished. The Anglican denomination was never as strong in SA as it was in other Australian colonies; dissenters dominated and expanded the presence, and religious markets were deep and competitive. Church penetration throughout SA was considerable and this tended to create dense social networks.

The main economic benefits stemming from religion are through its effects on education. State aid was very much a part of WA's cultural fabric until 1895 and as there was no competition for congregatory contributions there was little incentive for denominations to offer services such as Sunday school, improved teaching standards, a modern curriculum and the admission of female students. School enrolments were around 10 per cent of the population at 1850, they rose to about 25 per cent by the 1880s before falling sharply shortly afterwards as gold-rush immigration swamped

the population growth figure. By the end of the century enrolments were almost back at 25 per cent of the population. In SA by comparison, the early abolition of State aid forced denominations to offer value-adding services such as education for the children of church-goers in order to boost patronage. From 1850 to 1900 the trend in school enrolment generally rose from about 5 to a little shy of 40 per cent; education spending was higher and the cost of public education was lower in SA than it was in WA. In some ways, "systematic colonisation", and the ideals of its sponsors, achieved a competitive market in religion, championed by Smith ([1776] 1976), that maximised "happiness", in terms of educational outcomes, at the lowest social cost.

Conclusion

This chapter examines the institutions of colonial WA and SA based on the matrix specified in [Chapter 3](#). A number of WA's institutions appear to have been poorly designed at foundation or took an extended period of time to establish because of dependence on other institutions. The colony began life with a flawed system of property rights based on land grants. This hampered economic formation because it starved the colony of cash; hampered the growth of credit; discouraged large-scale immigration; dispersed the population; inhibited trade and therefore government revenue; set back the transition from autocratic to democratic government; and hindered the diffusion of religion and education institutions. It was only after the effects of the land grant system had been contained - and this appears to have been a generational process given that WA was a late adopter of institutional innovation - was it possible for the other institutions to rehabilitate, and with the granting of responsible government in 1890 the matrix was finally complete. Afterward, the exploitation of the mineral boom became a reality and the resulting economic growth became truly significant.

In SA, land could only be sold and unlike the grants came with common law protection which was an innovation in the Australian colonies (after 1831). Such protection encouraged the land owners to maximise their investments, as witnessed by the enthusiastic adoption of farming, and of leases to develop the pastoral and mining industries. Land sales and clear title encouraged the growth of private credit. In the compact population, social networks flourished reducing information asymmetry and this led to falling interest rates during the nineteenth century. Public revenue was based on the export of grain, wool and copper, and land sales attracted large numbers of emigrants swelling the population such that by 1850 the colony qualified for responsible government. The governance of the colony from 1857 was somewhat erratic but showed remarkable ability to support economic activity, and enjoyed high levels of constituent engagement. Those colonists who were attracted

to SA were drawn from social ranks outside of the Established Church, they were educated and many were successful entrepreneurs. Thus, with secure property rights, SA led the continent, and sometimes the world, in institutional innovation. Notable examples include the Bullion Act, which captured a substantial proportion of trade from VIC; the Torrens Title that reduced information asymmetry and increased security in land transactions; and the sale of land on credit which arrested the loss of labour and capital to neighbouring colonies.

The source of differences in institutional design, in deployment and in subsequent evolution all originated in the method of colonisation. Wakefield's "Systematic Colonisation" appears to have been the catalyst for transferring a better quality institutional matrix than the method pursued in WA. The next [chapter](#) examines other factors that may have contributed to the disparity in economic development of the two colonies. These factors include the primary industries that formed the foundations of the colonial economy, the labour force and transport and communication. Finally economic performance is analysed through the terms of trade, estimates of gross domestic product (GDP) and living standards.

Chapter 7: Other Growth Factors and the Economies of Colonial WA and SA

“I've come loaded with statistics, for...a man can't prove anything without statistics”

Mark Twain, 1880

Introduction

This chapter focuses on a number of growth factors – beyond the four institutions considered in [Chapter 6](#) – that may have influenced economic development in the independent colonies of WA and SA. Such factors are typically identified in the economic growth literature as the composition of natural resources, attributes of the labour force and the effectiveness of transport and communications.

The role of natural resources is crucial because they affect the development of a primary economy. The dimensions of the labour force assist in determining how and when specialisation occurs and this is a precursor of industrialisation leading to a growth in trade, output and living standards. Not all economies specialise at the same rate or to the same depth, and issues that affect this rate include the growth in population and the demographics (sex and age distribution) of society. Transport is seen by some economists, such as Bernstein (2004, 298), as the most important endowment a nation can possess. This is because consumer products must reach markets at a reasonable cost, regardless of the efficiency in the production process (Bernstein 2004, 173). In addition, rapid communications reduce information asymmetry and assist in lessening the geographic differences in wages and prices (Bernstein 2004, 177).

The influence of each of the above set of factors on economic performance can be difficult to separate from the role of each colony's institutional matrix, particularly the role of innovation in resolving economic roadblocks. For example, institutional factors are closely intertwined with the exploitation of natural resources as they have a bearing upon the property rights of land, the technology employed and the organisation of the agrarian labour force. However, this chapter makes an attempt to identify the broad nature of the influence of these 'non-institutional' factors and concludes with a review of the economic performance of the two colonies as measured by the terms of trade, aggregate GDP estimates and living standards. As with [Chapter 6](#), the measures presented here are derived from the directly

comparable *Blue Books*, *Statistical Registers* and *Censuses* of each colony and any price data is presented in nominal terms unless otherwise stated.

The Natural Resources of the Colonies

Natural resources are environmentally derived materials that are transformed into commercial products, and they play an important role in economic development under favourable institutional conditions (Paltseva and Roine, 2011). However, the literature on the economics of natural resources, ably surveyed by Paltseva and Roine (2011, 5), also suggests that, “natural resource wealth, especially in initially weak institutional settings, tend to delay diversification and reforms, and also increases incentives to engage in various types of rent-seeking” which can inhibit growth.

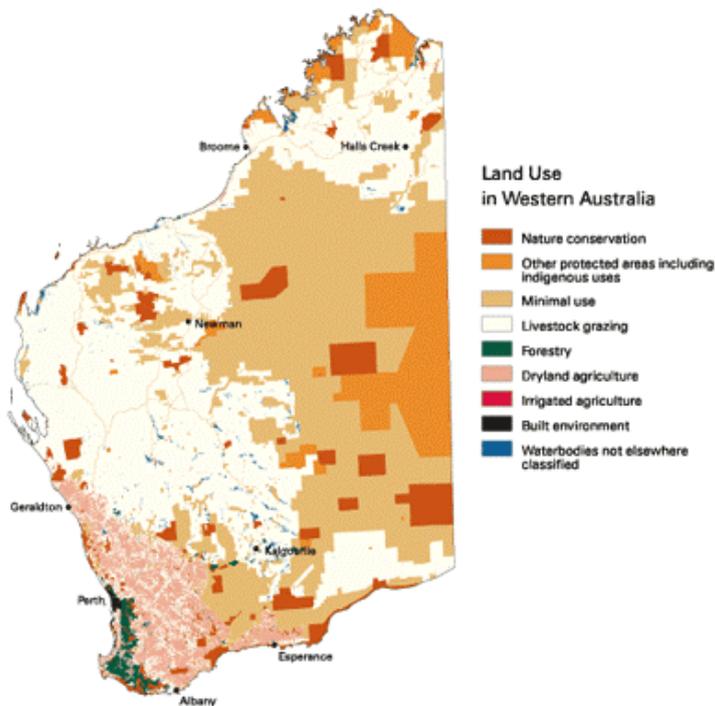
Agriculture

The early explorations of Australia’s south and west coast gave but scant information about the natural resources available to colonists except for frequent references to a temperate climate conducive to European agriculture. The decision to pursue agriculture (farming and pastoralism) as the main economic activity, therefore, was not surprising as it also helped satisfy need for food and exportable cash commodities. The data in Figure 4 show, however, that by 2011 the area of land suitable for agricultural in each colony was similar having expanded to encompass almost half of the total area. In WA, dry land agriculture accounted for only 5.0 per cent and livestock grazing 41.3 per cent of the land area whereas, in SA, the split is 5.9 per cent and 51.0 per cent respectively.

In climatic characteristics, the two principal settlements of WA and SA share a Mediterranean climate, comparable annual temperatures as well as statistically identical hours of daylight and sunshine (important for photosynthesis). Rainfall is, however, low in both colonies but more so in SA. As shown in Chart 14 (p. 174), between 1876 and 1901, the annual average rainfall received in Adelaide was, on average, 7.87 inches lower than Perth (p-value = 0.0000) but was slightly less variable ($\sigma_{WA}=142$ vs. $\sigma_{SA}=114$).

Figure 4: Productive Capacity of the States, 2011

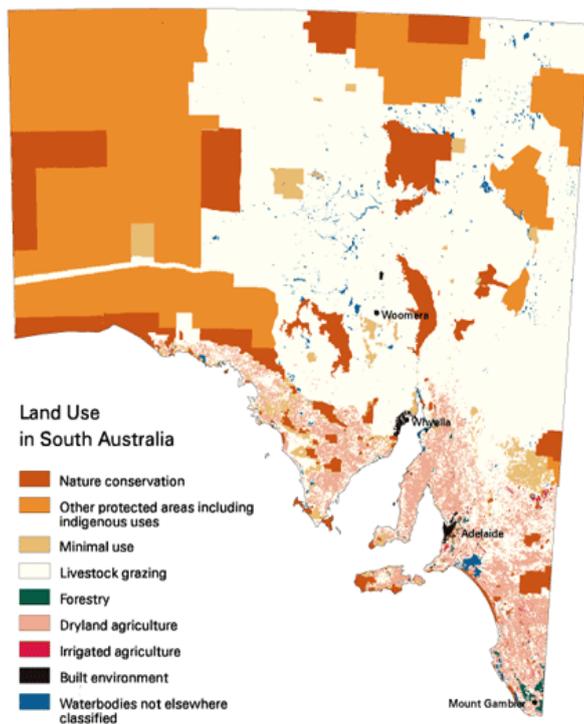
A. Western Australia



Land Use Description	Total Extent (sq. mi)	
No data	131	0.01%
Nature conservation	64,749	6.58%
Other protected areas including aboriginal reserves	91,068	9.25%
Minimal use	358,615	36.42%
Livestock grazing	407,898	41.43%
Forestry	7,663	0.78%
Dry land agriculture	48,826	4.96%
Irrigated agriculture	113	0.01%
Built environment	842	0.09%
Water bodies not elsewhere classified	4,657	0.47%
Totals	984,557	100%

Source: <http://www.anra.gov.au/topics/land/landuse/wa/index.html> (accessed August 3, 2012).

B. South Australia

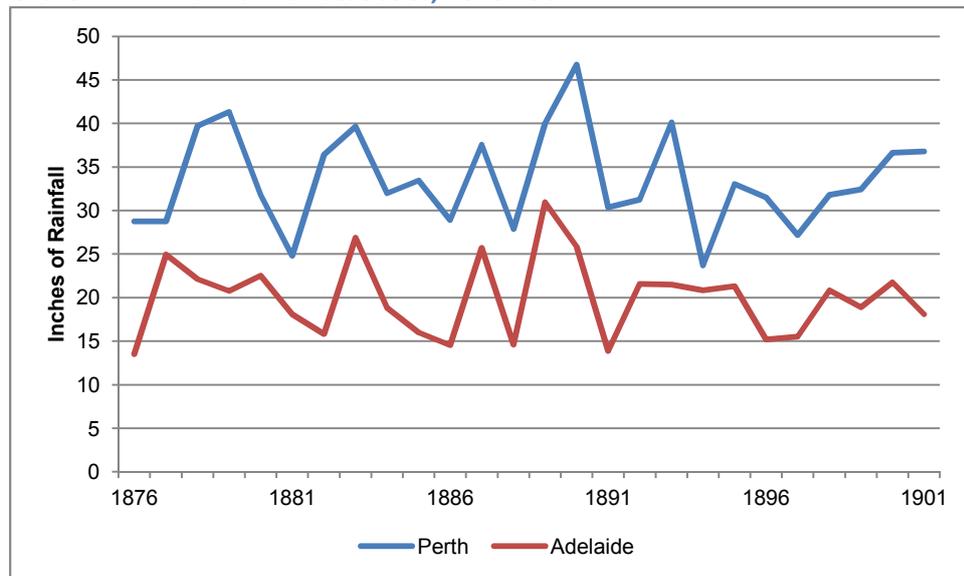


Land Use Description	Total Extent (sq. mi)	
No data	51	0.01%
Nature conservation	42,347	11.04%
Other protected areas including aboriginal reserves	107,905	28.13%
Minimal use	10,194	2.66%
Livestock grazing	195,629	51.00%
Forestry	624	0.16%
Dry land agriculture	22,716	5.92%
Irrigated agriculture	484	0.13%
Built environment	749	0.20%
Water bodies not elsewhere classified	2,821	0.75%
Totals	383,560	100%

Source: <http://www.anra.gov.au/topics/land/landuse/sa/index.html> (accessed August 3, 2012).

In terms of geography, both settlements were established on coastal plains facing the western horizon with a chain of hills running north to south, and at a similar distance eastward from the coast, beyond which are located substantial fertile plains. In WA, the first settlers were led to believe that the land around the settlement supported a year-round growing season but in reality the soil on the coastal plain was of limited fertility, determined in the twentieth century to be particularly deficient in phosphorous (Wadham and Wood 1939, 17). In the drier inland, beyond the hills, there was sufficient fertile soil (Cameron 1987, 444). Around Adelaide, much of the surrounding land from the city to the coast consisted of low-lying and badly drained sand hills and mangrove swamps but with sizeable deposits of black soil (high plant and animal matter) and red earths (high iron content) (South Australia 1962, 13, 18). Like Perth, some of the most agriculturally productive areas are located beyond the hills in the Torrens and Piccadilly valleys (South Australia 1962, 20) but there is considerable productive land to the north of Adelaide towards Port Augusta. Overall, the principal settlements of these new colonies shared many similar geographic, as well as climatic, characteristics.

Chart 14: Annual Rainfall Statistics, 1876-1901



Source: Vamplew, W. 1987. *Australian Historical Statistics*. Sydney: Fairfax, Syme & Weldon.

Farming

According to Diamond (2005b, 389), Australian soils are extremely old and, over the course of billions of years, rains have leached the land of essential nutrients to such an extent that plant growth rates and productivity are the lowest anywhere in the world. Whilst there might be regional differences in soil fertility across the continent (e.g. WA and SA), negligible by global standards, would these be high enough to support large European populations without an entrepreneurial land

system, without adapting existing techniques to the local environment and without the implementation of new technology? In other words, was differential soil fertility or institutional innovation the key to improving the barren Australian and making it productive in a European sense?

Western Australia

In [Chapter 6](#), during the discussion on property rights, it was shown that the amount of land devoted to agriculture as a proportion of total land alienation never exceeded five per cent in WA and was considerably lower compared to SA. The generally accepted explanation of WA's slow start in farming is poor soil fertility and the prevalence of flora poisonous to European livestock. This was Crowley's (1960, 17) view and he specifically dismisses the deficiencies of the "land system" as the principal cause. In a similar vein, Statham (1997) argues that WA soil was less fertile than SA's. Taking a middle road, Wadham and Wood (1939, 17), acknowledging Roberts' (1924) criticism of the land grant system, believe "the country was not particularly suited for either [farming] or pastoral production under the condition which obtained at that time". Similarly, Burvil (1979) admits the land system acted as a handbrake to agricultural production but pursues the fertility argument. These opinions are representative of the importance of the physical environment over institutions in WA's colonial economy but as will be shown, institutions played a key role in overcoming the deficiencies of nature to make farming a viable economic industry.

The importance of institutional over physical factors in the development of farming can be seen, first, in the effects of the "Conditions of Settlement" in WA, which forced settlers into intensive farming as the main type of economic activity because the introduction of agricultural assets was the surest way to maximise the land grant (Statham 1996, 42). It was expected that farming would achieve a productive surplus within two years of settlement but due to the lack of markets, small cash-starved population, no convict establishment (yet) and no real public sector, there was no demand that would absorb the expected farming output (Statham 1996, 42).

Physical factors played a role in the early growth in farming as early farmers struggled for the first few years following settlement to find sufficient fertile land; explorations to the east and south of Perth reported favourable land but at considerable distance (Burvil 1979a, 6). By the end of 1830, with 1.2 million acres of land alienated, only 160 acres had been cultivated (Roberts 1924, 50). By 1837, with 1.5 million acres of land alienated, the *Blue Books* show that 1,381 acres had been

sowed for wheat and 741 acres given to other crops, including barley, oats, rye and hay.

The demand for food by settlers, averaging about a third of a ton of wheat per male per annum, and later convicts saw the total farming area increase dramatically. Indeed, the amount of farmland and wheat acreage approximately doubled in the seven years to 1845 (Butlin 1953, 398). The growth in acreage continued between 1850 and 1869 to slightly exceed 49,000 acres, about half of which was wheat due to the demand for food by convicts. There was a proportional increase in livestock numbers too which, taken together, stimulated the local market and the balance of trade (Crowley 1960, 41). However, with the cessation of convict transportation in 1868, and the British fiscal subsidy that supported WA's penal infrastructure, wheat farming appears to have become less profitable as prices began to decline between 0.5 and 0.6 per cent per annum (measured by wheat per bushel⁷³ and flour per 200 lbs. respectively). Indeed, as O'Connor (1970, 34) has shown, the period from 1870 to 1900 witnessed a steady decline in the price of wheat on the world market which no doubt impacted upon the incentives to engage in this type of cost-intensive farming for both colonies but probably more so in WA due to its small size and high cost of capital. The *Blue Book* data, which has until now never before been used to reference this period, show that wheat acreage per person declined from 1.33 to 0.69 by 1876 where, despite recovering to 0.95 in 1880, it continued fall away for the remainder of the century. In the face of a rising population the colony soon became dependent upon cheaper imported wheat. During the same period, there was a strong increase in sheep numbers and wool exports indicating a shift from farming into pastoralism as the latter had lower barriers to entry (i.e. leasing land rather than buying it) and appears to have been more profitable than domestic wheat farming. Unfortunately, the increase in export earnings from wool was offset by the need to pay for SA grain, leaving the colony with little net benefit from the switch between agricultural pursuits (Crowley 1960, 60).

The part of the institutional matrix relating to innovation affected the way in which WA's physical environment was adapted to farming activities and, thus, also affected the rate of growth in agriculture. Innovation in, and the adoption of, technology was long delayed in WA. As Burvil (1979, 8) explained, farming methods for the first 50 years remained distinctly British with some adaption to winter rainfall and milder winter conditions. Animal manure was the only fertiliser available until the late 1840s and farming was labour intensive. Even when new information about

⁷³ One bushel of wheat is a volumetric measure equal to about 60 imperial pounds (i.e. lbs.).

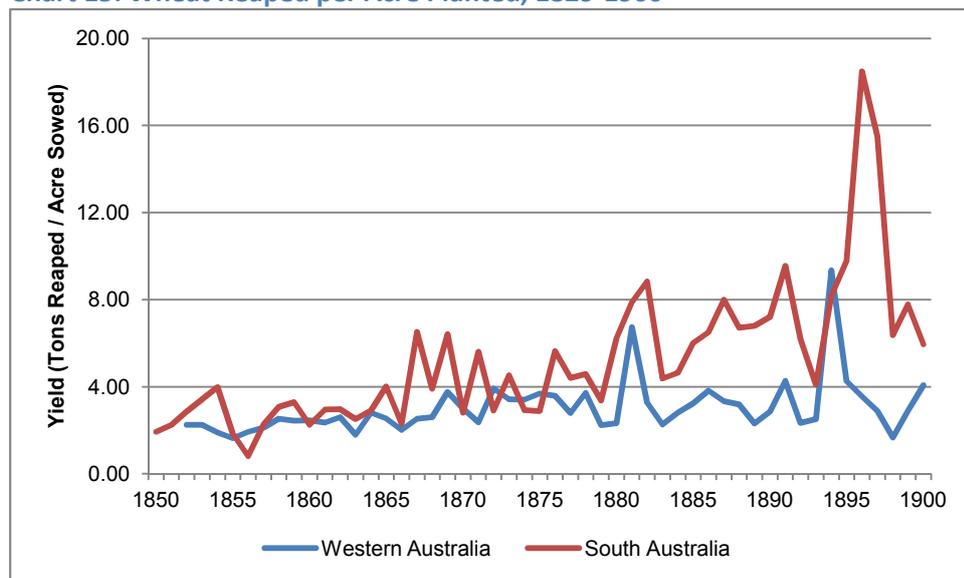
farming innovations reached WA, the colony was slow to act on it as the following example highlights. Some decades before the chemical composition of soil was understood, Britain, in 1835, began experimenting with phosphorous guano, imported from Peru, to improve the fertility of its most marginal farm land (Deane, 1965). It is likely that such information filtered through to WA in the ensuing years⁷⁴ but when a significant local supply of guano was discovered at the Houtman Abrolhos and later Shark Bay, both well north of Perth, in the late 1840s, rather than use it to improve local soil fertility in the marginal lands around the settlements, it was exported to Europe from 1847 onwards (Western Australia, 2009). The price of guano, globally, was high because of its scarcity and Peru possessed the only sizeable deposit known at that time (Hollett, 2008). The export of guano brought much needed cash to WA but its lack of domestic application retarded the development of local farming until the 1890s. Economic historians have not previously connected the importance of guano to improving the phosphorous-deficient soils around the principal settlements of the colony. According to *Blue Book* data, guano, by value, was but a small component of WA's export mix, despite some extraordinary years (see f.n. 75), and it certainly made little impact in reducing net export deficits during the nineteenth century (topics discussed in [last section](#) of this chapter). In hindsight, guano should have been employed in local farming from its first discovery. Had it been done so, it is likely that the grain yields would have greatly improved and may even have delivered exportable surpluses and lessened the dependence on, and the drain of cash associated with, imported SA grain, particularly after 1868. If WA's institutional matrix been more agile in adopting British techniques in soil improvement, earlier rather than later, the deficiencies of nature may have been overcome decades earlier than was actually the case. However, guano exports did lead to the direct development of the WA's pearling industry (Western Australia, 2009).

It was only after a build-up of critical mass in WA's institutional matrix had been achieved toward the end of the century, with the granting of self-government, that the colony began to rapidly adopt the latest knowledge and innovations to boost farming output. Firstly, acreage and yield data for beans, legumes and other pulses - which had appeared intermittently in the official record since 1835 - were now consistently reported in the *Blue Books* from 1884 as knowledge of their soil-improving properties became more widely known. To improve the returns to farming

⁷⁴ As early as 18 December 1854 the *South Australian Register* proclaimed the first imports of Peruvian guano to SA and specifically mentions the benefits accruing to British farming following its adoption thereby showing that this important innovation was known in the Australian colonies around the time of the first deposits discovered in WA.

(averaging about three tons of wheat per acre), the colonial government, in 1887, recommended the introduction of superphosphate fertilisers and crop strippers (first used in SA in 1843), a ban on, but not enforcement of, phosphorus guano⁷⁵ exports (which reduced the amount of natural fertiliser available for WA farmers), and a switch to mixed cereal farming to conserve soil nutrients (Burvil, 1979). Government-initiated changes in property rights in 1889 and 1893 – detailed in [Chapter 6](#) - stimulated farming by making it easier to gain access to the land. In fact, the total area under crops more than doubled from 83,714 acres in 1893 to 201,338 acres by 1900. Around this (late) time, WA farmers adopted the latest agricultural techniques, imported from SA and VIC, and these brought about a revolution in manuring, ploughing, planting and reaping. The adoption of the latest technology also reduced the price of land clearing to about a £1 per acre and loans from the LMM in 1896 onward, allowed construction to commence on the Goldfields pipeline which alleviated the water shortage along the Wheatbelt towards Kalgoorlie (Burvil 1979, 21). These developments improved the yields and profits in farming; and the cost of primary production began declining as did the reliance on imported foodstuffs.

Chart 15: Wheat Reaped per Acre Planted, 1829-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

Chart 15 (p. 178) confirms that there was a genuine increase in the yield of wheat reaped per acre planted over the study period, despite the obvious seasonal and climatic volatility. The yield rose from about three tons in 1852 (when records began consistently) to average a little less than four tons during the last 30 years of the nineteenth century when the critical mass in the institutional matrix was building,

⁷⁵ Battye (1921), quoting *Blue Book* data, shows that from 1876 to 1900 shows an almost unbroken series (with the exception of 1881 and 1882) of guano exports averaging over £14,000 per annum with two exceptional years (1878 and 1886) where earnings exceeded £66,000.

implying that many of the earlier deficiencies of nature had been overcome. In addition, the yield for other cereal crops shows a similar trend for most the nineteenth century. The ability to grow a wide selection of cereals, potatoes, legumes and pulses, recorded in the primary data from 1835, shows that the soil wasn't entirely barren and this mix, and rotation, of crops went some way to improving soil fertility in WA.

South Australia

Was SA blessed with more fertile soil despite the lower level of average rainfall, or were institutional factors responsible for the differences in farming output? In Statham's (1996, 47) view, "soils were far more fertile [in SA] than those at Swan River [and] settlers needed little assistance once allocated their land", and this is thought to have contributed to the colony's superior farming performance. This view excludes a role for institutions in developing the farming component of SA's economy.

As in WA, factors other than climatic and geographic constraints affected grain production in SA. From its first settlement, SA farmers took steps to "devise farming methods to suit local conditions" but labour was scarce and expensive: in the season 1842-3, for example, farmers used hand-reapers to harvest their crop and farm labourers required 15s and a bottle of rum per acre (Fitzpatrick 1947, 145-7). To become internationally competitive however, the cost and time of harvesting had to be reduced and the adoption of Ridley's stripper, developed in SA during 1843, overcame both constraints. The stripper's use extended wheat farming and allowed SA to develop the flour export trade to the eastern colonies that were swelled by immigration due to the gold discoveries of the 1850s (Fitzpatrick 1949, 125). In late 1854, the *South Australian Gazette* announced the first import of Peruvian guano (19 years after its introduction in Britain). The article specifically refers to "Professor Johnstone's Lectures on Agricultural Chemistry and Geology" as being instrumental in disseminating the benefits of Guano to SA farmers. This is yet another example of SA's institutional agility.

The colony, with 125,000 people in 1860, had 429,000 acres of farmland, or 3.4 acres per person, compared with 0.74 in NSW, 0.78 in VIC (Fitzpatrick 1949, 125) and 0.89 in WA. However, the internal Australian market was too small to absorb the potential yield from SA farmlands. In order to access the lucrative British market, SA farmers had to reduce production costs and shipping costs significantly to

compete with Russian and American grain (subject to lower transportation costs), and this was achieved by the rapid adoption of new technology.

Larger farms were established (above the Wakefieldian *ideal* of 80 acres⁷⁶) and mechanisation was adopted to reduce labour costs. Innovations in farming SA include the process of 'mullenising' and the introduction of the stump jump plough, which in 1878 allowed the development of the previously un-farmable "mallee" regions to the east of the colony (bordering VIC). In almost four years after the plough's introduction, half a million acres of SA mallee land was cleared for wheat planting that significantly boosted the available farming acreage in the colony (Fitzpatrick 1949, 152).

Many large SA farmers adopted aspects of contemporary European farming methods (in contrast to the other colonies): in 1846 it was recommended that local soil could be improved by the addition of guano (11 years after its introduction in Britain and 41 years before WA) and sulphate of lime (three years after its development in Britain) both of which were locally available⁷⁷ (Fitzpatrick 1960, 149-150); between 1881 and 1883 (up to 6 years before WA) two specialised agricultural institutions experimented with superphosphate fertiliser (a by-product from copper smelting) which increased the wheat yield (Gibbs 1984, 78). Yields increased further by the introduction of new varieties of wheat and much progress was made in disease control (Gibbs 1984, 78). In addition to wheat, the soil in SA supported high yields of other cereals, potatoes, garden vegetables, legumes and pulses, and vines from as early as 1838 (about the same time as they appear in the WA records). The rotation of subterranean clover between cycles increased the fixed level of nitrogen in the soil (Mokyr 2009, 179) and improved the general level of soil fertility in the long-run (Allen, 2008).

The importance of wheat-growing in South Australia in the nineteenth century was profound. From the end of the 1850s to 1880, a period in which SA strengthened its property rights benefitting farmers as explained in [Chapter 6](#), there was strong growth in the total area under crop, with farmland doubling five times (see Chart 2, p. 127). By 1881, SA farmland was just under 50 times larger than WA's; and by 1900 SA had 3.2 million acres under the plough making it the principal grain producer in Australia at a time when the world price of wheat was steadily declining. Chart 15 shows, there is evidence that the institutional innovations mentioned above

⁷⁶ This was the average size of farms in Britain as of the 1820s and was considered optimal (Mokyr, 2009).

⁷⁷ See Deane (1965, 198) for an explanation on British farming innovation particularly concerning the development of improved fertiliser techniques that were subsequently transferred to the Australian colonies.

greatly improved SA soil fertility compared to WA. Indeed, in 1852 the wheat yield in the two colonies was almost identical but as the century progressed, the average difference in yield between the two colonies rose to 2.32 tons per acre. However, as can be seen from the beginning of 1880 onward, when SA adopted fertilisers, both natural and chemical, and introduced new wheat varieties resistant to drought and rust, the yield spread between the two colonies widened to become significant.

Pastoralism

The importance of pastoralism to the economic success of colonial Australia cannot be understated. As Mokyr (2009, 180) has explained, it was integral to the explanation of European advancement during the eighteenth and nineteenth centuries for a number of reasons: livestock is part output (meat and hides), part capital stock (transport and ploughing) and part intermediate product (manure, milk and wool).

In both colonies (and in hindsight), wool should have been the primary economic activity for it was non-perishable; its production did not involve the large capital costs associated with farming; and it did not closely depend upon favourable rains (Statham 1981, 190). The success of the Australian pastoral industries was not just dependent upon the number of sheep but also the quality of the wool. If Australia had any hope of competing with Spanish or German fleece then production and transportation costs had to be minimised, fineness had to be improved and the dependable volume had to be supplied to meet demand. These were institutional factors and SA proved more adept at overcoming them.

Western Australia

The suitability of WA's physical environment for pastoral activity in WA was noticed soon after initial settlement (Burvil 1979a, 5). The beginning of the 1840s saw suitable grazing land occupied in the Avon Valley and the Victoria Plains, to the east and north of Perth respectively (Burvil 1979a, 8). Between 1836 and 1845, sheep numbers increased by a factor of 12; the quantity of wool grew by a factor of 10; and wool exports increased in value by a factor of five. Despite a general drop in the price of Australian wool, Butlin (1953, 397) attributes this growth, in part, to better quality grazing land beyond the main settlement of Perth (e.g. in the Avon Valley) and the flexibility of pastoral leasing. Indeed, Fels (1979, 228) states that the colony's sheep were "fed about as well in 1839-44 as in 1969-74".

Steady development in the far north-west of the colony occurred during the 1880s and while initial reports were favourable, long-term development was beset by

stock diseases, isolation from markets and inadequate transportation infrastructure (Bauer 1987, 432). As with all the Australian colonies, WA pastoralism was to remain an important export commodity beyond 1900 as yield and quality both improved throughout the course of the nineteenth century. It eventually accounted for just under of 42 per cent of land use in the colony (Figure 4).

Whilst physical factors were clearly important in explaining the growth of pastoralism in early WA, institutional innovations also supported pastoral growth and they revolved around land utilisation and the adoption of improved breeding technology (Fels 1979, 219-229). As mentioned in [Chapter 6](#), there was strong demand from the pastoral industry for greater flexibility in the use of “waste” land not yet surveyed for farming or urban use. The early promise of sheep farming encouraged the WA colonial government to institute a leasehold system in 1841 following on from the Glenelg Regulations (1837), when grazing rights to surrounding Crown land were offered to land owners as a precursor to establishing agricultural farms. From a tentative start of 12,636 square miles in September 1853, the amount of land designated as pastoral leases grew to 164,063 square miles by 1890 which was more than double the previous decade.

The initial samples of wool from WA sheep were coarse due to the inferior breeding stock which produced it, with one settler describing it as “more like goats hair than [fine] wool” (Fels 1979, 217). Between 1833 and 1834, the *Perth Gazette* disseminated advice on sheep genetics collected from stockmen in NSW, and a scientific methodology of sheep classification was introduced in order to improve sheep breeding and the quality of the wool clip (Fels 1979, 218). The quality of wool began to improve during the course of the nineteenth century as did yield and it began to closely resemble the merino fleece that was prized by British textile manufacturers. However, there was still some way to go since one particular parcel fetched only 4d per lb. in London, which was insufficient to cover the transportation costs (Fels 1979, 218). After some experimentation, wool growing went on to become a profitable economic activity. Indeed, by 1836 wool profits were already averaging 50 per cent (Statham 1981, 190).

During the 1880s, technical innovation played an increasingly important role in supporting the industry. WA pastoralists became aware that SA sheep gene-pools were responsible for increasing wool production, even eclipsing the long established NSW gene-pools and began importing selected rams and ewes to improve WA stock (Fels 1979, 23). Imported technology, long in use in the eastern colonies (by about 30 years), allowed farmers to fence their runs and access to longer-term funding

enabled the construction of permanent dwellings, such as shearing sheds, in which livestock could be shielded from the effects of climate and predators (Fels 1979, 219). These advances, infused from VIC and SA, helped to free up labour, thus making the industry more competitive in international markets. As knowledge of the colony's climate and geography became more widely known, sheep farmers and those supporting the industry adopted scientific techniques that effectively overcame many of the handicaps of nature such as water shortages and poisonous flora.

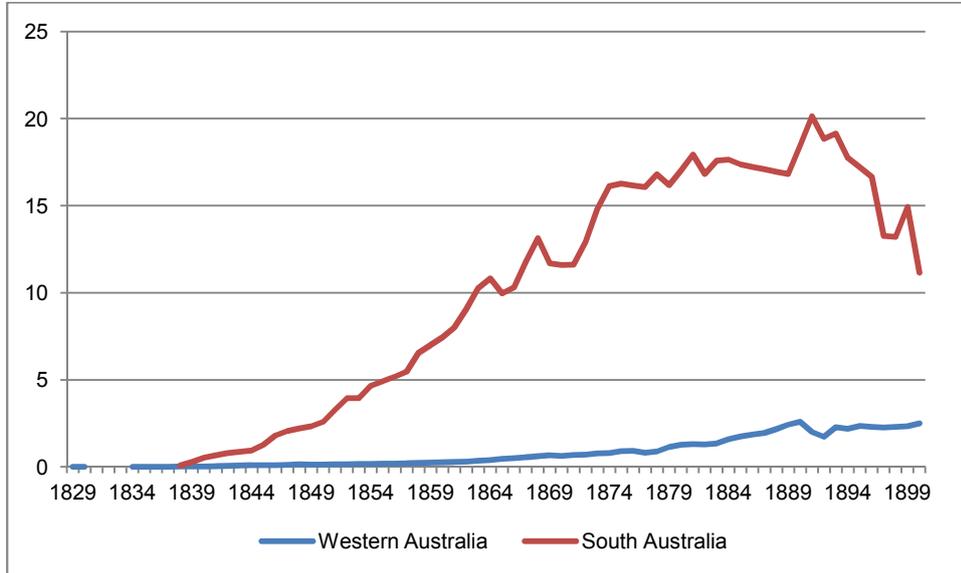
Better specified property rights for grazing land and technical innovation had a beneficial effect upon livestock numbers and yield. From 1850 to 1884 sheep numbers increased another 12 times to 1.5 million head of sheep and yield per head rose 26 per cent to 5.3 lbs (Chart 16B). Numbers continued to rise peaking at over 2.5 million yielding about 7.5 lbs. of wool. The following year sheep density dramatically fell by 25 per cent but the eastern goldfields, established during the mid-1890s just beyond the limits of established pastoral occupation, ensured a permanent demand for food and clothing, as well as water and other essentials that supported an average of 2.2 million sheep yielding over 11 lbs. of wool to the end of the century.

South Australia

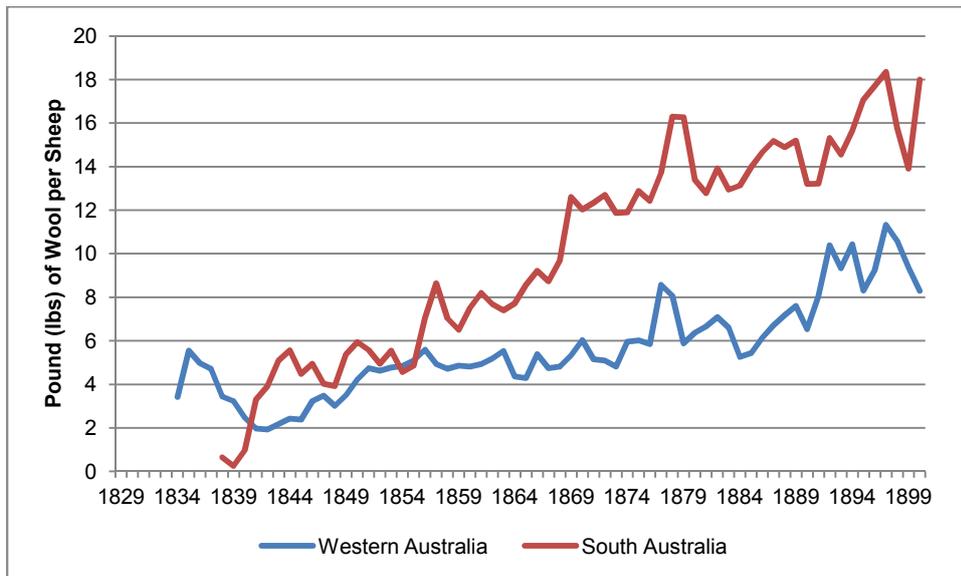
Institutional factors were as important as environmental factors in developing SA's pastoral industry. From the 1840s, pastoralists expanded across the fertile but narrow belt of coastline extending to the east and west of Adelaide, bounded by Goyder's Line of Rainfall (Aplin 1987, 344). In 1842, pastoralists were required to purchase a £2 per annum licence fee and pay a tax per animal in return for occupation rights (HistorySA, 2012). This move to tax sheep farming did not appear to detract from its economic attractiveness for in the following year two-thirds of the total colonial exports of £66,000 was made up by the wool clip (Gibbs 1984, 66). However, the desire for closer settlement and the expansion of wheat farming gradually pushed pastoralists into the arid regions further north. Despite the more challenging climatic conditions, unfenced runs actually flourished and led to the development of substantial townships, including Port Augusta, built in 1857 (Mincham 1987, 349).

Chart 16: Development of Pastoralism, 1829-1900

A. Sheep Density per Square Mile



B. Wool Yield



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*.

Chart 16A shows the differences in sheep density between the two colonies with the trend favouring SA. The fall in SA's density from the 1891 peak is the result of four years of heavy rainfall from 1889 to 1894 followed by a severe and prolonged drought which devastated pastoral industries across the eastern colonies. In SA, sheep numbers fell by 44 per cent or 3.4 million sheep, and the number of cattle halved, through starvation. The value of the industry slumped by 60 per cent to

£1.1million. The drought finally ended in 1902, at which time drought began to affect WA, and was known generally as the Federation drought.

Over the course of the nineteenth century, both colonies were able to increase their wool yield, measured by the number of sheep required to produce a ton of wool, as demonstrated in Chart 16B. During the 1840s, both colonies produced around two pounds (lbs.) of wool per sheep, and from there the trends diverge. From about 1850 onwards SA was, on average, able to achieve a higher wool yield compared to WA.

The origins of this divergence in sheep numbers and wool yield appear to be institutional. The colonial government was instrumental in supporting the growth of the industry in a number of ways. Firstly, the Inspector of Sheep (after 1888 the Chief Inspector of Stock) initiated a feedback loop by collecting local data from pastoralists' experiences in adapting livestock to the Australian environment and, over time, disseminated the latest European knowledge on livestock husbandry (Smith 1986, 1). Secondly, stringent quarantine controls established under the 1840 *Scab Act* (26 years prior to similar legislation enacted in WA) kept SA stock largely disease free throughout the nineteenth century (Smith 1986, 4). Thirdly, the 14-year pastoral lease (eight in WA), introduced after 1851 encouraged greater fixed capital investment in the pastoral industry through the use of wire fencing (alleviating the need for shepherds and reducing predatory losses), fixed dwellings, artesian water wells, and dams (Gibbs 1984, 85). The adoption of the lease and the availability of capital allowed pastoralists to create large estates: for example, the Paratoo Station boasted 265,000 head of sheep; and the Beltana run, 363,000 sheep (Gibbs 1984, 85). Fourthly, the work done at Roseworthy College with cereal yields (discussed in [Chapter 6](#)) improved the diet of livestock grazing on harvested crop stubble within the cereal growing regions of the colony.

Innovation in sheep breeding, by the pastoralists themselves, was as equally important in SA as it was in WA. Early SA pastoralists quickly jettisoned the prevailing British animal husbandry techniques, circa 1830, and began experimenting with local resources to limit sheep losses caused by predators and disease (Smith 1986, 1). By 1838, breeding technology had been introduced into SA from NSW with the Merino and Leicester herds (Smith 1986, 1). The use of pyramid breeding⁷⁸, together with the adoption of government-led initiatives to support the industry,

⁷⁸ Jeffries (1979, 17) describes the pyramid or hierarchy of stud breeding as "rams passing from large parent studs to smaller daughter studs to other studs or commercial flocks who may buy rams at any level". This approach was credited with strengthening sheep bloodlines amongst SA's flocks.

resulted in the SA Merino becoming largest class of its breed in Australia⁷⁹ whose wool is the strongest (i.e. thickest in fibre diameter) and contains a higher proportion of natural grease (i.e. better water resistant properties) compared to other breeds (Jeffries 1979, 17; AASMB 2013).

As a result of larger sheep numbers producing a higher yield, SA exported more wool to the metropolitan market, averaging over £900,000 for the period, reaching a high of £2,010,843 in 1877 before falling off rapidly during the 1890s. WA's exports of wool steadily increased, averaging earnings of £131,636 for the period. Exports reached a high of £423,762 in 1888 before steadying to an average of £275,000 for the last quarter of the century. Whilst producing fewer fleeces by volume than SA, WA was able to achieve a higher average price per ton (defined as the amount of export earnings divided by the quantity of fleece exported) of £65 as compared with £49⁸⁰. Indeed, a comparison of the average annual price of wool per ton exported by WA and SA shows that from 1856 to 1877 and again from 1880 to 1893 the price of WA fleece was substantially higher than SA (at other times the prices are almost the same and the overall price trend is downward across the century). This pricing relationship indicates that WA sheep were perhaps exporting fleeces containing a majority of finer fibres on average which commanded a higher price on the London market ton for ton. There are no data either from primary or secondary sources that can confirm whether differences in fleece quality existed between the colonies but it seems likely given the observed price differences. Thus, SA's institutions appear to have favoured quantity, whilst WA's favoured quality over the study period.

Mining

The development of the Australian mining industry is yet another example of the influence of each colony's natural endowments on its respective economic performance and how institutions were important in overcoming environmental challenges. This industry was built upon the back of the spread in farming and pastoralism, and enabled many farmers to diversify their economic activities (Blainey, 1970). SA discovered minerals very early in its life and spurred on institutional innovations whereas WA was a latecomer to mining and required institutional reform to efficiently exploit its fortune.

⁷⁹ When this occurred is difficult to determine with accuracy although it seems likely that, given the sheep lifecycle, this breeding was fairly advanced by the end of the nineteenth century.

⁸⁰ Clark (1955, 192) provides data for NSW in which the average price of Sydney greasy wool on the London market from 1871 to 1900 is higher than both WA and SA and averaged £91 for this period again indicating the danger of comparison without objective quality data on wool fineness.

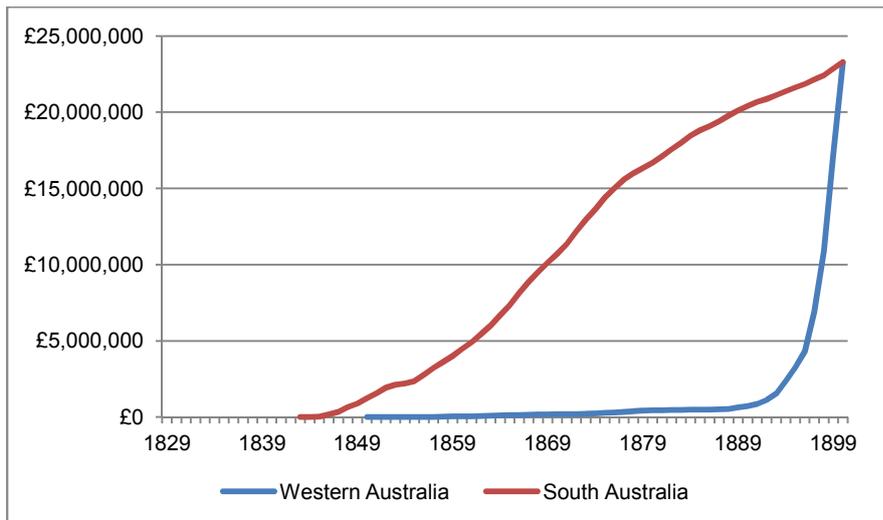
Western Australia

The first mineral discoveries, lead and copper, occurred 300 miles north from Perth during the 1840s and were made on the back of expanding agriculture (Crowley 1960, 21). In the same region, coal was found in 1846 and additional lead deposits in 1848, as well as good pastoral country in the hinterland of Champion Bay (Crowley 1960, 23). On the eve of the convict era, some lead, zinc and iron had also been recovered (Fitzpatrick 1949, 94). Copper was later discovered at the Pilbara in 1872 (Martyn 1987b, 455-6) again following in the footsteps of agriculture.

Until the mid-1880s payable mineral deposits were limited due to the environment (i.e. water availability in the areas beyond the limits of pastoralism), transportation costs and distance to markets. By 1885 the colony had recovered a total of 580 tons, worth £485,000 in export earnings (mainly lead), compared with 731,000 tons of copper for £18,805,000 in SA. Gold, discovered in the Kimberly in 1885, drew in speculators and in 1892 large quantities were found at Coolgardie and the rush was on (Martyn 1987a, 437).

As the more accessible surface gold in the Coolgardie / Kalgoorlie region ran out, mechanisation and large scale organisation and financing became necessary to develop the long-term potential of WA's mining industry (Thomas 1996, 94-5). Lessons from South Africa's Rand were adopted: mining companies moved in; the diggers became labourers; and canvas towns gave way to permanent settlements with improved water supplies and transportation links to the ports of Fremantle and Esperance (Martyn 1987a, 437). By early 1898, WA was recognised as the richest gold area in the world by export earnings, as shown in Chart 17. Hundreds of companies floated on the Perth stock exchange, and this encouraged local technical innovation such as Dr Diehl's gold extraction process mentioned in [Chapter 6](#). The resilience of local gold prices during the Australian depression of the 1890s meant that the colony retained its economic momentum (Martyn 1987a, 438).

Chart 17: Cumulative Export Earnings from Mining, 1829-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

South Australia

The first mining operation to commence was at Glen Osmond about 4 miles from Adelaide (Blainey 1977, 139). A year later, copper deposits were found at Kapunda, fifty miles north of Adelaide (Blainey 1977, 139). Further north, at Burra, a shepherd found copper deposits in 1845 and the town subsequently became one of the world's major producers of copper. Fortunately, the ore was rich enough and close enough to the coast to afford the heavy expense of transportation to the metropolis (Blainey 1977, 139). Copper mining in the early 1840s created prosperity and much needed employment (Gibbs 1984, 101): indeed, nearly 5,000 assisted immigrants came to SA in the two years to 1847 when assisted immigration to NSW and Port Philip (Melbourne) was suspended (Fitzpatrick 1949, 79).

Mining suffered in the 1850s due to the loss of labour to the Victorian gold fields, and many small copper mines failed as a result (Gibbs 1984, 101). By the end of the decade when wool prices fell again, new copper mines opened up on the Yorke Peninsula. These mines produced over 12 million tons of ore between 1860 and 1923 for a cumulative value exceeding £20 million. Mining allowed the pastoralists to develop permanent runs and the region established fertiliser works using sulphuric acid from the smelters, which helped the nearby farmers to improve soil fertility (Gibbs 1984, 107).

In 1883 just to the east of Silverton in NSW, an enormous deposit of silver and lead was discovered. Two years later, the Broken Hill Proprietary Company was formed with much SA capital (Gibbs 1984, 109). The mine led to the construction of

the Port Pirie smelting works to process Broken Hill ores, transported by direct railway in 1888 much to the benefit of SA's economy (Gibbs 1984, 107). By the 1890s the depression had halved the value of SA's net exports and despite the revenues directed to Adelaide from the Broken Hill mine in NSW⁸¹, many settlers left the colony for the WA gold rushes (Gibbs 1984, 156).

South Australia was in many ways the cradle of the Australian mining industry: its copper mines were located close to markets and began before the, more celebrated, gold rushes in NSW and VIC, and survived well into the twentieth century (Gibbs 1984, 97). As Chart 17 shows, the amount of export earnings from minerals by each colony during the nineteenth century which was almost equal at about £22 million. SA's mineral wealth was based on copper first discovered in the early 1840s and mined progressively throughout the century whereas in WA the principal mineral was gold from 1885, earning about 97 per cent of cumulative mineral export earnings. However, this wealth was earned at different times with implication for socio-economic change: in SA cumulative mineral export earnings graph shows more of a steady rate of growth but in WA the graph appears flat (when in actual fact there is growth) until around 1889 after which it shoots upwards on the back of the gold strike. .

Summary

This section examined the importance of institutions and the effects of the physical environment in enabling WA and SA to exploit their natural resources. Crowley and Statham believe that the differences in nature between the colonies are the key explanation as to why WA agriculture was slow to develop. This section has shown that, if anything, the climate was more favourable to Perth than Adelaide, and WA had a larger water body and yet SA possesses a greater proportion of dry land agriculture and livestock grazing.

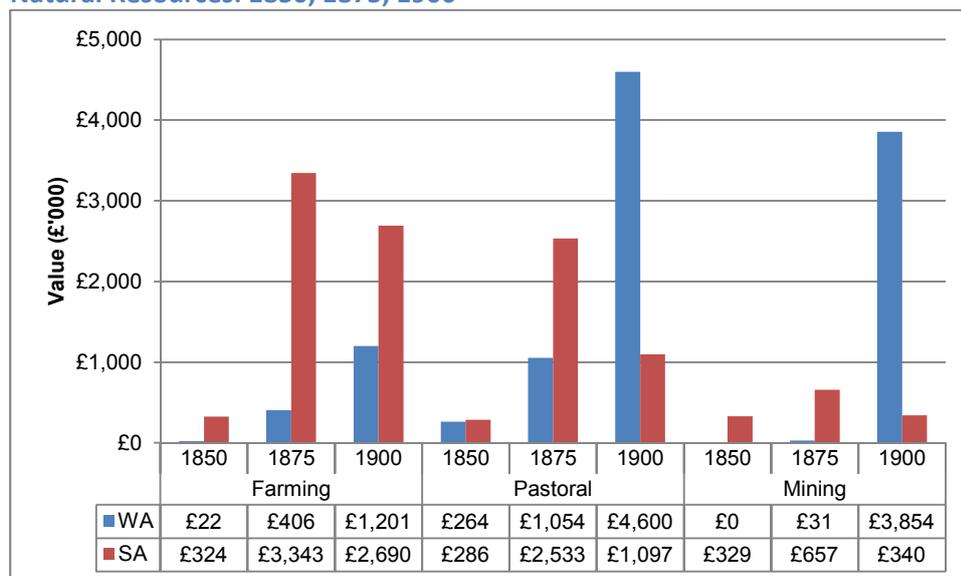
Western Australia was a slow adopter of technical innovations in farming up until the 1880s when the government took steps to modernise the industry. By contrast, SA adopted, and then modified, the latest European methods to suit local conditions. They were also assisted by a favourable property rights structure – detailed in [Chapter 6](#) – that encouraged large-scale farming and livestock grazing. One outcome of this innovation was an improvement in seed quality. The average wheat yield, one proxy for soil fertility, between 1850 and 1900 in WA was significantly less than SA. Another outcome of innovation was an improvement in the

⁸¹ Located in the far west of NSW, Broken Hill is closer to Adelaide than Sydney and indeed picks up SA television programming rather than broadcast from Sydney, the state capital of NSW.

lifecycle of livestock, especially sheep, whose numbers in SA dwarfed WA, and the increased yield in fleece quality through progressive breeding techniques. These outcomes demonstrate how SA was able to adjust its institutional matrix to compensate for the deficiencies in nature.

The largest obstacle to overcome in WA regarding mining was bridging the distances from mines to market, and supplying water to the miners. By the time of the gold discoveries of the 1890s, WA's institutional matrix had come together thereby enabling the colony to overcome many of these constraints. In SA too, institutional innovations helped capture mineral wealth from other colonies (e.g. the Victorian gold fields and the Broken Hill silver mines in NSW). With its own mines close to exhaustion at the end of the century, SA exported its technical expertise and capital to develop WA's mining industry. All up, both colonies possessed a similar bounty in minerals by 1900, which their institutional matrices helped to unlock.

Chart 18: Average Output of Activities Associated with the Exploitation of Natural Resources: 1850, 1875, 1900



Source: *Blue Books of Western Australia*, Vamplew et al. (1984) and Vamplew (1987).

On balance then, the fertility argument may not be the principal cause of agricultural under-exploitation but, rather, a stronger explanation lies in the specification of WA's institutional matrix. The evidence suggests that a weaker institutional environment existed in WA, at least until circa 1890 (self-government), and that this explains the colony's inability to solve many of the environmental constraints placed on its exploitation of natural resources. In several cases, the adoption of technology and innovation was delayed but once WA's institutional matrix

was complete, the colony was better placed to rectify this situation, as Chart 18 shows. In WA, the value of farming and pastoralism grew steadily over the study period but the greatest era of change occurred in 1875 and 1900, particularly following the government reforms in the early 1890s. In this decade, the value of farming almost trebled and pastoralism grew by a factor of four. Similarly, the value of mining output in WA was inconsequential until the gold discoveries of the 1890s. In all but farming (grain production) the value of WA's pastoralist (wool) and mining output exceeded SA's by a considerable margin during the last quarter of the nineteenth century.

Labour

As a key factor of production, the labour resource of the two colonies was crucial to their early economic development. However, as Bernstein (2004, 215) observes, it is not simply the volume of labour that matters, but also the degree of labour specialisation and skill development. As the discussion in the following section shows, aspects of the institutional matrix affected how the workforce grew and became more specialised during the course of the nineteenth century, through its impacts on the sex and age structure of the population and the skills of the workforce.

Growth in the Workforce

Western Australia

The "Conditions of Settlement" were designed to supply the colony with a permanent labour force by rewarding capitalists with additional land for every labourer introduced to the colony. Workers in receipt of a free passage contracted their labour *sans* wages until the cost had been repaid (but with keep provided in the interim).

Despite the generally improving level of economic activity during the 1830s, the available labour force, measured by the proportion of adult males aged between 15⁸² and 64 years, was declining due to emigration caused by the defective indenture system and the lack of economic opportunities. Indeed, by 1839 it had fallen to 622 out of a total population of 2,154 (29 per cent). Wage rates rose as a result of increasing pressure on the labour situation and settlers began to agitate for the State to boost the workforce (Statham 1981, 197). There were three potential ways this could be achieved: through assisted immigration; through the introduction of

⁸² According to Bowden and Stevenson-Clarke (2010) the use of child labour in the Australian colonies was very low. In Melbourne, only 3% of the population of children under the age of 14 gained employment and that was in 1901. Child labour in manufacturing was rare due to the specialised nature of the work. Children were rarely "employed" in agriculture (unless as a family member) due to the distance from urban centres. The only analytical study available is on QLD for the years 1891 and 1901 in which child labour accounted for 2.5% and 2.8% of total workforce respectively. No data or government reports for WA and SA have been found to date.

indentured labour from Asia; and by recourse to convict labour, characteristic of the economic landscape of NSW and VDL.

Immigration proved to be difficult, despite the fact that when the Ripon Regulations came into force in 1832, the revenue raised from land sales could be used to pay the passages of immigrants to WA. There were too few land sales for the resulting funds to be used to encourage immigration from Britain on an adequate scale because the land grant system still persisted and locked up the best fertile land. Furthermore, private land was much cheaper and private sales generated no revenue to fund immigration; and, because of ongoing bad publicity⁸³ surrounding the colony, few Europeans were tempted to buy land of any description in WA (Crowley 1960, 17).

However, when sales occurred, the funds were used to augment the local workforce. From 1841, when records began, to 1900, Vamplew⁸⁴ (1987) reports that 15,285 assisted immigrants arrived in WA at an average rate of 382 people per annum. This level of assisted immigrants accounted for an average of 31 per cent of all immigration during the nineteenth century although this figure fluctuated considerably on a year-by-year basis. For example, the average rate of assisted immigration as compared with non-assisted between 1846 and 1860 was 77 per cent but for the five years to 1855 it reached a high of 99 per cent (4,000 assisted against total immigration of 4,027). This period represents the early phase of convict transportation (1850-1868) and it's likely that this high proportion consisted of the families of convicts whose passage to WA was paid by British government, as part of its subsidy to maintain the penal infrastructure.

Despite some success with assisted immigration, it was too narrow in application to furnish the colony with an adequate workforce, and with racial prejudice precluding the large scale immigration of Indian or Chinese workers, the only alternative that remained was British convict labour. During the 18 years of transportation, about 10,000 convicts were transported and by 1868 approximately half of the colony's white population of 22,733 had been or were still in bondage (Maloney 1987, 139). The convicts, all of which were within the working age bracket of 15 to 64 years, apparently blended well with the assisted free migrants who came with them (Maloney 1987, 138).

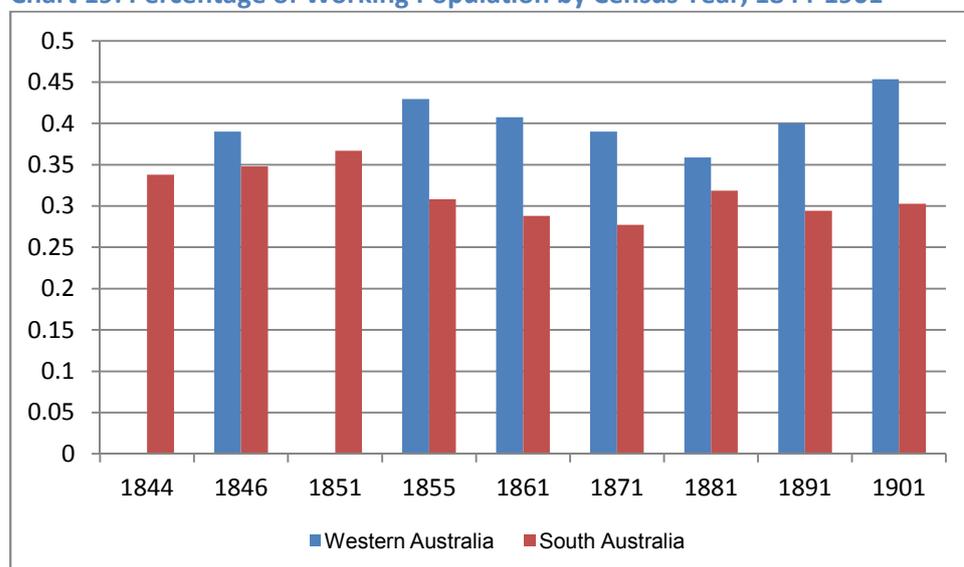
⁸³ Indeed, Fletcher (1979, 552) states that the lack of schools in WA, in addition to the defective land system, lack of infrastructure and few economic prospects, also hindered large-scale immigration to WA.

⁸⁴ Vanden Driessen (1986) also provides data on assisted migration in WA that somewhat differ with Vamplew (1987) but the latter's data covers a longer time frame that enables a direct comparison with SA.

Following the end of convict transportation in 1868, there was a net outflow of population in nine of the next 16 years but this didn't affect the overall increase in population. As can be seen from Chart 19, the percentage of adult males in the working age bracket⁸⁵ decreased from 43 per cent in 1855 to 34 per cent by 1881 before growing strongly following the WA gold rush. Non-assisted migration accounted for about 80 per cent of total immigration between 1861 and 1890 before rising to 99 per cent during the last ten years of the century, when depression gripped the rest of Australia.

Data on inter-colonial labour mobility between the Australian colonies is not complete for the whole period under review but some inferences can be drawn in respect of WA. The percentage of non-WA born Australians⁸⁶ averaged six per cent in the eight censuses taken between 1829 and 1901. While this figure is low in and of its itself it is surprisingly high compared to other Australian colonies because the 1901 census states that more than 40 per cent of the population identified themselves as being born in another Australian colony, up from seven per cent ten years earlier. This immigration, on the back of a protracted depression in the eastern colonies and the WA mining boom, distorts the true pattern of WA labour mobility as prior to 1891 the percentage of non-WA Australians average less than one per cent of the population.

Chart 19: Percentage of Working Population by Census Year, 1844-1901



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

⁸⁵ This chart does not say anything about the level of employment in the colonies and no data so far uncovered sheds any light on the rates of unemployment during the nineteenth century.

⁸⁶ During the nineteenth century, those living in the settler colonies such as Australia considered themselves British citizens (Darwin, 2012). The term "Australians" used here to denote those born on the continent in a colony other than their place of residence.

South Australia

In comparison, SA experienced strong immigration and a high natural increase in population. The plan of systematic colonisation was to provide a more sustainable workforce by using the proceeds of land sales to support gender-balanced immigration from Europe. If this was achieved, the proportion of population growth due to natural increase (as opposed to mechanical) would soon allow the colony to decrease its dependence on immigration and this would allow the proceeds from land sales to be directed towards colonial infrastructure (principally transport and communication) required to support the growing population.

SA experienced significant fluctuations in population in its first century, reflecting, in part, the colony's proximity to Australia's eastern states. The Australian depression of the 1840s and the Victorian gold rush of the 1850s resulted in a substantial temporary exodus from SA that arrested economic development. The adult workforce, measured in the same way as WA, decreased 8 per cent from 1851 to 1861. However, in this decade there were only two years in which net migration was negative and the population almost doubled. From 1861 to 1900 there were 15 years in which net migration was negative.

Assisted migration is widely seen was one of the defining characteristics of SA's foundation and yet it only accounted for 28 per cent of total immigration between 1836 and 1885 (nine per cent for the entire nineteenth century). The ratio of assisted as compared with non-assisted immigration fluctuated, as it did in WA, but in any given year after 1841 never exceeded 50 per cent. Between that time 114,645 assisted immigrants arrived at an average 1,638 people per annum (Vamplew, 1987). The number of assisted immigrants actually decreased after 1861, falling from 2,728 to 1,161 people per annum. The relatively low level of assisted immigration, in a colony that was founded upon such a principle, suggests that factors other than a free passage to SA motivated potential settlers to hazard the trip. Religious freedom, high levels of political representation and a positive information feedback loop about employment opportunities and lifestyle etc. have been cited as contributory factors (Cameron, 1973). Assisted immigration appears to have ceased after 1885, which is consistent with Gibbs' (1984) view that the SA colonists wanted a greater amount of revenue raised from land sales to be spent on colonial infrastructure and that unassisted immigration coupled with a relatively high birth to death rate was sufficient to meet the labour needs of the colony.

As with WA, the data on the origins of those born outside SA is not granular enough to determine its labour force links with WA. Across eight censuses taken

between 1846 and 1901, the percentage on non-SA born Australians averaged around two per cent of the population, and never exceeded five per cent. According to the 1891 census, Australians born outside of SA accounted for less than four per cent of the population of which only 588 residents were born in WA out of a total population of 320,431. Labour mobility to and from SA from other Australian colonies was therefore not high (by modern standards).

Demographics of the Population

The approach taken to colonise WA and SA, not only affected how their respective populations increased but also influenced the ratio of males to females and their age distribution between the genders. Again, there is a distinct contrast between the colonies.

Gender Analysis

As will be recalled from the [Chapter 4](#), Wakefield believed that a balanced masculinity ratio was favourable to economic growth because of its effects on the domestic supporting role of women vis-à-vis the primary wage earner in a typical agrarian society. Indeed writing in 1869, the younger Mill thought that “the most suitable division of labour” between husband and wife was one in which the man worked outside the home and the woman “superintends the domestic expenditure” (Mill [1869], 1970, 178). Systematic colonisation would alleviate high masculinity ratios common in settler colonies by balancing the genders through the selection of migrants and facilitating this Victorian ideal of division of household labour. Shane (2003, 31) also argues that a high masculinity ratio will be detrimental to economic growth because it decreases the likelihood of achieving the necessary scale of production, since the internal market demand for goods and services will not be there.

Western Australia

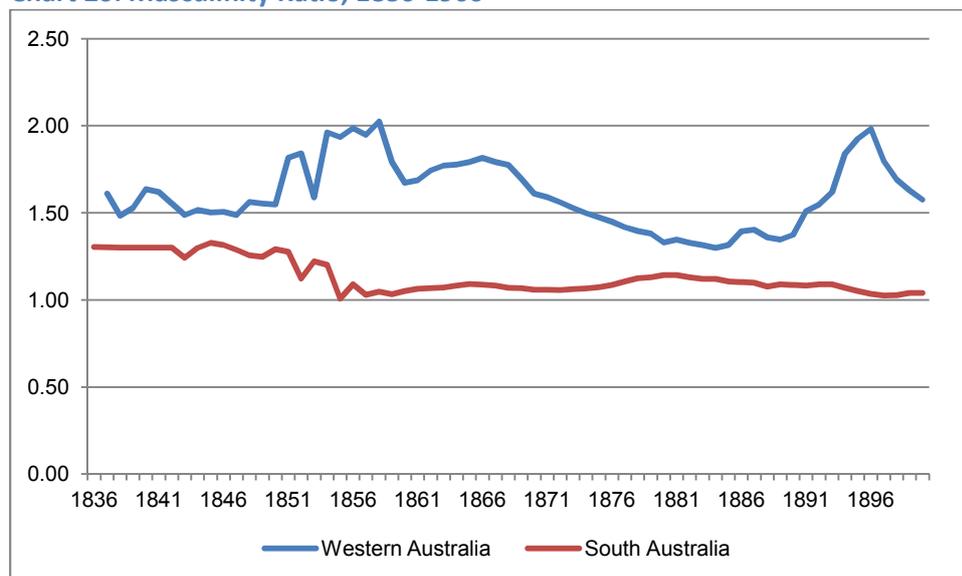
One defining characteristic of WA’s reliance on immigration was the high masculinity ratio. Statham (1981, 185) wrote that the first colonists to arrive at the Swan River were predominantly male (80 per cent) and by 1837 immigration had resulted in a masculinity ratio of over 1.50 where it remained until the end of the 1840s. Convict immigration (1850-68) was predominantly male and, at its height, the masculinity ratio climbed from 1.55 to 2.02 by 1858 (Appleyard 1981, 216).

Following the cessation of convict transportation in 1868, the masculinity ratio began to fall as balanced immigration favoured an increase in births over deaths. This natural increase, which before the convict phase had only been a minor factor in

population increase, became the significant determinant in the increase in population from 24,653 in 1869 to 45,660 in 1889 (Appleyard 1981, 216).

The gold rush that began in the late 1880s significantly boosted the population but again skewed the gender balance due to the immigration of young males, some single and others with families that would follow later (Appleyard 1981, 220). Between 1892 and 1896, the male population of the colony increased by 60,951 but the female population by only 17,296; for the period 1896-1900 the respective gains were 13,089 and 30,062. In the fifteen years to 1900, the resultant population rose at 11 per cent per annum to 179,707, and the masculinity ratio peaked at 1.98 in 1896 from 1.31 in 1885, and settled at 1.58 by 1900 as Chart 20 shows. Naturally enough, the masculinity ratio of the colonial born was much closer to parity but the overall imbalance of males to females took a long time to decrease, it was still 1.25 by 1914 (Appleyard 1981, 221).

Chart 20: Masculinity Ratio, 1836-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

South Australia

The pioneer group of any colonial experiment, regardless of whether its principles rested on Mercantilism or systematic colonisation, almost always was skewed. The gender balance towards a greater male proportion in SA was no different although its effects were not as marked as in other colonial experiments. Chart 20 highlights, and provides a stark contrast to WA. For the first twenty years

following SA's settlement, the masculinity ratio averaged about 1.30 until responsible government was bestowed upon the colony and then it hovered almost at 1.08, close to parity, for the remainder of the century. Indeed, this matching of the genders led to a higher crude marriage rate (CMR), measured as the number of marriages registered during a calendar year per 1,000 estimated resident population, averaging about 1.4 per cent - almost double that achieved in WA - and was certainly a factor in the natural increase of the population.

Perhaps the gender balance created a situation where there was insufficient male labour to satisfy the available employment opportunities. From 1876 onwards the *Statistical Register* (in contrast to the *WA Blue Books*) began reporting on the number of women participating in the manufacturing sector – a first among the Australian colonies⁸⁷. Between 1876 and the 1900 the number of women in manufacturing jobs grew from 760 (14 per cent of all manufacturing workers) to just shy of 3,000 by 1900 after hitting a peak of 23 per cent in 1885. They were employed in food processing, manufacturing boots & shoes, clothing, and beverages among other industries. It is likely that this increasing level of workforce participation became a factor that influenced women's political enfranchisement in the colony in 1897.

Age Structure

The age structures of the two colonies also exhibit some distinctive features that are relevant to their labour resources. The measures shown in Chart 21 (p. 198) are derived from the colonial census data which classifies the percentage of the population by age group every ten years from 1861 to 1901. The blue bars represent the male age distribution while the red bars represent the female age distribution.

Western Australia

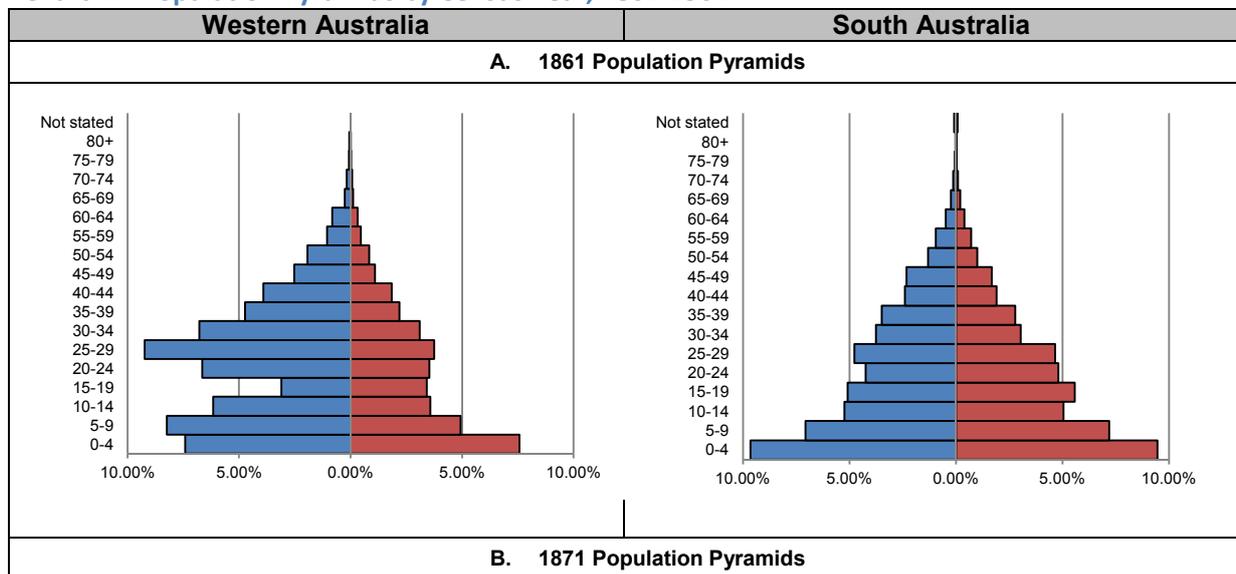
By most accounts, the pioneering workforce was young with three-quarters of it under 30 years of age and a third were children under 14 (Statham 1981, 185). The census data on population structure in 1861 shows that the age distribution of the male population traces a bimodal pattern: the first peak is at the base of the pyramid and the second peak is clustered in the 20-44 age groups. The convict effect can be seen to "mature" through the male population pyramid to 1881 (see part b) and c) of Chart 21). In the 1890s (see part d) of Chart 21) the second generation of the settler population entered the working age population and, together with the gold rush immigrants created a "bulge" in the labour pool equal to almost half of the total population.

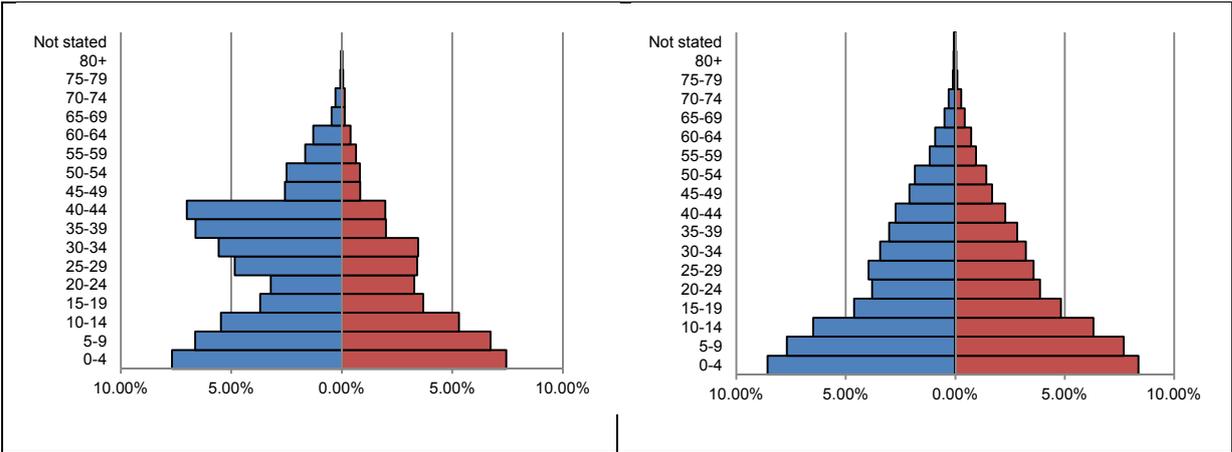
⁸⁷ There is no data on female workforce participation in WA until 1896.

South Australia

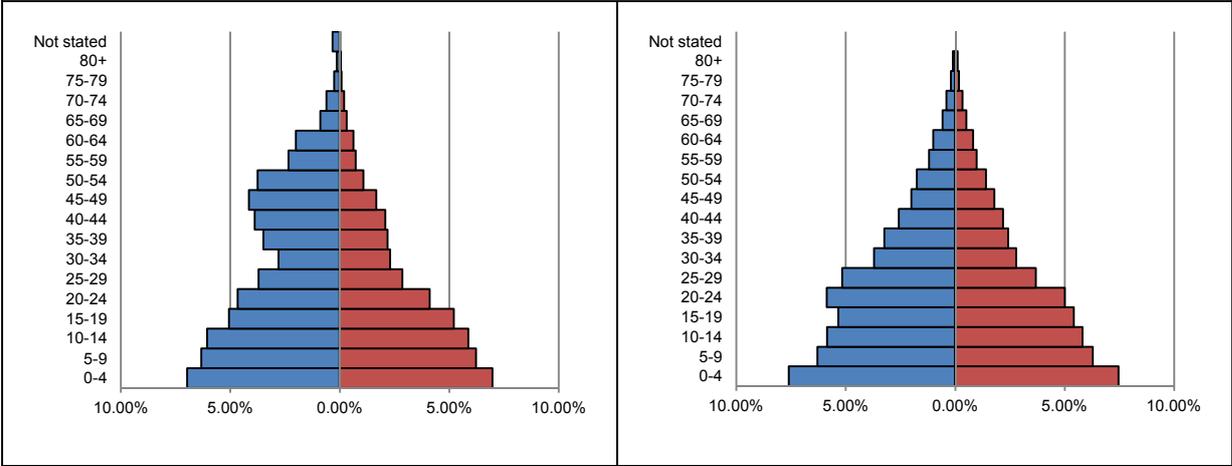
Unlike WA, Chart 21 shows SA's population is more even in terms of its age and gender characteristics. Indeed, an analysis of the age-groups of the population at each census shows a symmetrical split between genders that traces an almost perfect pyramid that is representative of a growing society. The data implies that at least one reason for the fine balance between the sexes in SA was due to a constant supply of European immigrants which was supplemented by a high domestic birth rate, averaging about 36 births per year but reducing by 8 per cent, from the date of colonial formation.

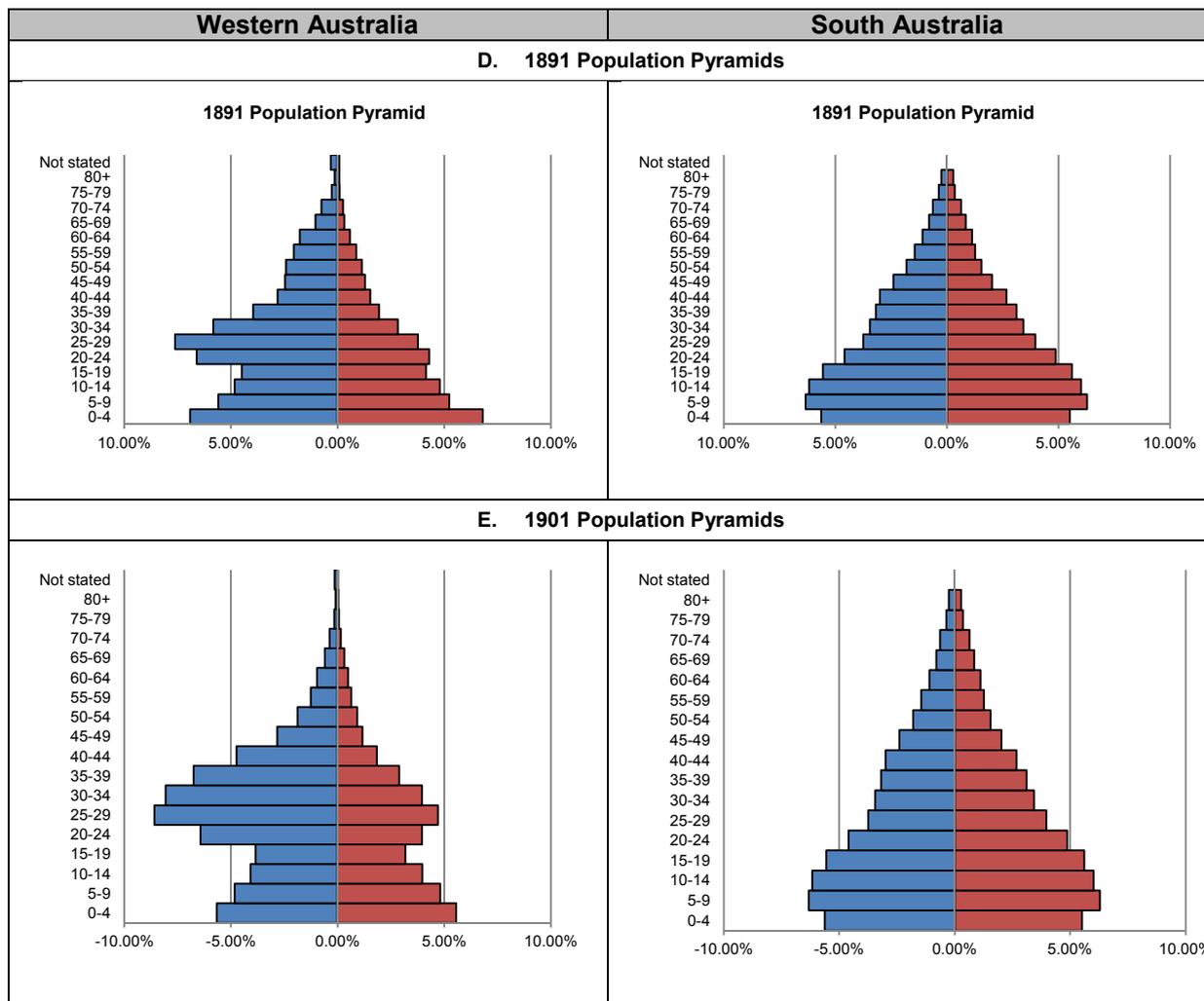
Chart 21: Population Pyramids by Census Year, 1861-1901





C. 1881 Population Pyramids





Source: Adapted from Vamplew, W. 1987. *Australian Historical Statistics*. Sydney: Fairfax, Syme & Weldon.

Degree of Specialisation

Bernstein (2004, 215) describes modern prosperity as the motor vehicle's drive train; its engine is the institutional matrix and the wheels represent workforce productivity. The transmission, which passes power from the engine (the institutional matrix) to the wheels (economic output), is the degree of labour specialisation and, at the macro level, the more specialised an economy is, in terms of its workforce, the more productive it becomes and the faster it will expand, *ceteris paribus*. As will be shown in the paragraphs below, WA was slow to specialise until about 1890 after receiving representative government whereas SA grew steadily from foundation.

Western Australia

According to Statham (1981, 185) the first WA colonists were urban in origin, that is, with an annual income less than the "middle class" minimum of £60 (Mokyr, 2009), with three-quarters coming from the south-east of England and a quarter of these from London itself; few of those hired for agricultural work had any relevant

experience; and some workers had no skills whatsoever. From the *Blue Books*, it can be shown that the first recorded wage categories in 1837 were farm trades and domestic servants that earned between £24-£50 and £18-£40 per annum respectively, with variations dependent upon age, gender and skill.

The institution of the “Master-Servant” relationship which rose as a consequence of defective property rights in land appears to have acted as a break upon labour specialisation. First, it virtually immobilised the early workforce, and, secondly, it restricted the growth of the domestic market for goods and services (Statham 1981, 184). It also stunted the development of the capital market, because indentured labourers were unable to use their future earnings as collateral for borrowing or to purchase capital equipment and consumables (Mokyr 2009, 117). The lack of cash money also meant that colonists couldn’t attract or retain labour. Up to 1850 there is little evidence of labour specialisation in the colony. The economy only supported boat building, brick making and a soap works, with motive force provided by horse, steam and water mills. The *Blue Books* indicate that these trades attracted a salary of £7-£10 per annum.

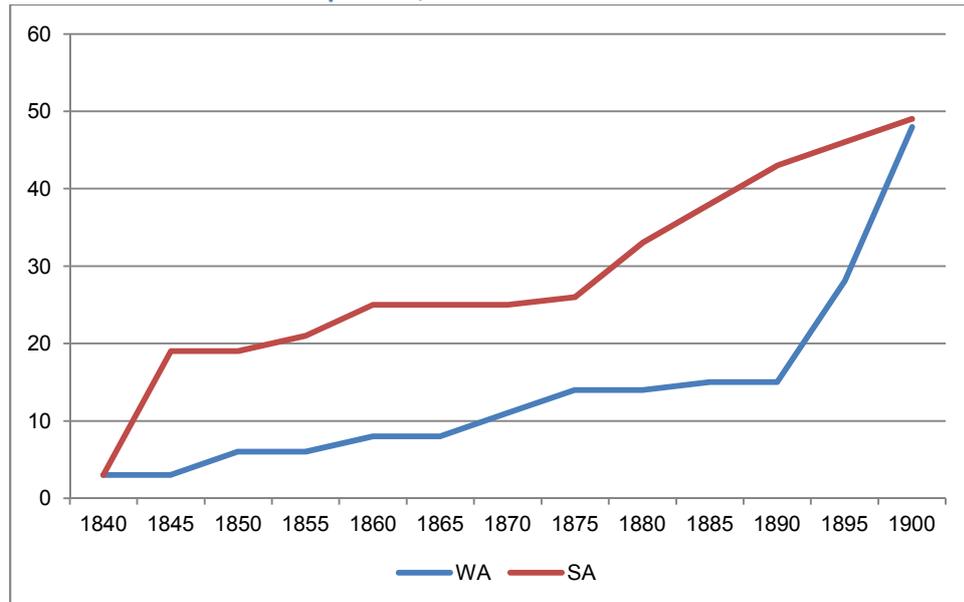
The demand for goods and services triggered by the convict period, whose population numbered roughly half of the total population by 1868, brought home-grown industries into being (e.g. north-western pearling & fisheries) and increased the level of labour specialisation. The non-convict settlers grew wool, bred horses for the Indian Army, cut timber, went whaling, explored inland, and found lead and copper deposits (Maloney 1987, 139). Between 1850 and 1870 there were an additional twelve industry types mainly supporting the primary industries.

As can be seen in Chart 22, from 1875 onwards signs of industrialisation emerged with the number of occupations beginning an upward trajectory. Appleyard (1981, 216) wrote that prior to 1890 the WA economy was still small, producing no more than a small number of consumer durables and capital equipment, with imports usually dominating exports but all this changed with the gold discoveries in the Coolgardie / Kalgoorlie region. Labour specialisation, as measured by the number of occupations, trebled from 15 to 48 in the ten years after the colony was granted political independence from the metropolis in 1890, and on the back of significant mineral discoveries.

By 1900 the *WA Statistical Register* – the publication that succeeded the *Blue Books* in 1896 – provided additional detail on labour specialisation alongside the regular reporting of occupations and listed 63 urban industry classifications spread

across 663 establishments employing 32,547 adults, which represents a little over 18 per cent of the total population with women representing less than three per cent of the total workforce. Not included in this statistic is the number of people employed in the white collar professions, domestic servants, farming or pastoralism. This last category must have been sizeable because the total adult male labour pool numbered 83,510 and, referring to Table 8 (p. 203), the percentage of people living in Perth was only 20 per cent⁸⁸.

Chart 22: Number of Occupations, 1840-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

South Australia

The background of the first SA settlers was diverse, distinctly middle class (i.e. with incomes ranging between £60 and £600), and consisted of many professionals in addition to farmers and labourers (Dutton 1970, 275). Reflecting the more diverse skill mix of SA's immigrant population, occupational specialisation occurred earlier than in WA and this, in turn, supported the manufacture of an increasing number of goods and services. The primary data (*Blue Books* and *Statistical Registers*) record the number and type of manufacturing and agricultural occupations from 1840 to 1900. Chart 22 shows about 20 occupations in SA by 1845 at a time of economic hardship in the colony. The number of occupations grew steadily to 49 by 1900.

The *Statistical Registers* show that the earliest recorded employment opportunities in SA were in the farm sector or as domestic servants. The former, if

⁸⁸ Unfortunately it has not been possible to reconcile the 1900 number on occupations and urban industry classifications.

run as a family unit, could earn about £50 a year whereas other farm employment, including shepherds and bullock drivers averaged about £45 per annum. The rate of payment for male servants began at less than £20 a year but gradually increased as the century progressed averaging, about £45 per annum after 1860. The equivalent rate was £26 for female servants. In WA, male servants commanded similar rates of payment but females could only attract an average of £15 in the period after 1860. From the fragmentary evidence available and by way of comparison at a point in time, NSW farm labourers (with rations) could earn an average wage of between £32.50 and £41.50; NSW male servants could earn £35 to £50; and NSW female servants (e.g. cooks, laundresses, housemaids and nursemaids) could earn an average wage of £25 (Clark 1955, 244).

Labour specialisation in SA was also promoted by a relatively high urban population (as shown in Table 8). This led to a growth in the number of citizens who raised little or no food themselves and were, thus, entirely dependent on what they could purchase (Mokyr 2009, 200). Initially the urban trades centred on food manufacture and processing in Adelaide, as well as brewing (naturally – a staple colonial industry) and boat building (transport improvement). Over time, other primary industries evolved based on timber and the fisheries. However, as the century progressed, Adelaide manufactures were producing a wide variety of domestic consumables and export commodities: from 1851 to 1900, the colony exported at least 11 categories of manufactures to the tune almost £4.4 million (Vamplew et al. 1982, 4-10).

Table 8: Percentage of Population in the Australian Capital Cities, 1841-1901

Year	1871	1881	1891	1901
Perth	21	20	17	20
Adelaide	23	37	42	45
Sydney	27	30	34	36
Hobart	19	18	23	20
Melbourne	28	33	43	41
Brisbane	13	15	24	24

Source: Roe, J. 1974. *Marvellous Melbourne: The Emergence of an Australian City*. Sydney: Hicks Smith & Sons.

Labour Productivity

Measures of labour productivity derived from the primary source materials suffer from a paucity of data at the process, firm, industry or colony level. There is also the concomitant problem of selecting an appropriate benchmark to assess each colony's performance. By borrowing a productivity model from colonial NSW's early agricultural history and by adapting the data on the wheat yields (Chart 15), the size

of the workforce (Chart 19) and its age distribution (Chart 21), it is possible to draw some general inferences about labour productivity at the industry level.

In NSW during the early 1800s, it was believed that two workers could convert an acre of bush into arable land within a month (by working no more than eight hours a day) and as wheat planting took place between April and July, they could cultivate six acres if they started land clearance in February (Ellis 1967, 127). It was further calculated that one acre of marginal land would produce about 15 bushels (900 lbs.) of wheat during a season with adverse climatic conditions (double in favourable conditions) when the average male would consume roughly 12 bushels (720 lbs.) per annum (Ellis 1967, 127). As a result, a farm with two workers could produce enough grain to supply the needs of seven men in total during an adverse season and depending upon the rate of population growth; settler colonies could become quickly self-sufficient in grain and may even produce an exportable surplus.

This model is relevant to assessments of labour productivity in the colonial economies of WA and SA because both chose to engage in wheat farming upon settlement and it remained a key component of their economies throughout the century. When used as a benchmark, the model provides some potential insights on the impact of technology upon labour and land productivity in these colonies. By the 1830s when WA and SA were in the process of foundation, the amount of wheat consumed by the average male of British origin⁸⁹ had increased to 13 bushels (O'Mara, 1983). Indeed, despite the fact that the amount of potatoes, legumes, pulses and, of course, meat was diversifying the Anglo Saxon diet, wheat consumption continued to increase in an almost linear fashion throughout the eighteenth and nineteenth centuries as New World supplies became more plentiful which reduced the price (Collins, 1965).

However, constructing a model is difficult, given the lack of relevant data. For example, we do not have direct measures of wheat consumption and need to rely instead on British data, showing that the amount of wheat consumed had risen to 13 bushels per adult male by 1850. Furthermore, the annual data from the *Blue Books* and the *Statistical Registers* from 1837 to 1900 is too blunt to be able to separate the contribution of the workforce to grain farming from the overall population, which tends to understate the relationship between the actual and ideal rate of wheat consumption (i.e. 13 bushels per male per annum) and the worker productivity (i.e.

⁸⁹ Data on the patterns of Australian wheat consumption during the nineteenth century, apart from convict data that is not suitable to non-convict colonies, does not appear to be readily available as a search of the State Library of NSW (2014) revealed.

whether the number of acres of wheat sown per two workers was around six a year). While the *Census* data, beginning from 1861, provides greater workforce granularity it is decennial and the consumption pattern of wheat in each colony during the latter part of the nineteenth century is not known with any certainty (in terms of annual bushels consumed by males, females and children) although certain plausible assumptions can be ventured, based on British consumption patterns. In addition, data on the split between town and rural workers by age group is not available meaning that labour productivity calculations will overstate the true figure (although Table 8 shows that WA had a far higher rural population compared to SA).

Of the two approaches, the census data offers the best potential insights into the relationship between labour and wheat production. This model, based on the NSW example on the previous page, assumes that the average adult male aged 15 years and up consumed 13 bushels of wheat per annum between 1861 and 1901, females aged from 15 years and up consumed three-quarters the male amount and children of both sexes aged less than 15 years consumed 50 per cent. The model also assumes that the colonial workforce was generally comprised of males aged between 15 and 64 years (Statham, 1981). The available data on the area of wheat planted and the number of bushels subsequently reaped, gained from the official sources, is also included for each colony.

The resulting output suggests firstly that WA produced an average of 14 bushels of wheat per capita across the five decennial census periods beginning in 1861 that were available for consumption. If the benchmark of 13 bushels for period is accepted as reasonable then production exceeded demand in the three decades to 1881 before it fell away as the population rose faster than the amount of wheat reaped. Secondly, the number of acres of wheat planted per male worker averaged just over two well short of the benchmark of 6 indicating the fact that worker productivity was low and underlining the point that the colony was a slow adopter of technology. In SA however, the number of bushels of wheat reaped averaged 44 well in excess of the benchmark 13 across the five census periods creating a large exportable surplus. The number of acres of wheat sown per male worker averaged a tad fewer than 15 and never fell below seven indicating a relatively high level of worker productivity due to the adoption of labour saving technology at an early stage of the colony's economic formation.

Summary

The institutional design of each colony had a direct impact upon the rate of population growth. In WA, the grant system which was replaced by land sales failed

to match labour supply with demand. To address the shortfall recourse was made to British convicts over an eighteen year period from 1850. It was a combination of gold discoveries and depression in the eastern colonies, coupled with the granting of self-government, which led to a wave of unassisted migration (this is, true labour mobility), on a scale that truly transformed the WA economy during the last decade of the century. In SA, the revenue from land sales attracted a strong stream of assisted migrants to the colony during the first 50 years of settlement, and the population grew naturally as well. Periodically, the population decreases occurred but SA's institutional matrix was agile enough to counteract these effects and maintain a steadily increasing population.

A high masculinity ratio in WA hampered labour specialisation as it averaged 1.61 from 1837 to 1900. This relatively high ratio meant that the percentage of workers (males aged between 15 and 64) was also skewed, as shown by the population pyramids. In SA, the masculinity ratio was much more balanced and was almost at parity by the end of the century. The percentage of SA workers averaged about a third of the population which is reflective of its balanced masculinity ratio and its population was almost evenly split three ways between adult males and females, and children of both sexes, consistent with a growing population. This was a key goal of Wakefield's theory of systematic colonisation.

In terms of labour specialisation, the number of occupation types in WA reached double figures between 1865 and 1870, at the close of the convict period; that is, between 36 and 41 years after foundation. From 1875 to 1890 the number of occupation was static at 14/15. However, with the gold rush it doubled (in 1885) and then grew to 48 distinct occupations by 1900 (although this could be higher since there are 63 urban industries reported in 1900). Given the slow growth in labour specialisation in WA, it follows that throughout most of the study period, the colonists were generally reliant on what they could grow to survive – a barrier to measured economic growth. Labour diversity in SA grew strongly and at an earlier time, with the number of occupation types reaching 25 by 1860. There were 49 occupations in the colony by the end of the century. As such, SA achieved as WA by the same level of labour diversity by the end of the study period, but at a faster initial rate.

Labour productivity was another area in which there is another clear distinction between SA and WA. In wheat production, SA achieved greater efficiency in planting that WA between 1861 and 1900. With the institutional innovations in property rights and the rapid adoption of technology, the disparity in acreage was

also made to yield greater quantities of grain far in excess of local demand. Some of this surplus was exported to WA to help make up that colony's shortfall in grain production.

Transport and Communication

Transport and communications are a set of technological factors that are commonly linked to the determination of economic performance (Stopford, 1997). Such factors take on an institutional character of their own because they need to be organised, coordinated and financed in ways that are unique (Mokyr 2009, 202). Efficient transportation and communications infrastructure benefit the economy in a number of ways: through technical progress by increasing the mobility of workers; by making the transfer of knowledge cheaper and faster leading to more integrated markets (Mokyr 2009, 159); product standardisation; and through labour and consumer specialisation (Szostak, 1991).

Indeed, parochial attitudes towards other Australian colonies helped to confine labourers within their own borders (as citizenship of a colony was akin to nationality today) and kept technological diffusion confined until a major economic shock provided incentives to overcome the "tyranny of distance". This was particularly acute in WA where migrants from the other Australian colonies were not represented at all in the 1859, 1861, 1870 or 1881 population census. In the 1891 population census such migrants make their debut, 62 years after settlement, forming about 6.5 per cent of WA's total population. Ten years later their numbers had increased by a factor of 23, as the lure of gold encouraged the "t'other siders" to hazard the trip across the Nullarbor⁹⁰, but their representation as a proportion of the total population fell to 4.2 per cent in the 1901 census due to the influx of British migrants. In SA, the census data reveal that migrants from the other Australian colonies were represented as early as 1846 although not in any sizeable number, a pattern that continued to Federation. The key barrier to labour mobility across the Australian colonies, during the nineteenth century, was the inordinately high transaction costs resulting from a lack of cheap and regular inter-colonial transport⁹¹. This point again highlights the institutional failings associated with the lack of a common railway gauges across the Australian colonies, as will be discussed in this section.

⁹⁰ The phrase "t'othersiders" was used by West Australians towards the end of the nineteenth century to refer to people from the other Australian colonies. This parochial attitude remains to this day with the non-WA states being collectively referred to as the "Eastern States".

⁹¹ Indeed the ABS (2012) asserts that true labour mobility in Australia, defined in the modern economic sense, had to wait until the availability of low-cost air travel beginning in the early 2000s.

In the Australian colonies, the extension of public infrastructure on a colony-wide scale became a government obligation unlike the experiences of British North America. Private initiative provided the genesis of transport and communication development but large scale deployment of such technology wasn't possible because non-government entities lacked the borrowing capacity to capture the economies of scale and scope. In the provision of railways, roads, telecommunications, and in the growing public services, the colonial government was to play an intervening role in the economy as the century progressed (Statham 1995, 49-50). As these next paragraphs will demonstrate WA was a late adopter of transport and communications technology and this hindered economic development. SA by contrast had a stronger maritime link with Britain and invested heavily in railways, water transport and electronic communications.

Western Australia

Difficulties with transportation and communications inhibited WA's early development. The proposed settlement was not on any of the regular shipping routes between Britain and India, or between Britain and New South Wales, and as such it did not develop a large trade with either, as had been originally envisaged (Crowley 1960, 24). For one thing, it had no overland connections to the eastern colonies⁹²; for another, it's only sea-borne links were with South Africa, 4,755 nautical miles, or 50 days sailing, to the west; India, 3,393 nautical miles, or 35 days sailing, to the north; and Hobart and Sydney were 1,839 and 2,187 nautical miles to the east respectively (US Government, 2001). If it is accepted that a fully-laden pre-1850 typical sailing ship travelled at an average 4 knots per hour⁹³, a speed which accounts for tide, seasons, currents and wind variations etc. (UK National Maritime Museum, personal communication September 5, 2012), then sailing to India from the Cape via Fremantle would take 85 days (without accounting for docking time which could add up to another two weeks). With the colony producing very little of value, until late in the nineteenth century, there was little incentive to establish regular shipping services and this 35 day "diversion penalty" compounded the colony's isolation from world markets. As can be seen in Chart 23A (p. 212), the annual growth in shipping tonnage was weak until 1885 when it exceeded 500 tons for the first time. From 1890 when the colony received responsible government – the last piece of the institutional matrix – annual tonnage grew strongly particularly as the new Fremantle harbour neared completion.

⁹² The first railway connecting WA to SA did not begin construction until 1917 and the first vehicular highway was opened in 1941 (and finally sealed in 1976).

⁹³ This speed, Fitzsimmons (2011, 78) described as little faster than walking.

Adding to the “tyranny of distance”, when ships did arrive at the colony their services were unreliable, infrequent, unscheduled and irregular because Perth did not possess an accessible and protected port until 1897 (Crowley 1960, 24). Albany, on the south coast, about 255 miles from Perth, was the colony’s main port of call for most overseas cargo and passenger ships. It had a protected harbour and was on the direct route between the Cape of Good Hope and Bass Strait. However, this necessitated the transport of international goods and passengers to Perth either in small coastal freighters or by horse and cart, a journey that could take up to five days; not until 1889 was it possible to make the journey to Perth by any other way (Crowley 1960, 24).

The costs of internal transport also affected the growth of the WA economy as the almost total lack of vehicular roads inhibited rapid inland settlement (Statham 1981, 190). In the isolated rural districts, where the economic foundations of the colony were found, there were few good roads (Crowley 1960, 27). It was often reported that the cost of transporting goods from York, the principal town in the Avon valley 60 miles to the east, to Fremantle was greater than the freight costs from Fremantle to London (Statham 1981, 190).

It was both a lack of money and a lack of labour that prevented public works from improving internal transportation. The convict period remedied this situation somewhat after 1850 and the improvement of internal transport and communication took priority, starting with the rehabilitation of over 500 miles of roads between 1850 and 1862 (Crowley 1960, 41). Such works enlarged the market for produce and allowed wheat farming to expand. The improved road network connected the agricultural areas of the Greenough Flats, the Avon Valley and the south-west to the markets of Perth. The spread of cereal crops also necessitated the building of flour mills which lowered the transportation cost to Perth and allowed the colony to export two small surpluses of grain which netted £161 in 1844-5. Indeed, data from the *Blue Books* show that a pound of bread that had cost 6s in 1838 had fallen to 2s twenty years later.

The period from 1869 to 1885 witnessed small-scale but increasing public capital formation in transport and communications that increased WA’s capacity to exploit its natural resources and boost export earnings (Crowley 1960, 73). The first telegraph pole was placed in position in February 1869, and the colony’s first private

railway commenced construction⁹⁴ in 1871 (Cameron 1987, 46). However it is important to note that, once again, the colony was slow to adopt the latest technology. The introduction of the telegraph in WA came 15 years after Australia's first line had been opened in Melbourne (Crowley 1960, 37), and the railway lagged the commencement of work in SA by 19 years (and 25 years after British railway building peaked).

The development of the railways – shown in Chart 23B (p. 212) – was boosted by government investment that began in 1879. Private enterprise in railway construction was encouraged by the government through the granting of land along the proposed route. The first of these land-grant railways, known as the Great Southern Railway, connected Beverley with Albany. Payment was made at the rate of twelve thousand acres of Crown land along the line for every mile of completed railway (243 miles). The line was built and operated by the Western Australian Land Company, financed from Sydney, with construction, by a Melbourne contractor, commencing in 1886. Crowley (1960, 101) states that, when it opened in 1889, travel time from Albany to Perth was reduced to 16 hours from five days. The company provided passages to the colony for some twelve hundred immigrants from Britain to help construct the line, who it hoped would settle on land surrounding the railway once construction was completed. The terms of settlement were apparently too high and little actual post-construction investment occurred. As a result, the WA government subsequently repurchased the land and the railway for £1.1 million in 1896 designating the land an Agricultural Area and, through the *Homestead Act* (WA), made the land available to farmers (many ex-miners) on easier terms than those offered by the company (Crowley 1960, 101). This is yet a further example of the deficiencies of the land grant system that dogged WA in its first century. In terms of the railway “revolution”, a line connecting WA to SA was not commenced until 1917 with the first road not following until the mid-twentieth century, it is hardly surprising that labour mobility to and from WA was essentially static.

The dispersion of the colonists that resulted from the “Conditions of Settlement” presented the colonial government with the problem of how to communicate the passing of laws or coordinate economic activity. Printed media was one possible solution. However, the prevalence of this form of communication in WA was more indicative of the information barriers posed by a dispersed settlement than good information flows (or a highly literate population). The first “newspaper” in the

⁹⁴ The modern day trail from Yoganup to Lockville (just north of Busselton). The WA Timber Company developed a mill and jetty at Lockville, and the locomotive ordered was the first to operate in WA, as well as being the first to be built in Australia for the 3 ft. 6 inch gauge (Minchen, 1976; 1978).

Swan River was handwritten and fastened to a tree in late 1829 containing, among other information, government proclamations (Fraser 1983, 133). The following year the *Fremantle Journal & General Advertiser*, also handwritten, began circulation, and by 1833 a postal system was set up and the semi-official weekly newspaper, the *Perth Gazette*, was published (Statham 1981, 189). Further newspapers and periodicals were to follow at regular intervals and by 1900 there were, or had been, at least 21 such publications.

Chart 23C plots total printed media per capita defined as the sum of all letters, newspapers and telegrams passing through the post office for a given year as recorded in the *Blue Books* and *Statistical Registers*. As can be seen, the graph for WA is significantly higher and of a different shape compared to SA⁹⁵. One logical explanation for this relationship can be found in the rate of urbanisation. As the data in Table 8 shows, the vast majority of settlement in WA was rural and internal transport was not only poor but expensive which meant that oral communication between networks of communities and the transmission of information about economic opportunities was low (Shane, 2003). In order to transfer information, dispersed populations were especially reliant on the circulation of printed media more so than in compact societies.

The low level of personal interaction in the colony interrupted the transfer of information, prices, laws, etc. and prevented the process of applying pure knowledge in the Northian sense. Producers and consumers had no way of determining prices; information asymmetry was a characteristic of transactions; and, with little circulating cash, an integrated market economy was unlikely to evolve. The widening of corporate and public interest rates seen in Chart 7 (p. 147) shows that information asymmetry remained an ongoing problem for financiers. In turn, the isolation of the colony combined with an essentially static population meant that the penetration of new knowledge and technology from external sources was delayed compared to other Australian colonies. As a result, economies of scale were harder to achieve in new industrial formation, labour specialisation was held back, and growth remained uncertain.

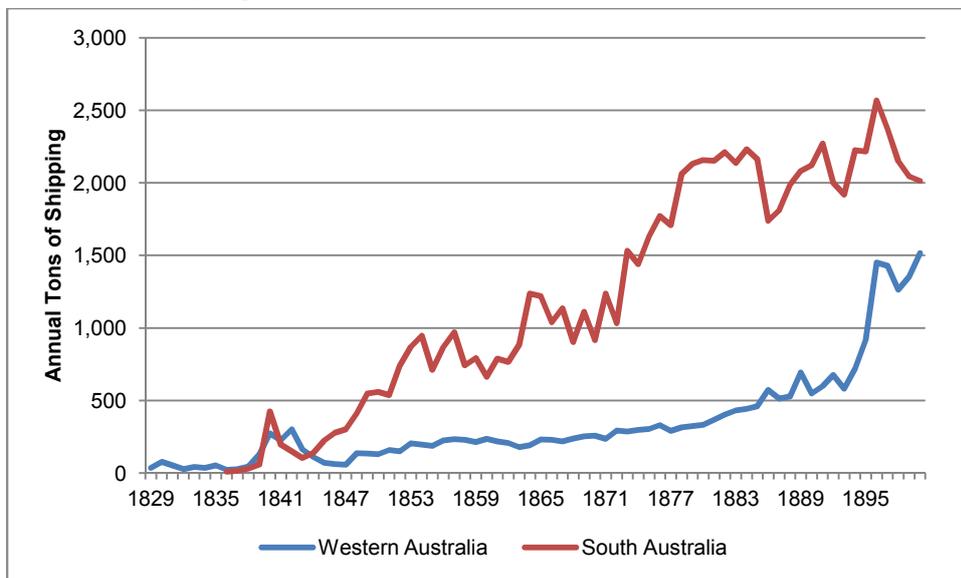
By the *fin de siècle*, with £11.6 million of public loans raised on the LMM, WA had constructed two international telegraph lines to London and one to SA, 6,052 miles of internal telegraph lines and 2,445 subscribers to the new-fangled telephone system 2,768 miles of railway, 10,877 miles of roadway, 24 ports servicing over 3

⁹⁵ If the separate components of this aggregate are plotted the resulting traces are identical.

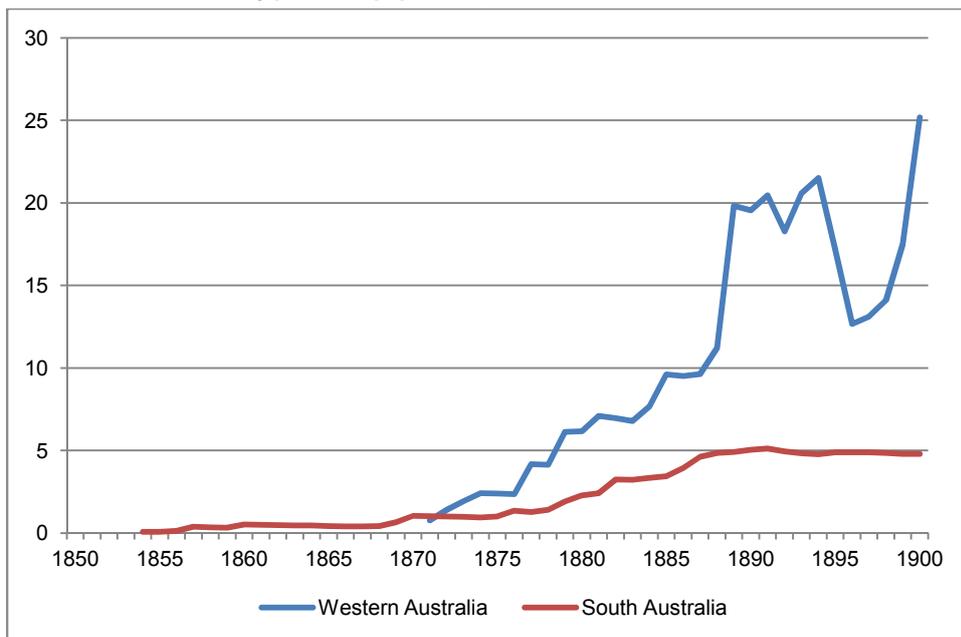
million tons of shipping, which substantially reduced the isolation that hampered the early development of the colony.

Chart 23: Developments in Colonial Transport and Communication, 1829-1850

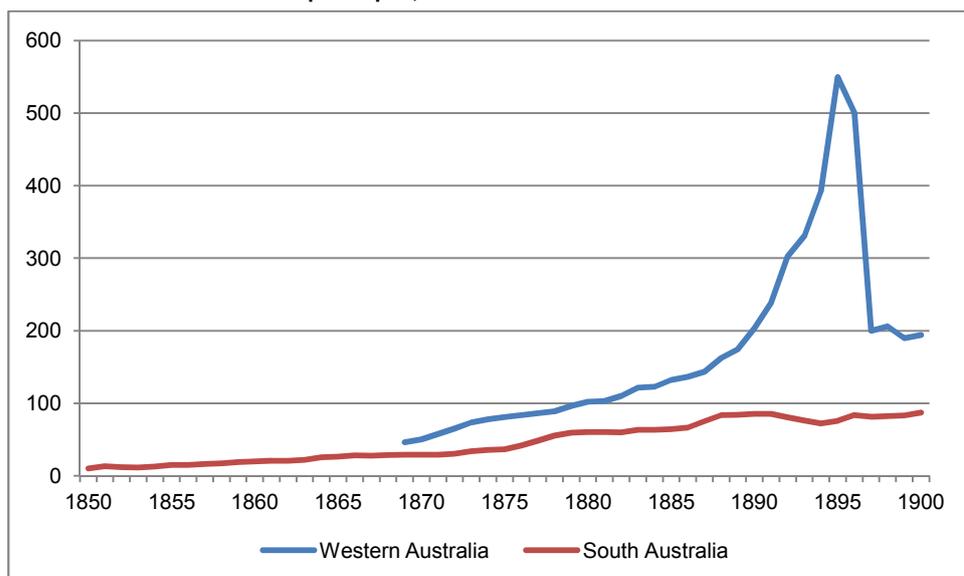
A. Total Shipping, 1829-1900



B. Miles of Railway per 1,000 population, 1850-1900



C. Total Printed Media per Capita, 1850-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

South Australia

Unlike WA, SA was on the regular route from Britain to NSW and VDL via the Cape of Good Hope and this ensured that the colony was regularly visited with ships on international and inter-colonial voyages. Adelaide was the first port of call for ships coming from Britain, and was the emporium for technological and institutional ideas with a steadily increasing volume of shipping as shown in Chart 23A. Indeed, prior to the Overland Telegraph, incoming news and pricing information from visiting European ships would be summarised in Adelaide and then tapped out in Morse code to Melbourne, and then from there repeated to Hobart, Sydney and Brisbane⁹⁶ (Cross 2011, 6).

The colony was quick to take advantage of its adjacent position to NSW, VDL and VIC (the three most populous colonies) to engage in trade but overland transport were both expensive and slow (Blainey 1977, 118). Distance was more easily conquered on sea than on land and water carriage was the cheapest of all forms of transport (Blainey 1977, 118). Wherever primary industries sprang to life ports were quickly established; 33 in total by 1900: first around the vicinity of Adelaide; then on the Yorke and Eyre Peninsulas; and then in the south-east. In addition, many colonists had been familiar with canal and river transport in Britain, and there were hopes in SA that the Murray River could penetrate the interior. The Murray was the only river suitable for navigation on the Australian continent and it could support a river trade between SA, VIC and NSW (Gibbs 1984, 143). Consequently, in 1850, the

⁹⁶ Perth is not mentioned possibly because there was no overland link from Adelaide that could transmit Morse code to and from the colony.

government offered a £4,000 bounty for the development of a ship capable of navigating the Murray River as far as its junction with the Darling River⁹⁷. Three years later, two SA colonists used steamboats – an innovation in itself - to reach as far as Swan Hill in Victoria proving the river navigable (Gibbs 1984, 143). This feat opened up new opportunities for trade with the Victorian goldfields that needed food supplies.

As the Victorian gold rush gathered pace, paddle steamers used the Murray to transport surplus SA to Victorian river ports, from which it was carried overland to the diggings. From 1856 to 1865 net exports to VIC totalled £170,978. This proved to be a cheap and effective method of transport, providing a further advantage to the SA farmer (Gibbs 1984, 69) and was yet a further example of SA's institutional agility.

The SA development of the river trade caused concerns about increased competition in neighbouring colonies and neither NSW nor VIC helped in clearing navigation risks. NSW began to tax SA traders crossing its borders and in the 1860s VIC began extending its railways to the Murray ports and, to encourage a switch from river transport, operated at a loss in order to capture trade. Shortly afterwards the SA river trade went into decline (Gibbs 1984, 144). This is evidenced by the increasing net export deficits from the NSW and VIC Murray river ports after 1865 which averaged a little under £250,000 per annum according to the *Statistical Registers*.

Whilst developments in river and sea transport helped ease the barriers to trade with other colonies and countries, difficulties with land transport continued to hamper intra-colony trade. SA was fortunate in having minimal transportation costs as its primary agricultural and mining centres were relatively close to Adelaide and its port (Blainey, 1994). As the primary industries expanded further inland, the cost of land transport was kept low by establishing flour mills at vital centres across the region, which allowed a greater quantity of flour to be transported to market for a fraction of the cost of the equivalent volume of wheat (Gibbs 1984, 69) and by 1850 there were 21 such mills.

In 1908, Gordon (1908, 240) boasted that the "honour of building the first State-owned railway in the British Empire belongs to South Australia!" Early in 1850 the SA government believed that railways would complement the Murray trade and work began on the Goolwa line in 1852, only six years after British railway

⁹⁷ Where the present city of Mildura is located.

construction reached its peak (and 19 years before WA). When the line opened two years later it was one of the first railways constructed in Australia despite never repaying its capital costs (Gibbs 1984, 139). The next line connected Adelaide with its port, and from this small beginning tracks began to snake out all across the colony.

Railways were crucial in lowering the cost of internal transportation. Wool and wheat from the outback stations sometimes took months to reach the coast using animal transport, reducing the profit margin. Rail transport reduced both cost and time. The SA government also received a sizeable dividend from the transportation of Broken Hill ore at the end of the century, which helped to cushion the colony from the worst effects of the 1880s depression. Railways brought great activity to rural areas, providing jobs in supporting industries in Naracoorte, Murray Bridge or Petersburg (Gibbs 1984, 142).

Chart 23B reveals some interesting characteristics about the two colonies' approach to railways. Firstly, it illustrates how SA moved more rapidly on rail transport compared to WA, and this hints at the potential economic gains that accrued to SA as a result. Secondly, the chart shows that in SA there were approximately five miles of railway per 1,000 inhabitants compared to over 25 in WA. Thirdly, from 1857 to 1900 the SA government spent about 43 per cent of public loans on railway construction and laid out 1,736 miles of track across the colony. WA, on the other hand, spent a much higher proportion of loan funds, just under 64 per cent, on laying 2,768 miles of railway between 1879 and 1900. The increase in railway spend in WA reflects the long distances that had to be bridged in connecting its dispersed population to markets, a phenomena that plagued that colony's economic development.

While SA may have possessed a more compact railway network compared to WA (Chart 23B), the numbers hide a flaw created by a singular institutional failure. The SA government was unable to coordinate technical standards and expertise within the colony irrespective of the lack of uniformity in inter-colonial gauge choice that hampered the development of a national railway system until the 1920s (Blainey 1977, 247). This lack of institutional coordination was of immense concern to the metropolis and affected the cost of construction, which was out of all proportion to the North American experience (and the rate of labour mobility). While the colonies pursued independent railway gauges, two gauges also emerged within SA: the broad gauge Midland system (the lines between Adelaide and Terowie) cost an average of £15,700 per mile; and the narrow gauge South-Eastern system cost £4,000 per mile

(Gibbs 1984, 141). Until 1906 the average cost of construction and equipment of all South Australian railways was £7,800 per mile and the total cost spent on railways exceeded £13 million (Gibbs 1984, 141). This information tends to weaken the claim made by Gibbs (1984, 139) that SA was a global leader in railway construction.

In communications technology, however, SA proved, once again, to be an effective innovator. The colony's first newspaper, *The South Australian Gazette & Colonial Register*, was first printed in London in 1836, six months before colonisation and served both as the official government publication and as an unofficial reporter of the news (Aitchison 1970, 219). The paper split its functions in 1839 with *The Register* going onto become, after 1850, the first continuous daily paper in SA and ran until 1931 (Aitchison 1970, 219). Between 1850 and 1870 several more daily newspapers were introduced including a number of foreign language papers especially for the German contingent, and for many years there were two morning and two evening papers daily (Aitchison 1970, 219). In the 50 years to 1900, newspaper circulation increased from 6 per person to 27 with the average being 16 papers per capita.

Letters and the postal system was another important medium of communication. In 1839, the first SA postal legislation was passed and offices were opened at Port Adelaide, Port Lincoln, Willunga and Encounter Bay. Postage was charged at 3 pence a letter or packet for domestic mail while international mail, by ship, was at 1 penny (Fraser 1983, 119). Prior to the Overland Telegraph, the growth in letters had almost reached the half million mark per annum but after 1875 it doubled to 1880 before doubling again to two million by the century's end. In 1855 the colony introduced its own postage stamps and in 1870, when the postal and telegraph departments were merged, there were 274 post offices across the colony (Gibbs 1984, 162-3).

As with other public infrastructure, Australian governments were heavily involved with the development of electric communications. None more so than SA which developed the first international telegraph connection to Britain in 1872 at a cost of £370,000 (which was over budget): primary producers in SA, and the rest of the continent, soon had access to the latest commodity prices which greatly increased the scope and scale of intermediated economic transactions (Moyall 1984, 56), which is a classic example of institutional agility that North promotes. Prior to the development of these international links, agricultural produce would be sold to agents at "snap" prices often much less than the final London price but as accumulated profits increased and communications became faster, colonial producers

opted to sell directly on the London market (Fitzpatrick 1949, 56). Indeed, it was said that within six months of the opening of the Overland Telegraph Line, SA was able to sell its wheat harvest at a quarter of a million pounds more than would normally have been achieved using the middlemen (Gibbs 1984, 137). As work was progressing on the Overland Telegraph, SA was also experimenting with telephony. By mid-1867, a direct telephone line from Adelaide to Sydney was opened via Wentworth in NSW (Gibbs 1984, 163). A little over 15 years later, telephone exchanges connected Adelaide (48 subscribers), Hobart (10 subscribers) and Launceston (35 subscribers), and shortly afterwards links between the major urban centres of the eastern portion of the continent was completed (Moyall 1984, 78). By 1900, the *Statistical Registers* show over 1,500 domestic subscribers in SA taking over 3,600 miles of wire all of which was superintended by the government.

By the end of the nineteenth century, SA's £28.5 million of public debt, almost 1.5 times larger than WA, helped to build 33 ports along the ocean coast and the Murray River; 3,678 miles of road and 1,736 miles of railway both less than WA due to its more compact society; and over 17,000 miles of telegraph wires, almost three times as much as WA, transmitting 1.2 million messages, making SA one of the most inter-connected colonies in the world.

Summary

Whilst major institutional deficiencies appear to be responsible for holding back WA's adoption of transport and communications technology, a secondary factor, one that previous economic historians have favoured, is the geographic factor. For example, Perth, and its port of Fremantle, was not situated on any of the established trade routes at foundation. Until 1892 Albany, rather than Fremantle, was the preferred port. This constraint did facilitate port construction along the south and lower west coast which assisted agriculture in the south-west of the colony. Gold which financed the construction of Fremantle harbour during the 1890s led to a significant increase in the number of ships visiting the colony. In SA, whose capital, Adelaide, was the first port of call from ships coming from Britain was also the interchange point for many technological and institutional transfers. SA also had an overland link to NSW and VIC, and developed the Murray River trade into these adjacent colonies.

WA's main cash crops and mineral resources were a significant distance from Perth, the high costs of internal transportation (and lack of immigrants) inhibited inland settlement. It wasn't until 1871 that railway development began in WA and initially the colonial government used a system of land grants to encourage private

investment that had mixed results. SA's internal transportation costs were relatively lower since its primary agricultural and mining centres were close to ports. Railway construction began in the early 1850s.

Given the distance and isolation of the Australian colonies from global markets, prices offered by visiting ships for colonial produce were usually months out of date. As "real time" pricing was essential for maximising the returns to colonial trade, governments sought ways to reduce information asymmetry and transaction costs by creating direct links to British markets. SA was the first colony to construct a telegraph link to Britain through the north of the continent and used its favourable position to act as an information broker to the other colonies.

WA's isolation and small, dispersed population, resulting from its defective method of colonisation, hampered its ability to capitalise on transport and communications technology to exploit its economic resources. As a result, information asymmetry concerning prices and other economic information was high, knowledge transfer was low, and markets had greater fragmentation compared to SA. Dispersion forced colonists to become more reliant on printed media (letters, newspapers and telegrams) for news and information than SA who possessed denser social networks.

Overview of the Economic Performance of Colonial WA and SA

The final part of this chapter collates the available data on the overall economic performance of the two colonies. Previous sections of this chapter - as well as the various parts of [Chapter 6](#) - have alluded to the superior economic performance of SA during the nineteenth century. This section revisits the issue by considering the relevant indicators of each colony's exports, cost of living, GDP and living standards.

Export Composition

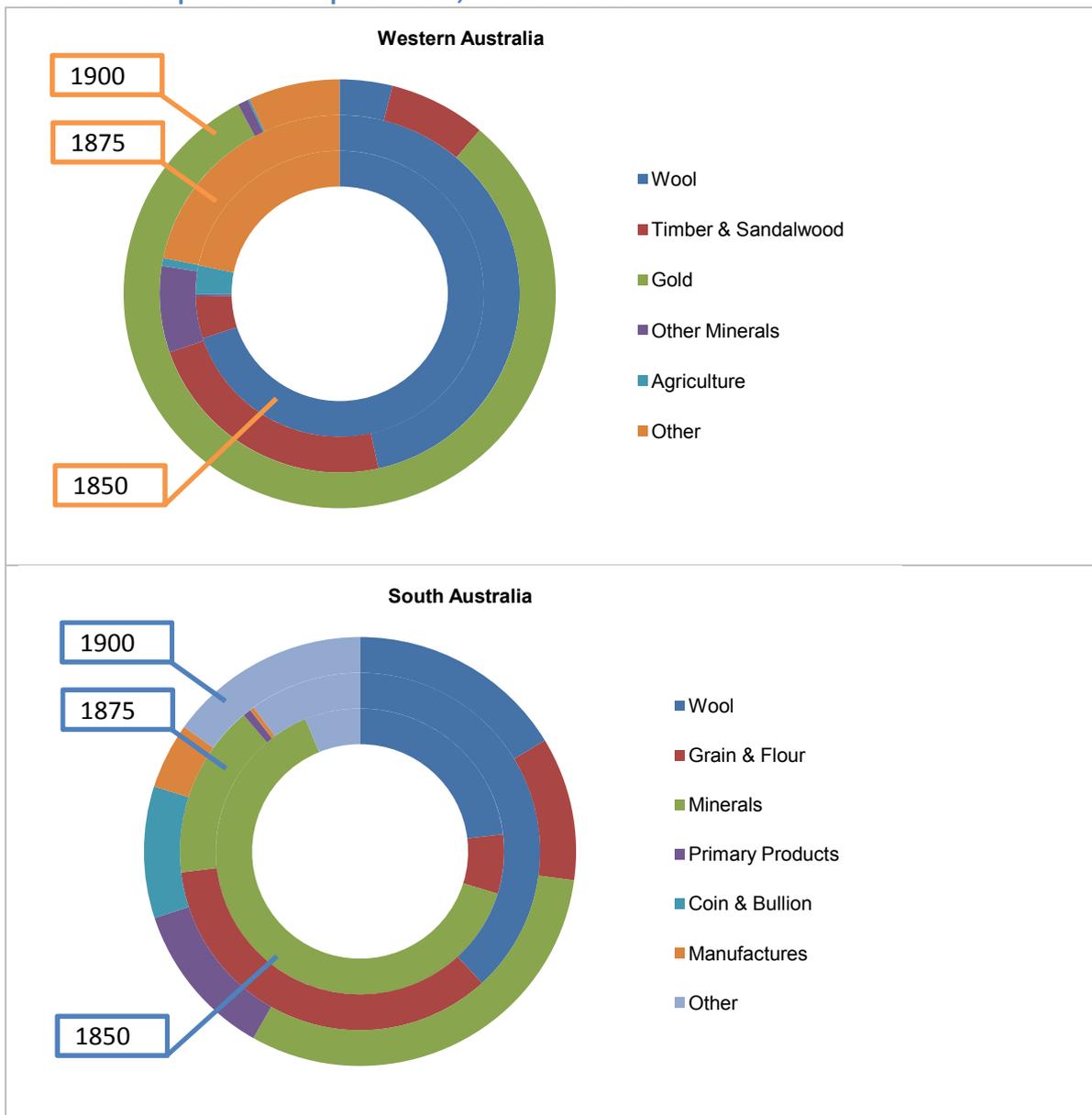
The composition of each colony's exports also conveys important information on their respective economic performance. The data in Chart 24 (p. 219) shows that SA developed an economy that was competitive in a diverse range of activities by 1900, whilst WA remained heavily dependent on a few staples for much of the century.

Chart 24 also shows how the composition of the colonies exports' changed during the last half of the century measured at 1850 (inner circle), 1875 (middle circle) and 1900 (outer circle). In WA the dominant component was wool which was only displaced by gold during the last ten years of the century. Timber was also a

sizeable, if unsustainable, export staple and as can be seen exports of farming produce are almost imperceptible underlining its reliance on SA wheat.

In SA, wool, wheat and copper were the principal exports up to 1875. After 1851 manufacturers entered the mix, primary products such as leather, tallow and livestock were reported after 1878 as were coin and bullion exports. From 1888, with copper ore and metal production declining, silver lead exports from the Broken Hill mine took up the slack, accounting for 31 per cent of SA's export economy, which was the single largest item in a diversified economy.

Chart 24: Composition of Exports: 1850, 1875 and 1900

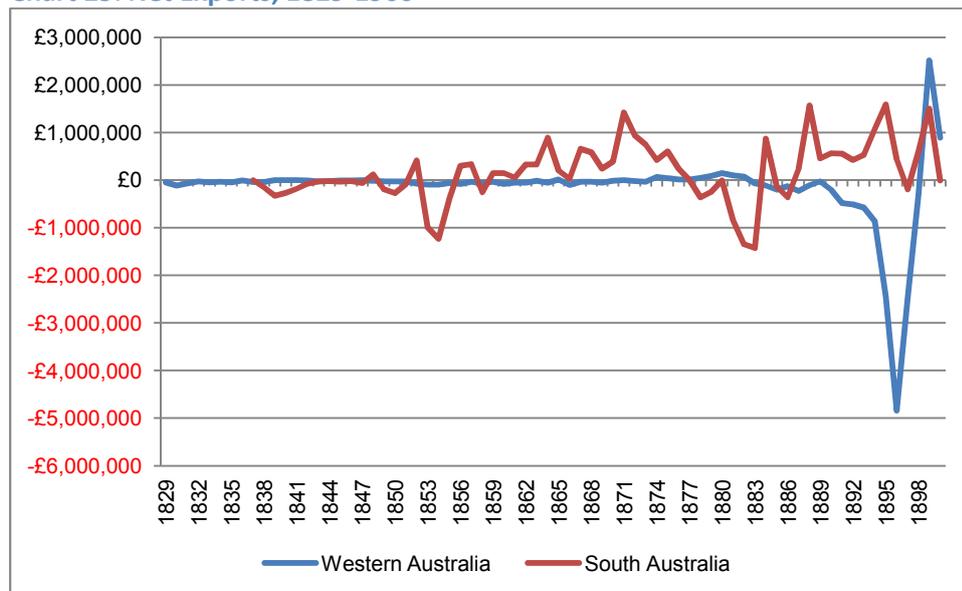


Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

Net Exports

As can be seen from Chart 25, WA recorded 59 trade deficits; the first 36 years were consecutive trade deficits averaging a little over £40,000 per annum. The largest trade deficit occurred in 1896 and was caused by the requirement for large amounts of mining equipment and other *matériel* necessary to develop the goldfields. This also shows that during the same time large capital imports were flowing into WA as investment in mining gained traction. Trade surpluses were rare in WA; nine were achieved between 1874 and 1882, just after representative government was proclaimed. They were instrumental to the colony's ability to defray the cost of its administration. In terms of WA's trade with SA records begin in 1860 and over the next forty years, imports from SA to WA averaged 18 per cent and exports to SA were less than 11 per cent. The proportion of inward shipping into WA of SA origin averaged 29 per cent between 1870 and 1900. Outward shipping to SA averaged 22 per cent of all sailings during the same period.

Chart 25: Net Exports, 1829-1900



Source: *Blue Books* of Western Australia & *Statistical Registers* of South Australia

In SA, 27 trade deficits were recorded in the 63 years to 1900, the largest being £1.4 million in 1883 and the largest trade surplus was £1.5 million recorded in 1895 coinciding with the WA gold rush. Not surprisingly the longest run of consecutive trade deficits occurred at economic formation and lasted for ten years as the colony built up capacity in its primary industries: wheat, wool and copper. The golden period of SA's economic history began in 1859 – two years after responsible government – and ended abruptly in 1878 with five years of net export deficits as seen in Chart 25. Unlike WA whose nearest Australian colony had no physical link, SA enjoyed close, if tense, economic links to NSW and VIC principally through the

Murray River trade. Overall, transportation barriers and parochial attitudes to other colonies reduced the opportunity for labour mobility; shipping and trade flows between SA and WA.

Cost of Living

Constructing a measure of an average price change in a basket of consumer goods during the nineteenth century has previously eluded Australian economic historians. The main difficulty stems from being unable to define a consistent list of consumer goods to include in the basket and the changing patterns of consumption. However, the *Blue Books* contain a section variously entitled “Average Prices of Various Articles of Use or Consumption” that lists the cost of local and imported food, alcohol, tobacco by weight consumed and livestock per head (as specified in [Appendix C](#)). The price of articles comprising this “basket” was recorded annually by both colonial governments from 1837 to 1900, and is therefore directly comparable. Whilst not ideal, because this data doesn’t represent the entire spending habits of colonial society, it probably represents the best opportunity of better understanding inflationary activity in the colonies⁹⁸. This primary data has been converted to an index (normalised weighted average) with 1900 as the base year (i.e. 100) and the averaged decennial results are shown in Table 9. When charted the indices (and raw basket price) show considerable volatility indicating inflationary pressure in the cost of food at various times during the nineteenth century. This phenomenon often mentioned in previous economic histories but never quantified until now. The price index for both colonies show that on, average, a basket of food cost more than 1.5 times more in WA than in SA across the century.

Table 9: Consumption Price Index, 1841-1900 (1900 = 100)

Decade	1841-1850	1851-1860	1861-1870	1871-1880	1881-1890	1891-1900
WA	175.81	156.69	125.82	69.84	67.21	86.75
SA	76.87	68.13	63.67	66.53	73.05	77.01

Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

The difference in the effectiveness of sea and land transport between the two colonies discussed in the [previous section](#) is highlighted by this price measure. WA’s isolation acted as a natural barrier to trade and so industries sprang up to service local demand (Western Australia 2004, 12). These were protected from external competitive pressures through relatively high import duties that averaged about 20 per cent of the total value of imports between 1850 and 1900. This limited the access to the best global goods and services. In addition, since internal food production centres were at some distance from the main population centres, and the road

⁹⁸ [Appendix D](#) provides more information about this basket of goods including the components parts.

network was primitive and costly to use, WA colonists paid higher prices for domestically produced foodstuffs. Note also WA's rapid inflation, a 30 per cent jump in the index from the 1880s, during the last decade of the century. This highlights the effects of the mining boom on the economy; and in the 1880s in SA the 10 per cent increase in the index from the previous decade during the VIC land bubble indicates possible contagion effects. Overall, WA's cost of living was higher on average compared to SA throughout the study period, and much more variable ($\sigma_{WA} = 46$ per cent vs. $\sigma_{SA} = 6$ per cent).

Estimates of Economic Output and Productivity

Exports surpluses, a diversified economic base, low barriers to trade and a lower cost of living should contribute to a colony's overall economic performance, as measured by GDP. Ideally, then, one would use data on GDP as the key indicator of economic performance. However, as the discussion in the following paragraphs show, reliable time-series data on colonial GDP were not produced by colonial statisticians (because the term and its definition weren't formally constituted until 1934 by Simon Kuznets) or by subsequent Australian economic historians. Cashin (1995, 27) came close by using data on Australian money stocks and a variant of Fisher's (1911) quantity theory of money identity to produce decennial GDP point estimates for WA (and SA) from 1861 in 1910/11 A\$ millions (rather than in the currency *de jour*) but provides no sectoral detail. This thesis attempts to produce annual estimates based on the available economic data from the primary sources.

For WA, Butlin and Sinclair (1984) prepared the first annual GDP estimates in current prices from 1829 to 1860. Their explanation of the methodology employed to derive the estimate is worth quoting at length as it shows the data problems associated with attempts to measure GDP:

The scale of the Western Australian economy is so slight up to (and beyond) 1860 that the effort to calculate components and the aggregate of GDP does not seem worthwhile. As a rough approximation, the total for the colony has been calculated on the assumption that the per capita income was the same as in South Australia. Population has been taken from the Western Australia Year Book 1902-04 and Statistical Summary from 1829 (1960/61 to 1967/68).

Given the range of information presented in this thesis on the different economic performance of SA and WA, it would be clearly unwise to adopt Butlin and Sinclair's method of assuming that the two colonies shared a similar per capita income. However, discussions with S. Howell (personal communication October 15, 2011) and P. Statham-Drew (personal communication October 16, 2011) confirm that, to date, no other attempt has been made to create a sectoral annual WA GDP

estimate from foundation to 1900. To achieve a comparison of GDP between the colonies, therefore, it is necessary to attempt to construct a measure of this key aggregate using available relevant data.

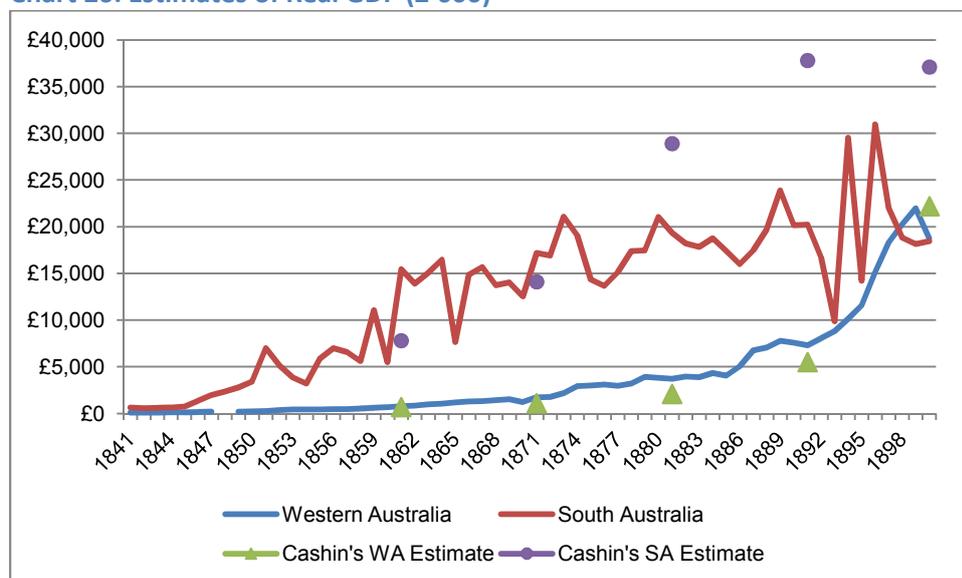
The approach taken here is to aggregate the sectoral data in the *Blue Books* on the following categories: pastoral (wool production); agriculture (value of output); livestock (value of farm animals); fisheries (whaling, fishing and pearling); government revenue; British Commissariat demand; financial services (growth of funds under management); forestry (from export data); mining and "other", for the period 1829-1900. The resulting nominal estimates for the years 1829 to 1860 is then compared against the Butlin and Sinclair income per capita method and found to have a high degree of fit. The *Blue Book* measure is, in general, higher than the Butlin-Sinclair estimate but both series, however, exhibit a close correlation ($p=0.9907$ / $R^2=0.9816$) to 1860, which is significant at the 1% level ($t\text{-stat}=3.5385$ with 31 d.f.). The values that Cashin derives for the four decennial periods from 1861 to 1901, and plotted on Chart 26, are very close to the estimates derived from the *Blue Book* data. For added comfort, a graph of population density, shown in [Appendix D](#), sometimes used as a nominal GDP proxy, is constructed for the period 1829-1900 and also shows a high degree to fit (Bernstein 2004, 291).

The presentation of SA annual GDP is also not without its problems too. Butlin and Sinclair (1984) present data on sectoral GDP, in current prices, for SA from 1836 to 1860, split into eight categories. Vamplew et al. (1984) extends the series from 1861 to 1982 split into fourteen categories. Where Butlin and Sinclair's and Vamplew et al.'s categories match, the two series have been combined otherwise they are kept separate with a break point at 1860/1. The total of each category has been summed to produce an aggregate nominal GDP estimate. As with WA, population density has been overlaid on the nominal GDP estimate and shown in the [Appendix D](#) and the statistical association between the two measures is not as consistent as in WA but still strong.

The nominal GDP measures for both colonies are then deflated using the Consumption Price Index (table 9), to obtain a real GDP and real GDP per capita estimates which are shown in Chart 27. Considering the economic growth in the two colonies traced out by the real GDP estimates, the contrast in economic performance between the two colonies presents some interesting observations. For stand-alone GDP, the plot for WA shows a familiar pattern: very low growth through to the 1880s, followed by a rapid increase afterwards that continued for the remaining part of the nineteenth century. This is the story of real growth in WA, which began with

the discovery of substantial gold but growth really expanded after 1890 once responsible government was granted, the last piece of the institutional puzzle. SA's economy looks like it was far larger than WA's, by a factor of greater than 7 by 1875, and this strong growth began during the mid-1840s, not ten years after the colony's settlement. The graph of SA real GDP exhibits considerable variation particularly from 1861 onwards. This could be due to economic phenomena, such as an increase in global market integration (discussed above and in [Chapter 6](#)), or measurement errors in Vamplew et al.'s data, or a combination of both. Unlike WA, Cashin's decennial point estimates for SA GDP using a different methodology differ significantly from Butlin-Vamplew estimates from the decade beginning 1871 onwards, as shown in Chart 26, with the 1900/01 estimate, for example, more than double the estimate here, highlighting the difficulty in constructing such measures from the available data. This disparity in size between the two economies began to narrow quite rapidly by around 1890 after a severe contraction in SA due to the contagion effects from the VIC land bubble. The economy of WA was not contaminated by the economic slump in the eastern colonies as mining became its principal industry, and by 1895 it became the larger of the two economies.

Chart 26: Estimates of Real GDP (£'000)

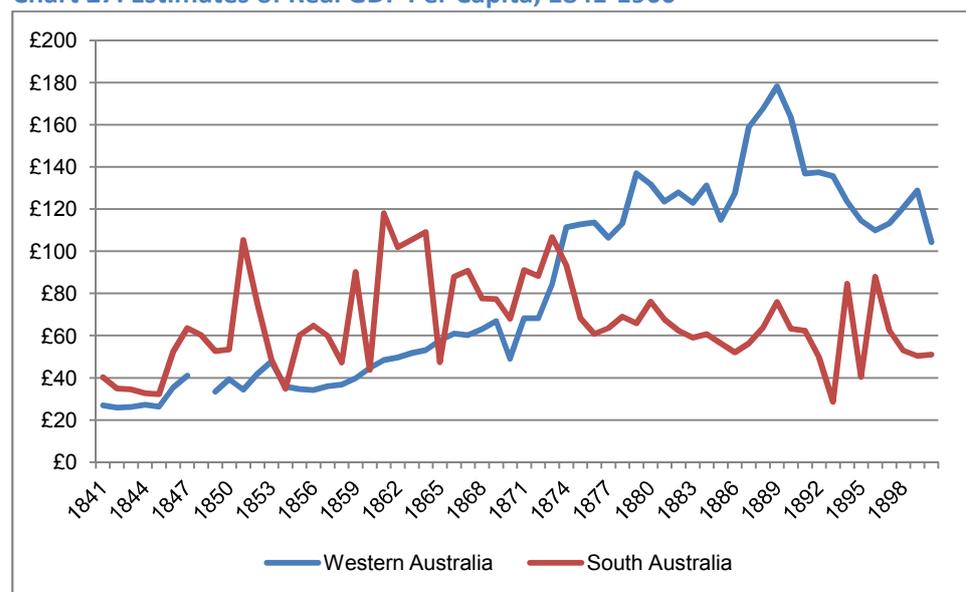


Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

In developed economies with stable populations per capita GDP is the preferred indicator of economic performance, as it sheds light on the living standards that a given population can achieve from its available physical and other resources. However, in newly established economies (such as colonies), it is a less reliable measure of economic performance because the key to improved performance is an increase in labour supply. Nevertheless, the patterns exhibited in per capita GDP (as

shown in Chart 27) shows, at face value, a different relationship in the economic performance of the two colonies than has hitherto been argued. Indeed, judging from the chart above, WA per capita GDP grew at a log-difference average of 2.33 per cent per annum (confirming Bernstein's (2004, 23-4) commentary) and exceeded SA's during the mid-1870s. WA struggled to achieve sustained population growth in the way the other Australian colonies did until the late 1880s when its high physical resource base was 'discovered' and large-scale immigration commenced. Since this colony began with a small population base, its level of capital was also small (as shown in Chart 4) because of the substantial number of low productivity farm workers. WA appears to have achieved a higher rate of national income investment compared to SA between the 1870s to at least up until the start of the last decade of the century. During the 1890s, there is a clear correction in the trend of GDP per capita in WA which could be due to a reversion to a lower, "steady-state", as would be predicted by the Solow-Swan Growth Model (University of Pittsburgh, n.d.).

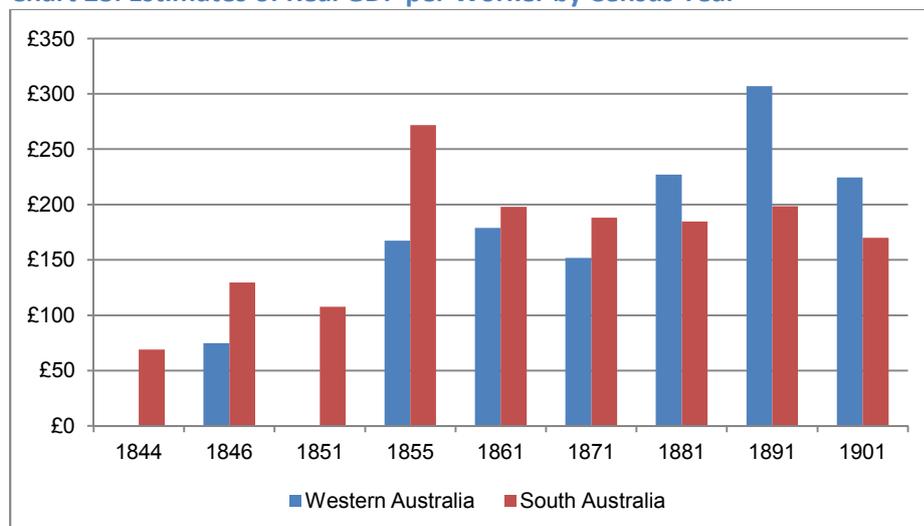
Chart 27: Estimates of Real GDP Per Capita, 1841-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

The data in Chart 27 suggests that SA experienced lower productivity growth on average compared to WA between 1841 and 1900 with a log-differenced average rate of growth of 0.4 per cent year-on-year. However, drilling down into the numbers reveals that the log-differenced rates of change in annual population and estimated GDP were roughly equal which, mathematically at least, would account for a near-zero rate of per capita GDP growth. This "stable" trend in GDP per capita may indicate that SA had attained a greater degree of balance between population growth and capital accumulation years before WA.

Chart 28: Estimates of Real GDP per Worker by Census Year



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

By using the census data to crudely estimate the percentage of the working population of each colony, the measure of economic productivity, GDP per worker, becomes somewhat clearer but less granular. The data in Chart 28 appears to confirm SA's superior economic performance in as much that it commenced the period of capital accumulation earlier than in WA in which GDP per worker was on average £65 greater than in WA. The balance between population growth and capital accumulation appears to have been achieved by 1881. For the three census periods to 1901, WA's GDP per worker exceeded SA's by an average of £68. This reflects the time when WA's institutional matrix became growth enhancing in 1890 with self-government and public debt extending the colony's transport and communications network, connecting its most productive yet remote areas to its markets. By the 1901 census, GDP per worker in WA shows a distinct reversal and this may be indicative of a reversion to a lower, more stable growth rate, as alluded to earlier. This view of economic progress in Chart 28 shows that there were distinct and positive trends in productivity for both colonies over the study period but the evidence suggests that SA may have been the more economically "advanced".

Living Standards

While indicators such as GDP and the terms of trade provide aggregate measures of the overall health of the economy, they assume that the gains are spread evenly across the population and don't say anything about the standard of living other than that general welfare trends follow the path traced by aggregate variables. Given the measurement uncertainty of colonial aggregates discussed

earlier, it is worth examining other aspects of national prosperity to determine how institutions affected the lives of the colonists as the economy evolved. In the absence of comprehensive consumer spending patterns and reliable real wage indices, life expectancy - limited though it is - supplemented with crude birth (CBR) and crude death (CDR) rates represent some valid non-economic measures of living standards (Sen, 1987).

Colonial life expectancy at birth has been estimated for the three decades to 1910 (ABS, 2008) and is presented in Table 10 (p. 228). SA women led the continent for life expectancy, averaging 56.8 years. WA women also lived longer than their counterparts in VIC and QLD but their life expectancy only averaged 52.5 years. SA men also lived longer than men in all the other Australian colonies other than TAS but lived an average of 3.3 years less than SA females. WA males had the shortest lifespan of all the colonies and lived a considerable 5.3 years less than WA females.

Interestingly enough, WA was the only colony to experience a significant drop in life expectancy, by about 2.35 years, for the 1891-1900 decade at a time when its economy and society was going through substantial change. The reason for the decrease is not known with any confidence but the decade was marked by large scale immigration (which could be associated with lower health status), a substantial increase in food imports into WA particularly after 1895 (which could indicate food shortages), and a smallpox epidemic in Perth in 1893-94 (Fraser 1983, 448). These observations don't completely account for the dip in life expectancy. It is not a statistical anomaly because preceding it is a marked increase in the CDR, measured as the number of deaths registered during a calendar year per 1,000 resident population, that went from the long-term average of 12 per cent by 1880 peaking to 21 in 1884 before settling to an average of 15 for the rest of the century. Nonetheless, life expectancy rebounded strongly adding over 7 years in the following decade and overall, for both colonies, the average person could expect to live an additional 5.5 years between 1881 and 1910.

The explanations for SA's leadership in living standards are not hard to determine and they are institutional in origin. SA adopted a number of institutional lessons from the metropolis regarding the provision of public health services which the government was obligated to provide (Gibbs 1984, 162). In 1860, steps were taken to improve Adelaide's water supply by building two dams on the Torrens River to the north-east of the city, and a third to the north was completed in 1893 (Gibbs 1984, 161-2). Meanwhile, the *Sewers Act* (SA) of 1878 provided for a drainage scheme and a sewage farm at Islington. When completed three years later, Adelaide

became the first city in Australia to be sewered and properly sanitised (Gibbs 1984, 162). By 1900 Adelaide and the surrounding suburbs possessed a reliable water supply, of reasonable quality, a mains network of delivery direct to the consumer, an extensive deep drainage system, and waste reprocessing. These achievements placed SA at the forefront of public health, sanitation and welfare advances anywhere in the British Empire and are reflected in the significant decline in the CDR from 16 in 1881 to 11 (per 1,000) at the *fin de siècle*.

Table 10: Life Expectancy at Birth, 1881-1910

Decade		1881-1890	1891-1900	1901-1910
Females	WA	51.5	49.5	56.5
	SA	53.8	56.1	60.4
Males	WA	46.4	43.7	51.4
	SA	50.6	53.0	56.8

Source: ABS. 2008. 3105.0.65.001 *Australian Historical Population Statistics*. Canberra: ABS.

Conclusion

This chapter examined three essential factors of production for the two colonies: natural endowments, the labour force, and transport & communication. At every stage the tentacles of the institutional matrix had a profound and recognisable influence on how these factors affected economic development, as measured by Net Exports, GDP and living standards, throughout the nineteenth century.

The alternative, non-institutional, argument that natural resources were the principal cause for WA's slow economic development has been widely accepted but appears to be less convincing. The climate and geography of the principal cities was very similar although Adelaide received significantly less rainfall and yet its wheat and wool yields were considerably higher. Cumulative export revenues from minerals were practically the same in the two colonies in 1900 but the timing of the development of the mining sectors differed across the colonies – with SA, once again, achieving development at a relatively young age. The evidence assembled in this chapter and in [Chapter 6](#) suggests that institutional design had far greater consequences on economic development than any (perceived) differences in natural resources. In SA, the institutional matrix came together sooner. Property rights and the availability of money and credit allowed farmers and pastoralists to overcome the deficiencies of nature through innovation and technology. A growing population swelled public revenues and enabled the colony to raise loans to build railways, roads and telegraphs connecting agricultural and mineral output to markets. The counterfactual for WA suggests that had the institutional design for property rights been based on land sales instead of grants at settlement then many of the difficulties

associated with the environment (e.g. plants poisonous to livestock / earlier adoption of fertiliser technology) may have been overcome sooner, effectively nullifying any advantage in soil fertility between the two colonies. It was the deficiencies in institutional design highlighted in [Chapter 6](#), rather than natural endowments, that largely explain the contrast in economic development between the two colonies during the nineteenth century, and systematic colonisation was responsible for differentiating institutional quality.

By 1900, the economic output of both colonies was roughly equal but the path taken to reach that juncture was very different. For WA, growth was fairly flat from 1829 to 1884 but lurches forward between 1885 and 1890 before climbing almost vertically from 1890. In SA, sustained growth began during the mid-1840s but was characterised by significant volatility up the 1880s. The twenty years to 1900 witnessed severe volatility in economic output caused by the VIC land bubble and later drought. Indicators of economic productivity show that WA's economic productivity surpassed SA during the 1870s and maintained this advantage for the rest of the century something that hasn't been widely acknowledged in the literature until now. The reason for such contrasting economic performance firmly lies with the institutional design of each colony.

Chapter 8: The Achievement

“It is important to understand history, to grasp the significance of the past, in order to get a concept of what lies ahead.”

David E. Lilienthal, 1997

Introduction

Institutions rise and fall; they offer incentives and deterrents to engage in economic activity; they promote material prosperity and they can take it away; they can be relevant to society or they can hold back its progress; and with the correct cultivation, institutions can command public loyalty but with neglect they can exert the most corrosive and insidious effects on social cohesiveness.

The message from this thesis is that each colony’s institutions – that is, their property rights, capital markets, state-based institutions and culture - were key determinants of their economic prosperity. The unmistakable influence of this institutional matrix can be seen working through the traditional growth factors of natural resources, climate and geography, labour force, and transport and communications. When these institutions were lacking or poorly designed they acted as a barrier that impeded colonial economic development. When all four institutions became growth enhancing, by 1857 in SA and 1890 in WA, the colonies flourished.

This final chapter summarises the evidence compiled in this thesis on the importance of institutions to colonial economic growth. The importance of economic history to the development of public policy will be emphasised in a section discussing the implications of this study and the potential for future research.

Did Colonial Institutions Matter?

As will be recalled from [Chapter 1](#), this research was inspired by North’s interpretation of institutions and his treatment of economic history. His principles on the importance of institutions to economies, set out in [Chapter 2](#), have been used in this thesis to guide an analysis of the colonisation of WA and SA, especially the possible role played by institutions in explaining the different economic performance of the colonies prior to 1901.

The four institutions assessed in this thesis were detailed in [Chapter 3](#). From the contributions of institutional scholars, including North, it is understood that institutions, both informal and formal, operate and interact simultaneously at various levels to structure economic activity. During the 2000s much of the literature on

institutional economics focussed on a single institutional type (i.e. property rights). However, because this approach ignores the influence of many other institutions – and the nature of their interactions, it has a tendency to assign a higher weighting to the importance of the chosen institution in the determination of economic development. It is a far more logical approach, and one that is strongly advocated in this thesis, to pursue institutional analysis using a matrix framework. This is because the true nature of institutional influence on the economy will occur through a number of formal and informal institutions – and the relationships between these institutions and other aspects of the economic environment are important to comprehend. In order to construct a study based on this matrix or portfolio approach, there needs to be a framework that guides the selection of relevant constituent institutions⁹⁹ according to a set of activities that they fulfil. However, one of the goals of this thesis was to put together a matrix of institutions common to both colonies which were capable of being measured using the available colonial data. These considerations resulted in the selection of property rights, capital markets, institutions of the State and culture as being key determinants of colonial economic development. These institutions are also central to North’s theoretical framework; they operate at various levels of the economy; they are interrelated; and they are common to both colonies. In this thesis, the four institutions together comprise the matrix which is positioned within the economic and geographic setting of each colony, and the links posited between the matrix and economic progress guide the empirical analysis of the two colonies’ economic performance over the study period.

The method of colonisation differed between the two colonies and resulted in differing institutional matrices. The evolution of colonisation theory was the subject of [Chapter 4](#). The Swan River Colony (WA) was established in 1829 under the principles of mercantilism and lacked a coherent framework. Land was used to entice settlers and to reward public officials and the military in lieu of pensions. By this mechanism, the metropolis was, in theory, free from financing new colonial ventures. However, the approach had a number of undesirable features. Firstly, the grants were inherently worthless unless they could produce something of value (and this required substantial capital and labour, which was lacking in the new colony); secondly, because grants could be obtained so easily and with few restrictions there was little, if any, pressure to bring the land into production, and this locked up large amounts of land; and thirdly, because grants were effectively gifts from the metropolis, they could be withdrawn upon any pretext and hence grantees did not enjoy secure property rights.

⁹⁹ Anecdotally, this author has found that many NCE students view institutions as a “catch-all” term that helps to explain the unexplained, that is institutions are almost akin to the error term in a regression.

In contrast, SA was established in 1834 (and settled in 1836) under the principles of systematic colonisation. Developed by Edward Gibbon Wakefield, these principles combined the lessons learnt from previous colonisation experiments with Adam Smith's views on how colonisation should work under free trade conditions. Smith had demonstrated how mercantilism hurt colonial economic formation (as well as the metropolis). He advocated not only the adoption of free trade but also the abandonment of colonisation as a process for increasing metropolitan wealth and power. The key principle of systematic colonisation was that land had to be sold at a "sufficient" price with the proceeds to be used to fund immigration. The amount of land that could be accumulated was in direct proportion to the colonist's net worth, thus preventing the build-up of non-productive land. Colonists who purchased land enjoyed private property rights free from expropriation under the common law of England, a protection not afforded to grantees. The application of this alternative 'model' of colonisation to an adjoining colony at a similar time created, in essence, a unique 'natural experiment' of the economic impacts of competing methods of colonisation: something that this thesis has explored.

The details of each colony's institutional matrix (set out in [Chapter 5](#)) are linked to data on their economic performance in Chapters 6 and 7. The importance of the institutional matrix for the economic development of colonial WA and SA was assessed in two ways. Firstly, a large amount of primary data was assembled to achieve comparable and consistent measures of the institutions of the two colonies and their patterns of economic activity over the period to 1900. Secondly, available evidence on the other possible sources of growth, such as natural endowments, labour, and transport and communications, was compiled. Using descriptive techniques, conclusions were derived on the nature and extent of the impact of different institutions on the comparative economic performances of WA and SA.

The analysis, reported in [Chapter 6](#), highlights the link between observed differences in the institutions of WA and SA and the patterns of their economic development. The examination reported in [Chapter 7](#) shows, additionally, that the way in which the institutional matrices were specified had an important impact upon how each colony was able to exploit its natural resources, grow and diversify its labour force, and build transport and communication networks to connect markets.

The data collected for this thesis show that some of the traditional explanations of WA's slow start in agriculture, which emphasised the role of geographic and climatic factors, are not as convincing as the institutional alternative. Indeed, the data also indicate that WA's matrix was poorly designed from foundation

and slow to react to changing economic circumstances. As a consequence, the colony was a late adopter of technology, was not a noted innovator, had trouble reducing information asymmetry, and had high transaction costs. All this adversity is reflected in the colony’s measured level of economic growth, which lagged behind SA until the last decade of the nineteenth century.

The assembled data also highlight the extent to which Wakefield’s systematic colonisation program was adopted by SA and influenced the colony’s economic development. The colony attracted a large number of free migrants; achieved a relatively high population density (which reduced transaction costs); achieved a masculinity ratio of close to parity (which facilitated population growth and labour specialisation); achieved self-government in 1857 (21 years after foundation) with high levels of political engagement; had dense social networks (as measured by church building and railway construction) and was a noted innovator. Underpinning all of this was consistently strong economic growth built on the back of crop and livestock farming, mining and, particularly during the second half of the nineteenth century, a rapidly expanding services sector. This thesis generally praises the application of Wakefield’s ideas in SA by contrasting his approach to what was effectively the status quo in colonial practice and reviewing the subsequent results. The contrast shows that there were distinct economic advantages to be gained from an improved type of institutional matrix that took root in SA and his “system” gave the colony a better than even chance of survival while WA struggled for a long time.

In addition to these findings about the general nature of the relationship between the different approaches to colonisation and their economic outcomes, this thesis also contributes details on the evolution of the institutional matrices over the study period. The table below shows broadly when an institutional matrix that could be considered as growth enhancing came together for both colonies during the period studied. As can be seen, for WA the key institutional barriers to economic development were resolved around 1890 with the granting of representative government. SA’s matrix came together in 1857 with self-government.

Table 11: Key Dates of the Colonial Institutional Matrices

Year	Property Rights	Capital Markets	Institutions of the State	Cultural Institutions	
				Religion	Education
Western Australia	~ 1880s	1855	1890	1844	1895
South Australia	1836	1839	1857	1836	1852

For property rights, Table 11 depicts the dates when cash (and its equivalents) became the principal means of acquiring land in each colony, as opposed to free grants (labelled Property Rights). This is an important step in the

formation of a growth-enhancing institutional matrix because sales of land result in security of tenure through common law protection. Security of ownership enables land to become a tradable commodity (unlike the grants) and this encourages the possessors of land to maximise its value. In other words, land sales create stronger private property rights. In WA, the grants associated with the “Conditions of Settlement”, such as the Peel grant of 250,000 acres, effectively ended in 1834; other grants, including those in lieu of salary to military personnel and to other interested parties, continued until 1880 (according to the *Blue Books*). It is difficult to determine exactly when grants ceased to form part of the property rights mix in WA but it seems likely to have occurred post-1880. In SA, on the other hand, land could only be acquired by the payment of cash from the date of the colony’s foundation. This was an important spur to its economic development

In terms of Capital Markets, Table 11 also marks the dates when at least two banks had been established in the respective colonies. This is significant because competition for deposits and loans encourages banks to find ways of reducing information asymmetry and transaction costs (i.e. interest rate spread). In WA this occurred in 1855 but the commercial rate of interest remained stubbornly high for the remainder of the century as banks struggled to cope with the information asymmetry caused by a dispersed population. In SA, two banks began competing from 1839 with commercial lending rates declining steadily, and the spread between government and non-government borrower narrowing significantly, over the course of the nineteenth century.

Furthermore, the data in Table 11 shows that State-based institutions became growth promoting when colonial governments achieved legislative independence from Britain. In WA, this did not occur until 1890 whereas it was achieved in 1857 in SA. An alternative position could be the year when the colonial governments borrowed on the London Money Market (LMM) to fund local infrastructure. In WA this occurred in 1872 and for SA it was 1855. Access to the LMM was available when the colony could meet the cost of its administration from local revenue.

Finally, the dates relating to culture in Table 11 shows when religious and denominational educational institutions ceased being recipients of state support. The removal of these barriers is indicative of a maturing cultural environment. In WA, state aid ceased in 1844 (fifteen years after foundation) whereas it was 1836 in SA (upon foundation). In SA, denominational schools functioned without government subsidy from 1862, whilst this did not occur in WA until 1895. There are other

institutional alternatives for education. One could be when children of the appropriate age were required to attend school for a mandatory number of days, 1871 in WA against 1875 in SA. Another view could be that education, as an institution, contains a tertiary sector (i.e. a university or some other form of post-secondary training) to be complete. On this measure, WA did not achieve this level until 1909 whereas SA achieved it in 1874.

As has been shown in [Chapters 6 and 7](#), there was rarely a sharp disruption to mark the transition from the period with an institutional barrier to a period when it was removed because history flows in a continuous stream. Changing the institutional structure is, however, associated with antecedent causes. The pressure for change may come from the awareness that certain gains from trade are going unrealised under the ex-ante institutional structure. There may also be a transfer of knowledge or some learning about economic opportunities occurring in neighbouring locations that spark a change. WA's adoption of SA's technical innovation in crop harvesting is an example of this type of transfer (see [Chapter 7](#)). Following such an event is a period of ex-post facto transitioning from the old to the new institutional environment, in which the change is "bedded down" and becomes operational. From this time the effects of institutional change become realisable (and detectable), for better or worse.

It can be argued that the different modes of colonisation affected the flexibility of institutions to adapt to changing external conditions. When considering institutional transfer, it is important to judge not just whether an economy has inherited appropriate institutions that allow it to grow, but also whether it has flexible institutions to change and adapt at relatively long-cost when the need arises (Mokyr 2009, 414). In fairness to WA, hamstrung by a defective land tenure system, a barter economy, an autocratic government with a small, dispersed poorly educated population, when institutional change occurred, it played catch-up, to correct a deviation originating in its Mercantilist approach to colonisation. Wealth and prosperity quickly came to the colony once its institutional matrix overcame a large number of impediments to growth (shown in Table 11 and Chart 28). SA's colonial institutions, on the other hand, showed an unusual agility during its 63 year existence as its compact, middle class, educated and non-conformist population not only changed Australian institutions but went on to have global significance¹⁰⁰.

¹⁰⁰ Notable examples include the Torrens Title and female suffrage discussed in [Chapter 6](#).

Implications of this Study

The implications of the findings of this study can stretch to the present day and should prompt us to ask, what is the “quality” of Australia’s institutional matrix now, and how is this relevant to its economic performance? Miller and Holmes (2010, 95) comment favourably on Australia’s strong property rights:

Property rights are well protected. The rule of law is seen as fundamental, and enforcement is even-handed...Protection of intellectual property rights meets or exceeds world standards. Contracts are secure, and expropriation is highly unusual.

Robust supervision and sound regulation of capital markets are also identified as being significant, as is monetary stability. On the level of economic corruption and rent-seeking, Transparency International (2013) ranks Australia nine globally¹⁰¹ and third within the Asia Pacific region behind Singapore and New Zealand, both ex-British colonies. Corruption among businesses, public officials and politicians, is perceived as minimal, and the government actively promotes international efforts to curb the bribing of foreign officials and “respects the independence of the judiciary” (Miller & Holmes 2010, 95-96). Williams et al.’s (2012) study ranks Australia’s education institutions 8th in the world behind Scandinavia, Canada (3rd) and the US (1st) but in front of Britain (10th), Singapore (11th) and New Zealand (14th).

These assessments tend to confirm the view that the key institutions, which are the focus of this study, have evolved from their colonial origins into high quality structures that have provided a sustained level of economic prosperity (in the top 20 nations according to various GDP per capita indices¹⁰²). But how important are past historical events to current circumstances and future outcomes? How far should the study of economic history be “re-energised” to influence current policy debate?

One widely-held viewpoint, which may explain the apparent decline in the importance of history to economic analysis, is offered by Renger in a comment posted to the America’s Debate Blog on August 4, 2005. He explains that no lessons can be drawn from history because every epoch is unique in terms of mentality and morals and these differences is the key to resolving any crisis, problem or event. “Every problem is a product of his [or her] own time [and] because of that every [other] time deals with specific problems or events in a certain way. What once worked in a certain era, in a certain place, doesn’t have to work in another period”. This perspective emerges from the belief, held by some, that history is a linear progression (Scott 2001, 5).

¹⁰¹ Australia dropped one place in global rankings since 2010.

¹⁰² World Bank (2005-11) rank: 16th; International Monetary Fund (2010-11) rank: 13th; Central Intelligence Agency (1993-2011) rank: 16th; and University of Pennsylvania (2010) rank: 8th.

In contrast, the traditional view about the importance of history is that policy makers could and should learn from the past since examining historical events can lead to a better understanding of certain mechanisms that are useful for solving contemporary problems. Scott (2001, 4) offers three reasons why economic history, in particular, should form part of the current policy debate: firstly, it provides a context which enables an understanding and appreciation of current events; secondly, economics is not an experimental science and theories cannot be tested via controlled laboratory tests. The only way to test economic theory is to see if they are supported by what has happened in the real world; and thirdly, it allows for the comparison and contrasting of different types of economic systems. Indeed Scott (2001, 5) believes that economic history is both the seed bed for economic theories and their testing ground:

What happened in the past may lead to theories as to why they happened. Theories about why, under given circumstances, certain things should happen can be tested by observing what happened in the past when such circumstances existed.

The study of economic history can help us better understand economic analysis but while much of the latter is static, the former is concerned with changes which have taken place over time (Scott 2001, 5). By tracing such structural changes which have taken place in an economy, it is possible to understand the emergence of today's society and plan for tomorrow. This is the path dependency lesson that North (1990) continually teaches. As Schumpeter (1947, 149) has argued, the consideration of history allows for an understanding of the causal factors that affect economic change. Specifically, the consideration of chronology, sequence, and context allow economic historians to attribute causation to particular events (Gabaccia 2001, 2). The main fact established by recent economic historians from Acemoglu et al. (2001), to Glaeser et al. (2004) and others, has been in providing additional evidence that institutions are an important channel through which history matters to economic development (Nunn 2009, 78). Unfortunately, Nunn (2009, 88) says that many of these studies, particularly those that seek to examine the role of early institutional development of present day economies, are unable to identify the exact mechanism or channel of causality (such as colonisation promoted in this thesis). Clearly work needs to be done in this area and it is hoped that this thesis makes a contribution to the resolution of the causality problem.

Future Research

There are at least three further areas in which this study can be extended. Staying with the case studies of WA and SA, it would be worthwhile to chart their courses during the twentieth century (and beyond). As of 2012, WA had the highest

per capita gross state product of A\$93,593, 50 per cent higher than the national average of A\$62,424 (Western Australia 2012, 1) whereas SA managed A\$54,652 for the 2011 financial year. Interestingly, during the twentieth century, WA's economic performance exceeded SA's and the way this came about is worth investigating further.

In some ways, many of the institutional arrangements that occurred in WA during the last fifteen years of the nineteenth century, innovations adopted from the eastern colonies, began paying dividends in the twentieth century. Certainly WA entered the Commonwealth in a disadvantaged position even with its tiny population sitting on a vast treasure of mineral wealth. Free trade threatened its nascent manufacturing sector huddled behind a high tariff structure, and for a time a level of protection remained in place which discriminated against Australian products coming in to WA (Western Australia, 2004).

In addition, the state from 1910-11 began receiving special grants to compensate it for disabilities associated with the Commonwealth-State financial arrangements borne out of the Federation settlement (Mathews 1985, 5). WA's ongoing economic difficulties vis-à-vis the other federated states saw the Commonwealth enquire into the state's finances in 1925 (Cowgill 2010, 3). As a result, in 1933, WA was dubbed a "claimant state" and received a more equitable distribution of fiscal aid (paid from revenue raised from the wealthier states) in order to provide comparable social services (education, healthcare etc.) to NSW and VIC (Mathews 1985, 5). During the minerals boom of the post-WWII era, WA's status of claimant state was finally removed in 1968 and for almost "four decades after that, it received a share of national income roughly commensurate with its population" (Groenewegen 1990, 255). After July 2000 it received a share of GST¹⁰³ revenue in excess of what its citizens paid as recently as 2005/06 (Cowgill 2010, 3).

Following federation, SA's fortunes fared rather poorly. Special Commonwealth grants were first paid to SA in 1929-30 (Mathews 1985, 5) after which it too was proclaimed a "claimant state" from 1933. Twenty-six years later it ceased being a net receiver of Commonwealth fiscal aid but relapsed again between 1970 and 1974 (Mathews 1985, 6). After that time SA's relative fiscal capacity was on par with WA's until 1988-89 before SA's economic relativity deteriorated markedly. For example, in 1996-97, WA's fiscal capacity was about the average for all states whereas SA was about 82 per cent of the average. This meant that SA's

¹⁰³ That is the Goods and Services Tax (akin to the UK's VAT), which became the dominant Federal-State fiscal distribution mechanism replacing a hodgepodge of indirect taxes.

ability to raise revenue from its own tax base to provide a comparable level of state services was below the national average, such that it needed A\$1.18 per resident of financial assistance from the Commonwealth grants pool while WA required about A\$1 per resident. This sharing of the grants pool would enable both states to deliver the Australian average level of social services, if they applied the Australian average tax rates to their tax bases (Commonwealth Grants Commission 2008, 5). Cowgill (2010, 4) states that during the 1993-94 financial year SA received A\$1.22 in relative fiscal transfers for every A\$1.00 paid in national income (it was \$1.119 for WA). From the 2001 financial year, SA received on average the same sized subsidy through GST transfers for the next twelve years (Commonwealth Grants Commission 2011, 88). Compounding this loss of competitiveness, the ABS (2012) states that SA's population fell behind WA's in 1982 with the former's rate of growth slowing down to less than one per cent per annum from 1971 to 2011 while the latter's accelerated at better than two per cent over the same period.

So how much of this transformation was a result of institutional factors? Was it the result of the imposition of a third layer of governance which made up the institutional deficiencies of WA while at the same time stifling SA? Writing about SA's early colonial during the 1950s, during a brief revival in the state's fortunes after the World War II, Pike (1957, 516) hints at the root cause of this apparent economic inertia:

After its lusty youth Adelaide became sedate, gentle and unenterprising. No new ideas disturbed the calm of orthodoxy as generation succeeded generation. The leading colonists had fought hard for the things they wanted but when the struggle was over they seemed to have exhausted their enterprise and lost the ability to lead. Perhaps their ideas, bred in opposition [i.e. as dissenters in Britain], were intrinsically unfruitful in office; certainly their habits of mind had grown suspicious and obstructive. A negative past held them captive for nearly a century, until leadership, expansion and experiment revived, denied them the rewards of constructive freedom.

The situation described is a classic characteristic of institutional malaise that Lewis (1960) subsequently went on to document and he derived a number of important economic lessons. He wrote that such outcomes occur because the new economic class which has started the acceleration in the rate of growth, in due course, turns against further change and progress (Lewis 1960, 160). They become parochial in their beliefs, traditions and norms; they seek to protect the positions they won when advocating an "open door" egalitarian policy in opposition; and they becomes less adaptable to changed economic conditions; less sensitive to shifts in stakeholder demand, wants and desires; and less acceptable of new technology (Lewis, 1960 161). Then the institutional matrix ossifies: property rights are eroded; information asymmetry increases; coordination becomes harder to achieve; and

transaction costs rise. These effects flow on to the economy: innovation ceases; trade slackens, the cost of capital rises; taxes increase; and labour productivity falls. This leads to economic stagnation or reversal at the national level with second-order effects to personal wealth and freedom. Such is one possible future and its realisation must be prevented by citizens of all nations.

Given the foretaste of the present, what about the future prospects of WA and SA? A report commissioned by Deloitte Access Economics (2011) ambitiously forecast the economic potential of the states up to 30 years forward. It dedicated over 12 pages to WA and only one page for SA yet struggled for anything positive to say reporting, rather unenthusiastically, that SA has great resource potential – nothing else (Deloitte 2011, 58). A report by James (2012) entitled *State of the States* described Australia's multi-speed economy as "Western Australia first and daylight second" and predicted this economic phenomenon to persist for the near-term. Specifically WA leads the way on economic growth, construction work, low unemployment, retail trade, population growth and equipment investment (James 2012, 2). SA was rated "middle ranked on all economic indicators but is tending to under-perform on housing market indicators" with James (2012, 2-3) unable to identify any economic strengths in the state. Certainly from the vantage point of 1901 it seemed unlikely that such an economic role reversal would occur yet today's reality cannot be ignored, and so there is a rich opportunity to assess the institutional aspects of the subsequent story of these two colonies, drawing on the larger literature (and data) relevant to interstate differences in economic performance in the 20th Century.

The second line of enquiry would be to investigate the institutions and economic effects of SA's development of the Northern Territory (NT) which was annexed to this colony in 1863 and relinquished to Commonwealth control as a failure in 1911 (Bunker 1988, 73). The "Top End" was initially founded on the Wakefieldian principle of land sales to finance immigration and concentrated settlement (Bunker, 1988) but a series of frauds, speculation, and distant governance failures (a colony governing a colony) prevented the Territory's potential from being fully realised during the colonial era. Certainly Jack Cross's (2011) insightful and revealing examination of "The Great Central State" highlights numerous institutional failings that affected economic development, and the *Statistical Registers* of SA provide a wealth of time-series, quantitative data on the NT to make such a study worthwhile.

More generally, the third opportunity revolves around the potential to extend our knowledge of Australian economic history by continuing to mine the rich seams of economic data available from the ABS' (1988) colonial statistics. This thesis has demonstrated how raw economic, financial, governmental, social and demographic data from these sources can be transformed into measures that enable empirical analysis of the economic impact of institutions. Agreement on measures of institutional presence in economic data remains as controversial as the definition of institutions, in as much as there is as yet no toolbox of measures to match the ones that neoclassical Economics has at its disposal. However, this is a multi-dimensional problem that many institutional scholars have made valuable contributions towards solving over the years, including North (1990), Bernstein (1994) and Mokyr (2009). This thesis, by collecting underlying data and transforming them into measures of institutional and economic differences between two Australian colonies, adds to this effort, and points the way forward for other investigations.

Among the questions this direction of inquiry could address is whether North's institutional framework can be successfully applied to the penal settlements of NSW and VDL (and, by extension, the offshoots of VIC and QLD) and help explain their subsequent economic fortunes during the colonial era. Perhaps more importantly, why did their institutions come to, or appear to, dominate the Commonwealth institutional landscape? How did NSW's peculiar institutions evolve from purely penal to a curious combination of free and bonded institutions then to the free market version upon entering the Federation? Given that the non-NSW colonies of TAS (VDL), VIC and QLD are derivatives, what transfer mechanisms were employed to plant an institutional framework in these distant outposts? How did they subsequently evolve and what differences – if any – can be discerned? As has been shown in this study, the mode of colonisation has a significant impact upon economic development and can be considered a genuine causation channel that Nunn (2009) believes is absent from current studies of institutions and economic history.

The voluminous historical studies of the eastern Australian colonies show various snapshots of economic data and other salient features but very little time-series analysis has been presented (or tested), certainly not to the extent deployed in this thesis. Granted the collection of this data is a laborious and time consuming activity¹⁰⁴. However as this thesis has demonstrated, the effort allows for the spotlight of perception to illuminate the unlit corners of Australia's economic history

¹⁰⁴ This author estimates that it took in excess of 700 hours of labour across four states to accumulate the 25,000+ pieces of data on two colonies used in this study.

in ways which add additional institutional flavour to the rich narrative pictures painted by many gifted historians (past and present).

Final Thoughts

Institutions did matter to the economic development of both colonies, they mattered at Federation; they certainly affect society today, and will continue to do so in the future. For economic growth to occur in a sustainable fashion, an institutional matrix must first be aligned. Property rights must be secure to provide the incentives to innovate; there must be a deep, accessible and cheap source of capital to facilitate exchange and finance innovation; and the government must be able to coordinate economic activity, secure property rights and tax in an “easy” manner, as Smith ([1776] 1976, 581) would say; and society must have access to the best education to encourage technology and innovation.

In nature, as in economics, children inherit their physical and mental attributes from their parents so colonies receive their mother country’s “institutional genes” (Bernstein 2004, 384). Where these gene combinations are advantageous, prosperity flows but where these combinations lack robustness then poverty and backwardness are likely to result. In this metaphor can be seen the comparative economic story of colonial WA and SA. Just as poorly yielding crops can be improved by the introduction of improved genetics so can weak institutions be strengthened. This mirrors how WA transitioned from being the “Nothing Colony” to equalling (roughly, or even exceeding) SA by 1900 in terms of its estimated economic output (i.e. in terms of GDP estimates).

In the most bizarre historical twist – one that could not have been foretold at Federation - the most neglected of all the Australian colonies (i.e. WA) now achieves the highest economic outcomes, and yet a former centre of innovation and personal liberty (i.e. SA) seems to be chasing its ever-diminishing tail. These two colonies receive minimal “air play” in the national treatments of Australian history and yet the lessons learned in this research, highlight the need to look beyond NSW, VDL and VIC as representative institutional (and economic) models for the nation. This tendency to forget the important contribution of Australia’s “western horizon” short-changes the country’s economic history and the approach to examining past events ought to be reassessed.

Here ends the lesson, and the journey.

Darren Christopher O’Connell



Plate 1: The man that made it happen

Sir Arthur Wellesley, first Duke of Wellington 1769-1852. Aside from clearing the Iberian Peninsula of French forces and vanquishing Napoleon at Waterloo with the Prussians, Wellington was British Prime Minister (1827-1829) when the Swan River Colony was founded. Later, as figurehead opposition leader during the 1830s, he lent his support to legislation that created the Province of South Australia. During the 1840s Wakefield gave his name to the capital of New Zealand. Wellington's advocacy for colonial formation was that they needed military support and so he could "hide" troops overseas that would otherwise be discharged as the British government sought to reduce national expenditure.

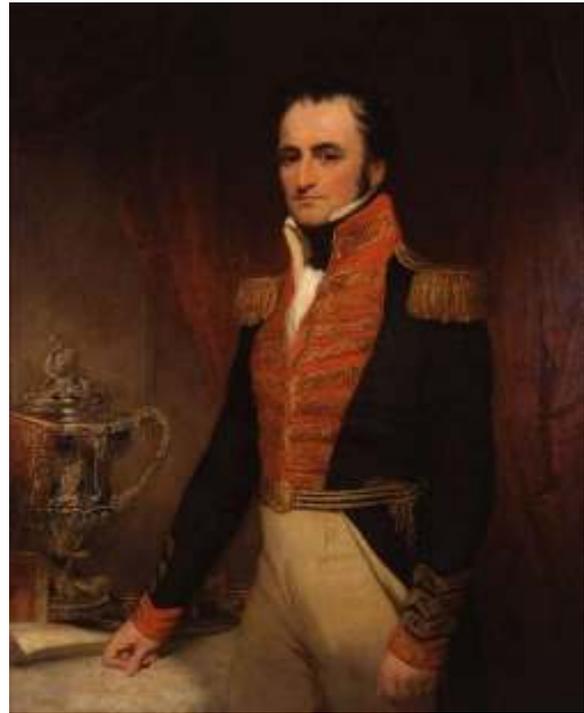


Plate 2: The Swan River Colony

Top Left: Sir George Murray, Secretary of State for the Colonies in Wellington’s Ministry and his former Quartermaster General in the British Army. Murray signed the “Conditions of Settlement” that initiated the Swan River Colony. His political constituency was Perth in Scotland.

Top Right: After having grossly oversold the benefits of the Swan River, Captain Sir James Stirling, RN, worked tirelessly from 1829 to 1837 (and afterward) to make the colony a success.

Below Left: “Cousin Thomas, or the Swan River Job”. Peel was cousin to the then Home Secretary, Sir Robert Peel, in Wellington’s ministry. Thomas Peel’s plan for colonising the Swan River was ridiculed by Wakefield as “the best example of the worst kind of colonisation” and not surprisingly failed to achieve any of its outcomes.

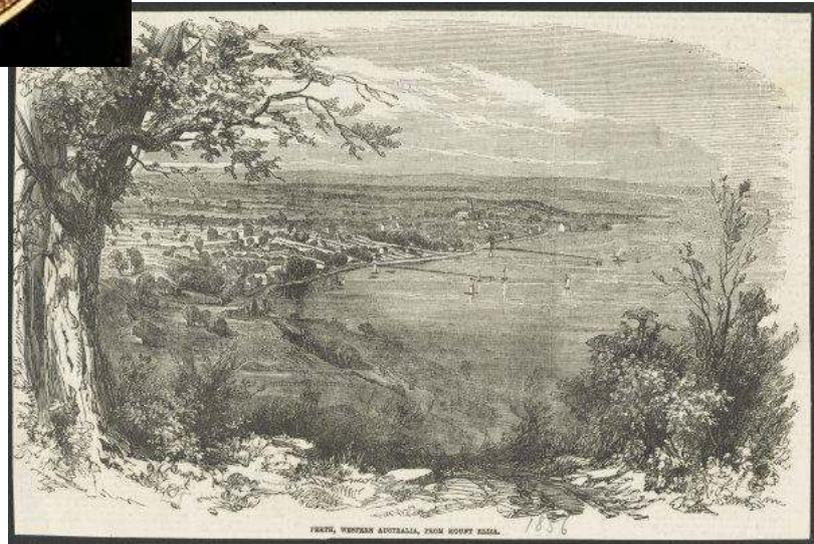


Plate 3: Location, Location

Top Left: John Septimus Roe sailed with Phillip Parker King RN during his circumnavigation of Australia. He was Surveyor-General and a member of WA's Legislative and Executive Councils of WA.

Top Right: Roe's vision for the City of Light adopting the grid pattern after the town-planning fashion of the time.

Middle Right: A view of Perth from Mount Eliza c. 1840s.

Bottom: The present-day capital of Western Australia from King's Park.

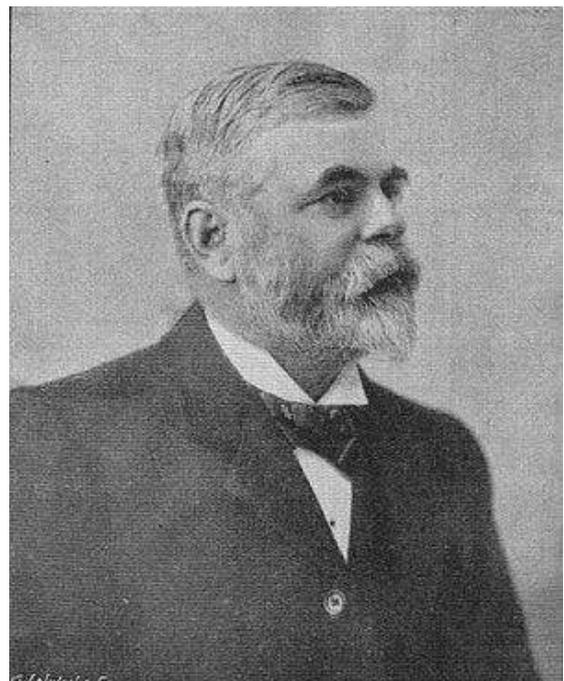
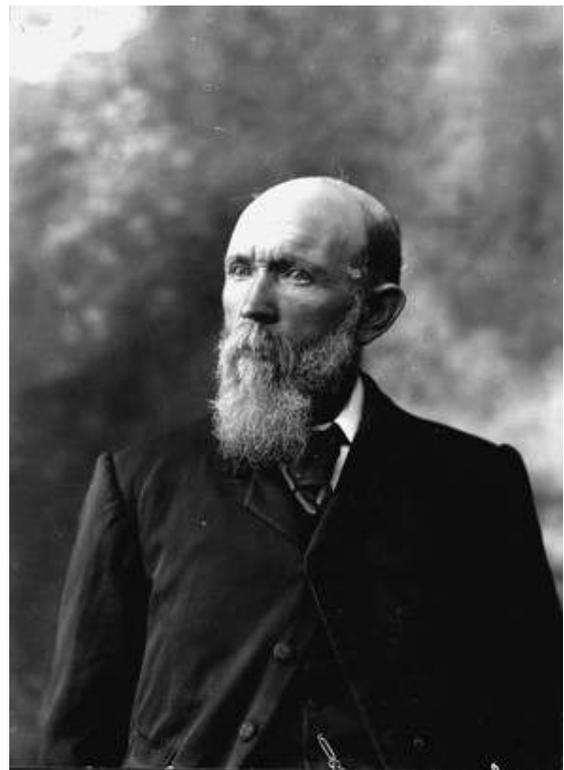


Plate 4: WA's Colonial Visionaries

Top Left: Sir John Forrest, first premier of WA, famed explorer and later member of the first Australian government. He was described as a bull of a man by Blainey (1994).

Top Right: Patrick "Paddy" Hannan, whose 1893 gold discoveries in the Kalgoorlie region, would in a few years turn the "cripple" colony in to the world's largest gold producer.

Bottom Left: C Y O'Connor's enormous public infrastructure projects, paid for by "rivers of gold" included Fremantle Harbour and the Goldfields Pipeline. Both firmly established the colony's economic base.

Bottom Right: Second generation West Australian, merchant and politician, Sir George Shenton was first Colonial Secretary and President of the Legislative Council.

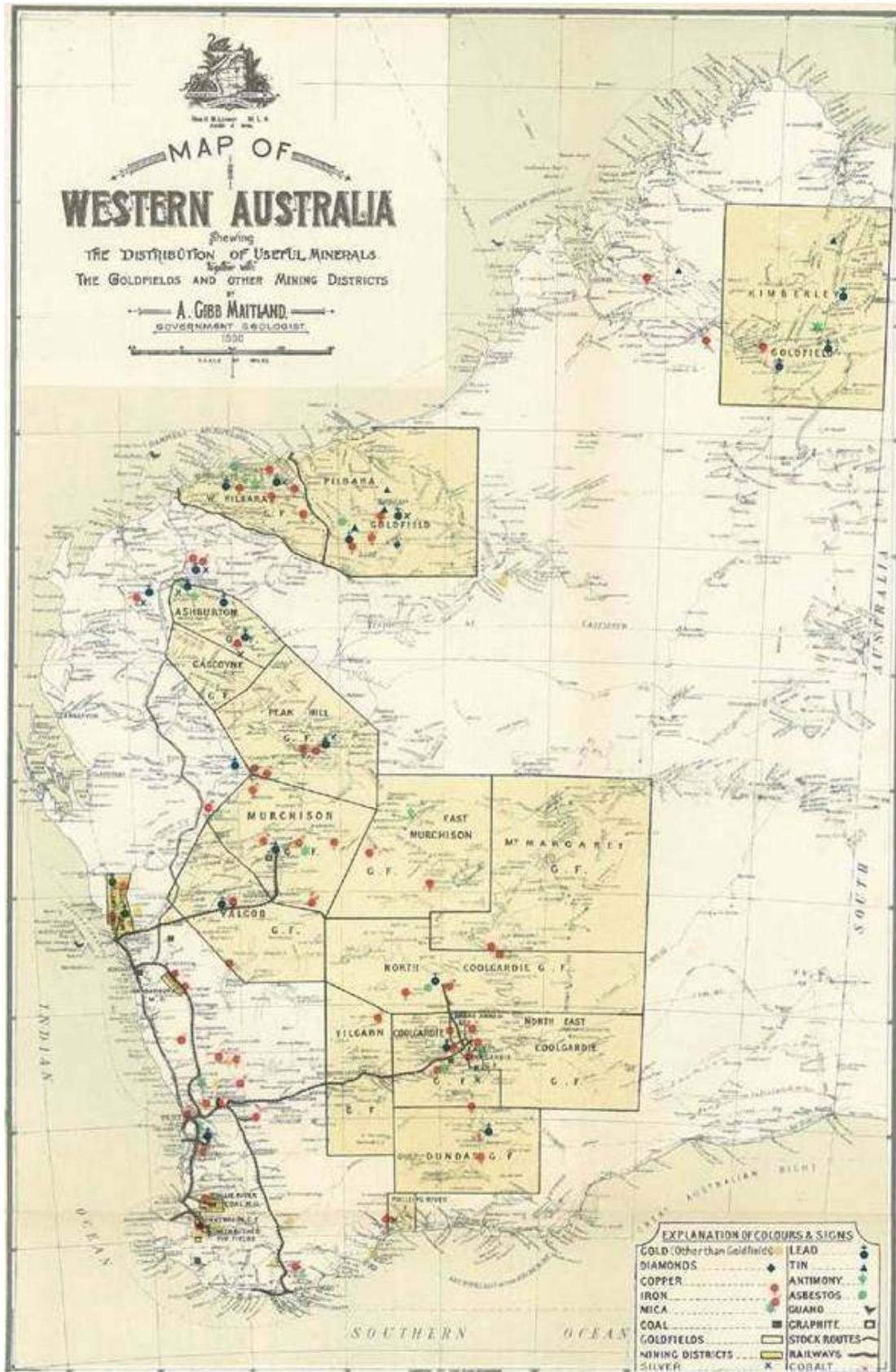


Plate 5: And the rush was on!

The mineral map of Western Australia, circa 1900. The last fifteen years of the nineteenth century saw almost a third of the colony being actively prospected and mined. Note the distance of these fields from the important seaports of Perth, Geraldton, Albany and Esperance.



Plate 6: The Province of South Australia

Top Left: Edward Gibbon Wakefield, "Founder of the British Commonwealth".

Top Right: George Fife Angas, the man that launched the colony, invested a substantial personal fortune in colonial banking and agricultural ventures and brought in German migrants from Prussian Silesia to SA.

Bottom Left: Sir George Grey, the most autocratic of autocratic governors whose austerity measures during the 1840s saved the colony from ruin. Grey was also governor of New Zealand, another Wakefield venture.

Bottom Right: Named in honour of Adelaide of Saxe-Meiningen, queen consort to King William IV.

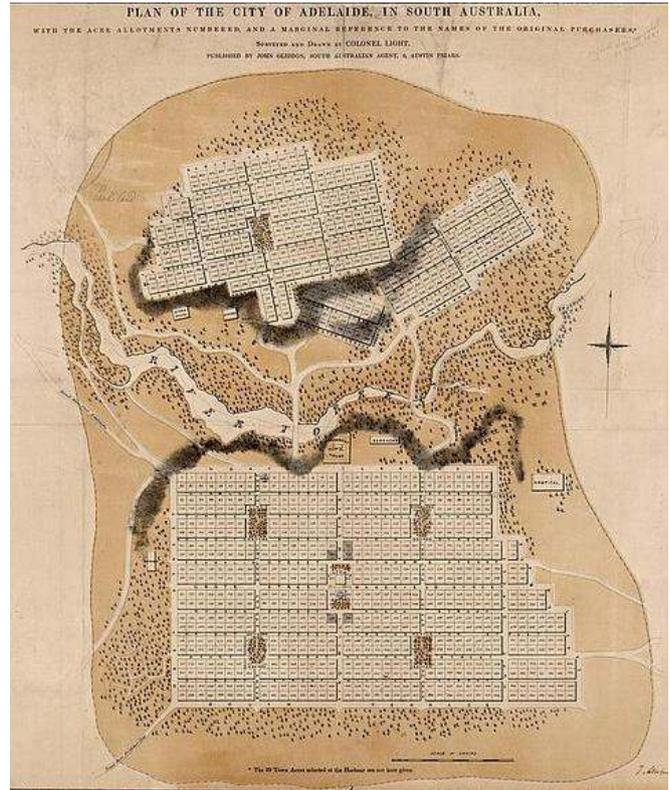
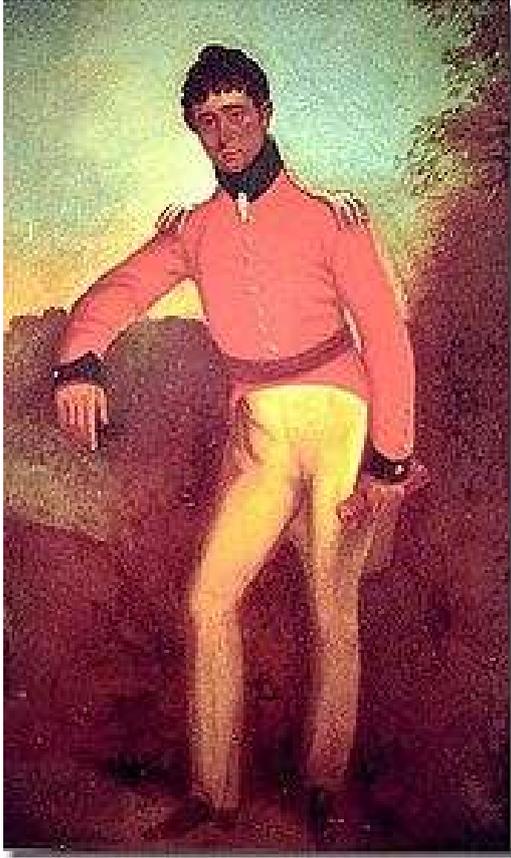


Plate 7: Grand Designs

Top Left: Colonel William Light, a member of Wellington's intelligence staff during the Peninsular War and a gifted artist who died of tuberculosis in the town he laid out.

Top Right: Light's Vision for the City of Churches grid-like to match the topography of the site astride the Torrens River. Arguments about the site of the capital poisoned the early political atmosphere of the colony.

Bottom Left: Two years after settlement, Adelaide, North Terrace 1839, looking south-east.

Bottom Right: Doug Barber's Aerial view of Adelaide also looking south-east circa 2005.

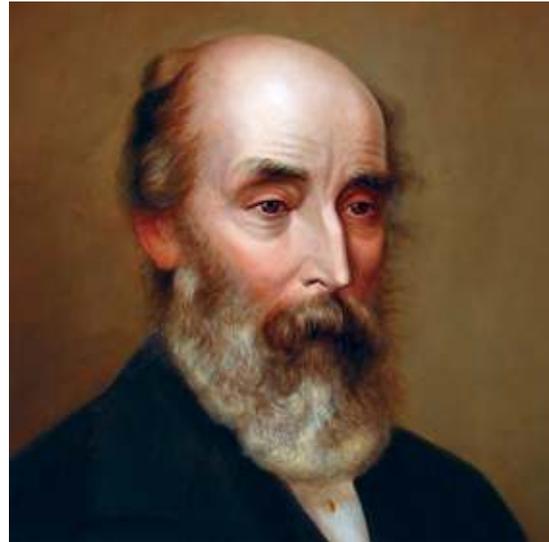
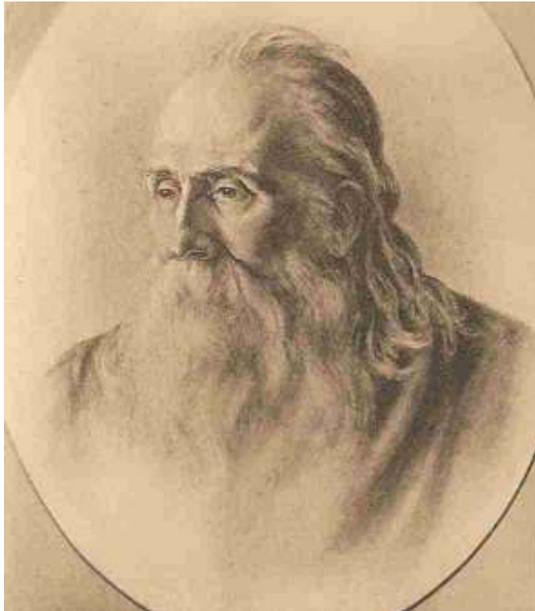


Plate 8: SA's Colonial Innovators

Top Left: John Ridley invented the wheat stripper in 1843 at a time when SA's expanding crop yield threatened to exceed the capacity of the work force available to harvest it.

Top Right: Sir Robert Torrens, the designer of the Torrens Title system of land tenure used widely in the world today. His father was a noted political economist, a close collaborator with Wakefield and one of SA's founders.

Bottom Left: George W Goyder, Surveyor-General of SA, plotted an accurate line of rainfall used to demarcate land climatically suitable for arable farming from grazing land. He also laid out the township of Darwin.

Bottom Right: Catherine Helen Spence campaigned for, and won, political representation for women: the first Australian colony to do so and second in the world after New Zealand.

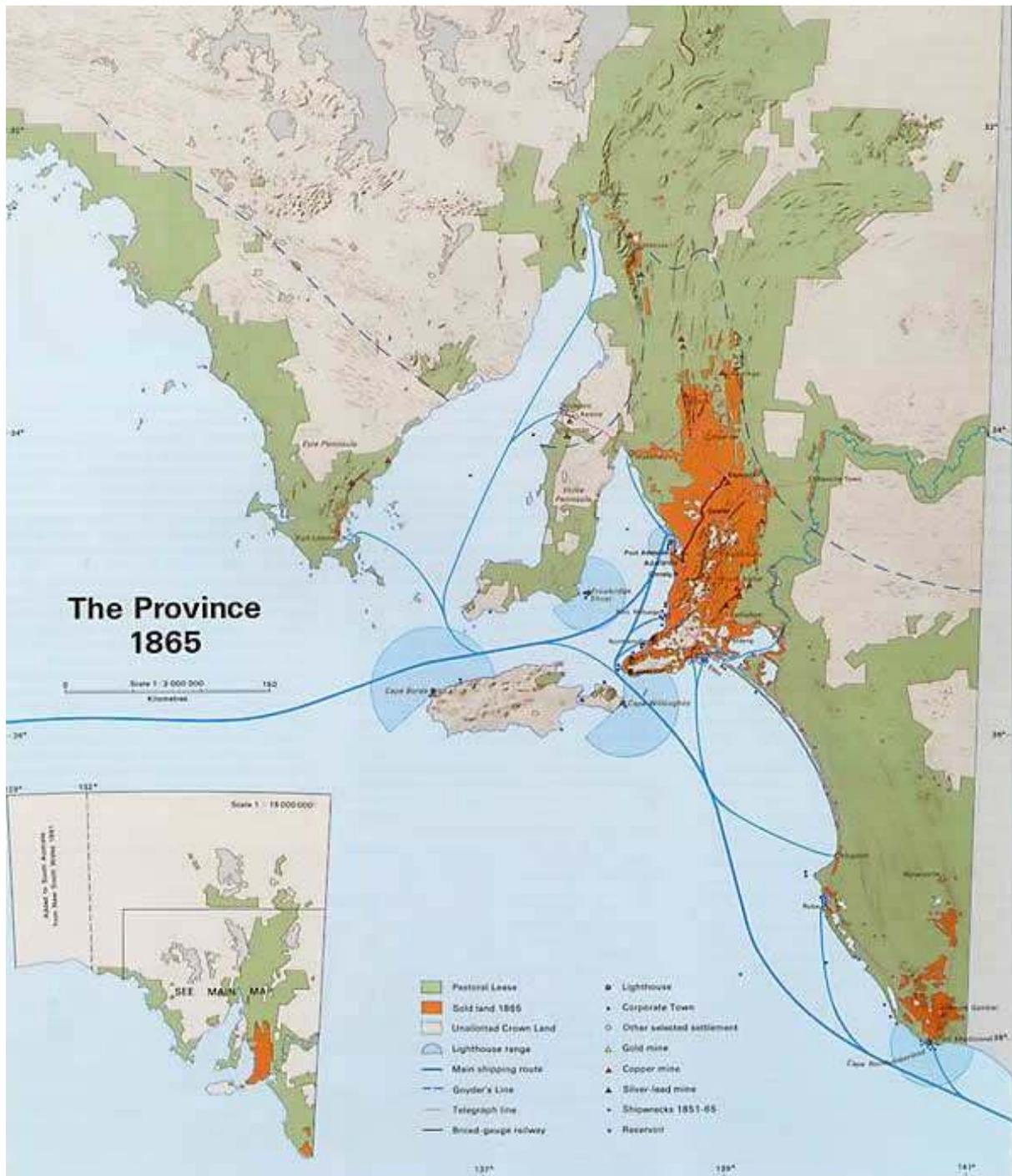


Plate 9: The spread of pastoralism in SA

After less than 30 years of settlement, the spread of sheep farming can clearly be seen. The areas marking in orange show the rate of urbanisation. Note also the international and intra-colonial shipping routes marked connecting the markets of SA to the eastern colonies and to the Cape of Good Hope, and Britain to the west. The dashed line on the landward portion of the map shows Gwyder's "Line of Rainfall".

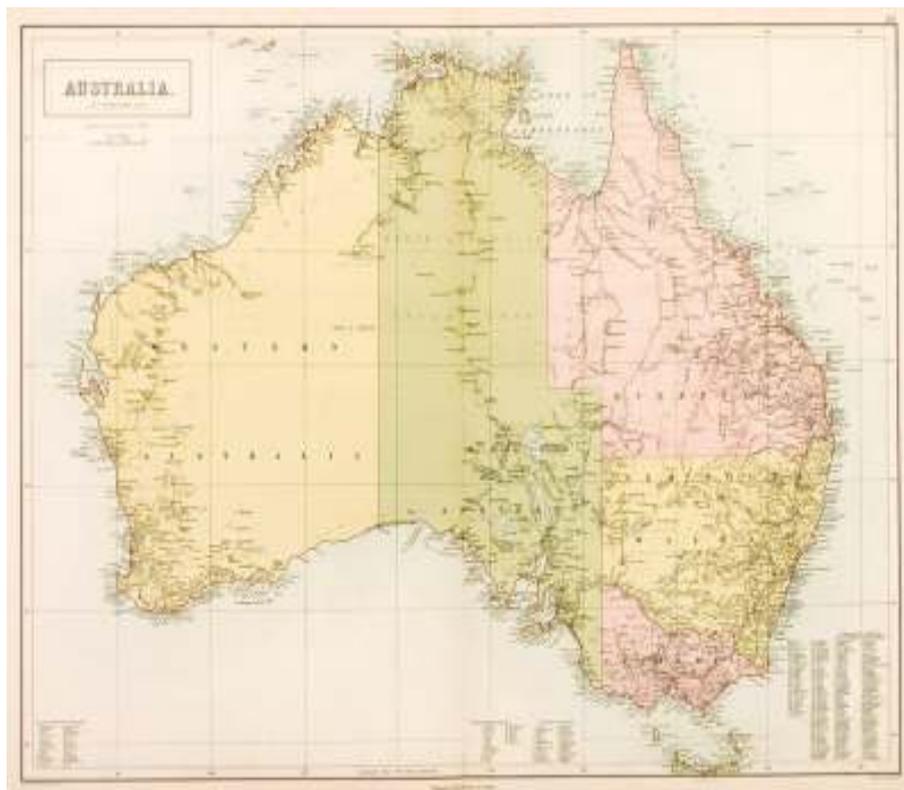
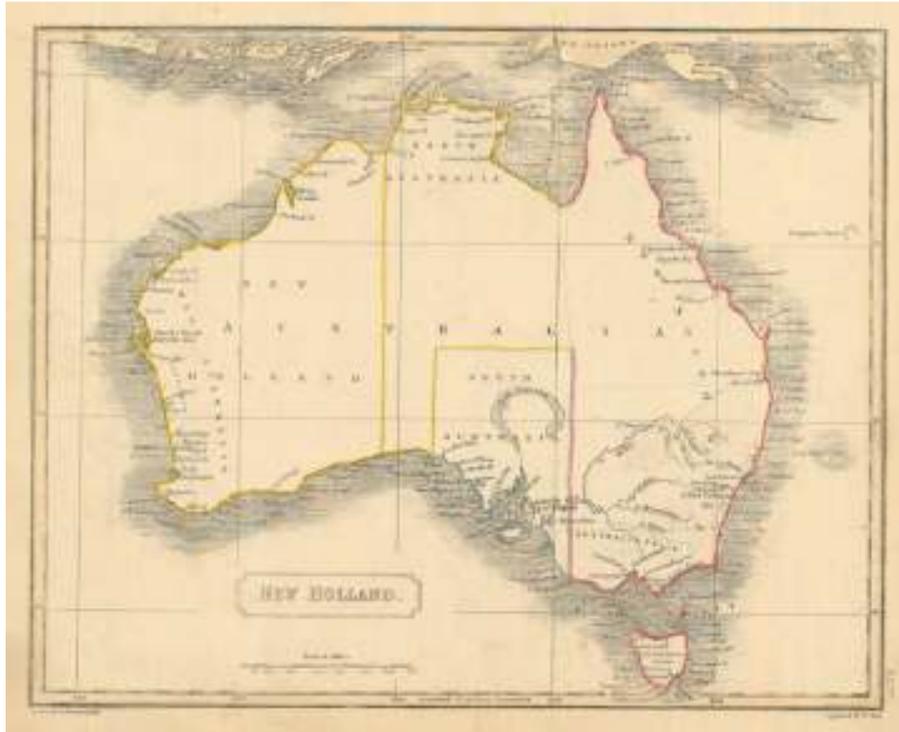


Plate 10: The Australia Colonies, 1836 and 1900

Top: Circa 1836 note the non-contiguous nature of SA's western boundary.

Source: Arrowsmith, A. 1836. *New Holland*.

Bottom: Note the expansion of SA into the Northern Territory at the end of the nineteenth century. Source: Batholemew, J. 1870. *Australia*.

Appendix A: Imperial Currency, Weights and Measures

All currency, weights and measures used in this thesis are in their original form as mentioned in [Chapter 1](#). No attempt has been made to convert imperial units into their metric equivalents (due to the sheer volume of data deployed) and nor has nineteenth century pricing been restated in its 2012 equivalent for the reasons given in this section.

Currency

In the 1830s, Britain began introducing the Pound Sterling as the common currency across the Empire (Butlin 1994, 91) with the same division of the pound into the major smaller units listed in Table 12 below.

Table 12: Currency Conversion, 2012

1830 Unit	Equal to	2012 GBP equivalent ¹⁰⁵	2012 AUD equivalent ¹⁰⁶
Penny	A 240 th part of a pound	£0.40	\$0.63
Shilling	12 pence	£4.84	\$7.61
Pound	20 shillings	£96.72	\$151.98
Guinea	Originally a gold coin worth 21 shillings	£101.64	\$159.71

Source: http://en.wikipedia.org/wiki/Decimal_Day; Bloomberg.

Attempts at converting nineteenth century prices to the equivalent value today are fraught with danger. Inflation as an economic phenomenon was not readily understood but the way Britain measured it i.e. the composition of goods and services, also changed over time. In addition, the way households spend their money has changed dramatically due to technological advances in food production and consumer goods. Furthermore currency debasement, the effects of which have never truly been understood, renders inflation estimates even more suspect (Bernstein 2004, 6).

Nevertheless, the Bank of England (2012) has published an Inflation Calculator which attempts to convert £1 from 1750 onwards into the equivalent 2012 purchasing power. By the Bank's own admission, the calculator "is designed for illustrative and general reference purposes only". Due to changes in the underlying consumption data, comparisons of prices further back in time (i.e. towards 1750) and over long periods are less accurate than comparisons over short periods in recent years. Regardless of the proximate nature of these inflation estimates, they can be used to provide some sense of how colonial price data translates in today's currency and serve as a frame of reference.

¹⁰⁵ Using the Bank of England's inflation calculator from 1830 to 2012 located [here](#).

¹⁰⁶ The exchange rate of 0.6364 was derived as the midpoint between the buy/sell rates published by Bloomberg as at 31 December 2012 to coincide with the Inflation Calculator.

Australian prices for the period studied are also quoted in Pounds Sterling, these can then be converted to British equivalent prices using Butlin’s (1953; 1986) data on exchange rates, restated in 2012 Pound Sterling prices using the Bank of England’s Inflation Calculator, and translated into AUD prices using the exchange rate between the two currencies applicable on the above date. This conversion of colonial prices in this manner is intended as a guide for those interested and is not adopted throughout this thesis.

Exchange Rates

Differential rates of inflation, interest rates and balance of payments between colony and metropolis influenced the level of exchange of colonial bank notes for Sterling currency. As the colonies usually ran a trade deficit with Britain, Australian Sterling usually reflected a discount to UK Sterling in London as shown by Butlin (1953; 1986).

Data on exchange rates for WA notes in London are fragmentary: Butlin (1953; 1986) was only able to locate 13 quotes during the period 1829-1900 and all but one of those quotes traded at an average discount of 1.1 per cent to the UK pound; the discount reached a high of 3 per cent in 1863 but traded at a premium of 0.25 per cent in 1900 at the height of the gold rush. In SA, Butlin (1953; 1986) collected 63 exchange rate quotes from 1838 to 1900 shown in Table 13, notes traded at an average discount of only 0.34 per cent to the UK pound and of the 63 quotes, 78 per cent traded at a discount which roughly correlates with SA’s terms of trade.

Table 13: Colonial Exchange Rates in London, 1829-1900

Prices on London Market	Western Australia	South Australia
Number of Quotes	13	63
Average of Period	A£101.10	A£100.34
Largest Discount to UK Pound	A£103.00	A£102.10
Largest Premium to UK Pound	A£99.75	A£98.67

Source: Butlin (1953; 1986)

Purchasing Power

Between 1700 and 1850, the earning potential of the British middle class ranged between £60 (about \$9,000 in 2012) and £600 (~\$90,000) per year while farmers and labourers made do with less (Mokyr, 2009). In Australia, the average annual wage for an agricultural worker quoted in local currency in 1840 (when both colonies were in their infancy) was around £50 (~\$6,300) whereas a domestic servant would earn £15.50 (~\$2,000), and workers in other fields could earn about 8 shillings (~\$50) per day. Detailed consumption patterns for the Australian colonies are not readily available so it is difficult to determine the effect of inflationary

pressures on net disposable income and how living standards during colonial times compare to modern lifestyles.

Imperial Weights & Measures

Britain did not formally adopt a standardised and uniform basis for weights and measures until 1835 (Butlin 1994, 116), six years after the founding of the Swan River Colony and one year prior to the establishment of the colony of South Australia. The data quoted in this thesis are stated in imperial units and the application of measurement units appears consistent across both colonies from their founding dates. Therefore the imperial measures listed in the Table 14 below represent the most common measures employed in colonial Australia.

Table 14: Common Imperial Units

1 Unit of Imperial Measure	Metric Equivalent
Acre	0.404686 Hectares
Mile	1609.344 metres
Nautical Mile / Knot	1.85200 kilometres
Pint (UK)	0.568261 Litres
Gallon (UK)	4.54609 Litres
Pound (weight)	0.453592 Kg
Ounces (ozs)	0.028350 Kg
Ton	1.016 tonne

Source: National Measurement Office <http://www.bis.gov.uk/nmo/national-measurement-system>

In addition, certain imperial measures of weight were stated in different units. For example, the amount of gold mined was stated in ounces whereas lead, say, was quoted in tons, and other minerals in centum weights (CWT). Similarly, cereals crops were measured in bushels whereas hay was quoted in tons. All imperial weights regardless of commodity type are expressed in tons using the applicable conversion rates.

Furthermore measures of alcoholic commodities such as beer, brandy, rum and wine varied depending upon the size of the barrel used and the type of liquid it held. There were up to 8 units in the English wine cask scale starting with a Tun and graduating up to Gallon, and similarly there are 5 units in the English brewery cask scale: Hogshead to Gallon. The data on alcoholic commodities were standardised in this thesis to gallons based upon these scales for easier comparative analysis.

Appendix B: Maritime Explorations of the Colonies

This appendix links up with the material discussed in [Chapter 5](#) and provides a contextual introduction to the maritime explorations of the southern and western coasts of the Australian continent as a precursor to colonisation. These voyages were important from both economic and strategic considerations, and when accounts were published in Britain they often acted as the catalyst for various colonising schemes.

Western Australia

The western third of the Australian continent had been sighted by the Dutch who made cursory examinations of the coastline during the seventeenth century. However, being a nation of traders rather than colonisers, the Dutch saw little of value to them in the land they subsequently named New Holland¹⁰⁷ (Hughes, 1986) and concentrated their trading activities in the East Indies (Aitchison 1970, 50). This view was confirmed by Englishman William Dampier, described by Coleridge as a “pirate of exquisite mind”, who made landfall near present-day Broome in 1699 (Preston and Preston, 2004). George Vancouver, on an expedition to the north-west Pacific was the first European to officially chart King George Sound on the south-western coast of the continent in 1791 and this region became a popular destination for whaling and sealing activities (Bown, 2008).

Several French expeditions also charted tracts of the western and southern coasts of WA from the late eighteenth century onward. D’Entrecasteaux searching for La Perouse in 1792 examined the coast east from Cape Leeuwin and, shortly after, Baudin in 1800 explored Australia on a scientific mission sponsored by Napoleon (Aitchison 1970, 51). This expedition explored, charted and affixed French names to many prominent landmarks on the western shores of Australia from Geographe Bay in the south to Joseph Bonaparte Gulf in the north. However, at this stage the French were beset by war and political upheavals in Europe and showed no interest in colonising any part of Australia west of New South Wales (Brown, 2001). Despite this, a record of Baudin’s discoveries on the west coast was made public and translated into English several years after his expedition’s return to France in 1804.

Following the cessation of the Napoleonic War in 1815 the next phase of exploration began when Phillip Parker King, son of the second governor of New South Wales, circumnavigated Australia three times between 1817 and 1822 and was instructed to survey parts of the Australian coast not already examined by Flinders

¹⁰⁷ The Dutch name of New Holland essentially applied to the western portion of the Australian continent not yet annexed to NSW at the 135th meridian east (later changed to 129° east in 1825 and currently WA’s eastern border). The name of New Holland gave way to Australia in 1804 following Flinders’ circumnavigation and was formally adopted, as applying to the whole continent, in 1817.

between 1801 and 1803 (Hordern, 2004). Given that Flinders did not survey the west coast in any detail, King's expeditions provided a wealth of information about the topography, fauna, timber, minerals, climate, and the natives in what was to become WA (Hordern, 2004). On board these expeditions, as a member of the survey staff, was John Septimus Roe who would later become the first Surveyor-General and later a member of the legislative and executive councils of the Swan River colony (Burton, 1982).

Further exploration was prompted by increasing French interest in the Indian, Southern and Pacific Oceans which caused some alarm in New South Wales and in Britain during the 1820s. Although several British expeditions to the southern coastline reported conflicting accounts of the potential for settlement, they were determined not to allow any French encroachments (Aitchison 1970, 52). In 1826, Governor Darling of NSW was instructed by Britain to disband the unsuccessful outposts at Melville Island and Raffles Bay in northern Australia; experiments hoping to emulate the success of Singapore as an entrepôt designed to attract at least some of the East Indies trade (Statham 1981, 182). Due to the nature of the season, the relieving party was forced to delay in more southern latitudes and the captain of the expedition, James Stirling, received permission to explore the Swan River on the west coast (Statham 1981, 182) named by Willem de Vlamingh in 1697.

In March 1827, before undertaking the relief mission in northern Australia and returning to Sydney, Stirling spent less than two weeks exploring the Swan River and its immediate environs with the Colonial Botanist of NSW. Charles Fraser's resulting description of the soil in the area states: "In giving my opinion of the Land seen on the Banks of Swan River, I hesitate not in pronouncing it superior to any I ever saw in New South Wales east of the Blue Mountains...." (Fraser, 1827) After concluding his exploration, Stirling, aware of the expedition from NSW to establish a presence at King George Sound to counter perceived French territorial ambition in 1826, felt that the Swan River held an advantageous position on the west coast of Australia from which to defend British interests in the Indian Ocean (Statham 1981, 182). Taken together, these two reports were instrumental in convincing the British government to establish the Swan River Colony.

South Australia

As with WA, the coast of what was to become SA had been inspected by the Dutch in 1627 and again they found little trading potential but they left behind their names along the coast from Cape Leeuwin (modern WA) to the islands of St. Francis and St. Peter in the far west of SA (Aitchison 1970, 50). D'Entrecasteaux's 1792 expedition, mentioned earlier, examined the cliffs of the Great Australian Bight but

headed to Van Diemen's Land after confirming the prevailing Dutch view that the land was barren and desolate (Aitchison 1970, 51). These reports convinced the British at the end of the eighteenth century that the land along the southern coastline was of little value but this impression was to change.

Notwithstanding the numerous British maritime explorations of the southern coastline west of Bass Strait, beginning with James Grant's exploration in 1801 (Aitchison 1970, 51), the British Government, using its base at Sydney, was keen to learn more about Australia. The most famous contribution to the exploration of the southern coasts came from the voyages of Matthew Flinders who, by 1803, had circumnavigated the continent¹⁰⁸ (Estensen, 2002). Sailing from Cape Town at the end of 1801, Flinders rounded Cape Leeuwin and thoroughly charted the south coast of Australia between January and April 1802 (Aitchison 1970, 51). Among other discoveries, he charted the Spencer and St. Vincent Gulfs, and the Central Highlands. In addition, Flinders made several favourable comments about the land and its potential for colonisation (Aitchison 1970, 51), and many places in SA carry names from his native Lincolnshire including Port Lincoln and Boston Bay on the south-east corner of the Eyre Peninsula. Baudin's and Flinders' expeditions met at Encounter Bay (between Kangaroo Island and the mainland) in April 1802 as the former was charting the southern coast in a westerly direction (Brown 2001, 182). Both parties exchanged scientific information about their respective expeditions including Flinders' charting of the south coast which incidentally denied the French any useful discoveries along their westerly route (Aitchison 1970, 51).

Between 1804 and 1836, the SA coastline continued to be examined by privately-ordered expeditions and led to the discovery of Lake Alexandrina by a group of sealers in 1828 (Aitchison 1970, 52). Despite Flinders' favourable comments on the areas bounded by the two gulfs, later explorers were not so sanguine and it was at this time that British explorers began to arrive into the area overland from NSW. The first inspection of SA's interior was conducted by Charles Sturt in 1830, "who explored the Murray River from New South Wales down to its mouth; traversed Lake Alexandrina and located the Goolwa channel, reaching the western shore of the Murray mouth" that fed into the Gulf of St. Vincent (Aitchison 1970, 52). The significance of this journey was that it a) solved the question of whether the continent possessed an inland sea akin to the Great Lakes of North America; b) opened up 2,000 miles of navigable inland waterway (the Murray River), the only one

¹⁰⁸ According to Miriam Estensen (2002), in her excellent biography of Flinders, some of Flinders' hydrographical surveys were so accurate that the Royal Australian Navy only found the need to update them in the late twentieth century.

of its kind in Australia; and c) ensured that the area would attract settlement whether official or not (Aitchison 1970, 53).

A year later, the NSW government sent Collet Barker to explore the area in greater detail. He landed at Noarlunga on the eastern shore of the Gulf of St. Vincent a little to the south of present day Adelaide. He ascended Mount Lofty and explored Port Adelaide before striking out south east towards the Murray River (Aitchison 1970, 53). The expedition reported favourably on the fertility of the region around the St Vincent Gulf, although this was tempered by reports, largely ignored in Britain, of an inability to navigate between the Murray and the sea. Despite the deficiencies of the exploration and the lack of detailed surveys prior to colonisation, it can be said that the promoters of settlement in southern Australia were better informed as to the potential and drawbacks of the land than were the promoters of the Swan River colony, and this was to become a telling factor during the first phase of colonial economic formation.

William Light was appointed the Surveyor-General of the resulting colony and instructed to select a site for the principal town in 1836 (Aitchison 1970, 53). After rejecting Encounter Bay (near Victor Harbor), Kangaroo Island and Port Lincoln (on the Eyre Peninsula), and in concurrence with Sturt's and Barker's earlier opinions, he settled on the plains at the foot of Mount Lofty as the site for the capital bestride the small but centrally located River Torrens as it provided flat ground, abundant fuel and building materials as well as a reliable source of water (Aitchison 1970, 54).

Appendix C: The Basket of Consumer Goods

The following list of consumer articles forms the basis of the consumer price index (Table 9, p. 221) and was collected from the primary source documents from 1837 to 1900. The list remained unchanged until 1853 when bacon¹⁰⁹ by the pound was added. Occasionally, the volumetric measures employed for alcoholic beverages from year to year (depending upon who completed the report) differed and the prices of certain components, especially prior to 1850, were missing (or were not available to consumers). The prices represent what the consumer would pay at the market or in the high street, and represents one of the only consistent views on changes in the colonial cost of living in Australia (or at least in WA and SA).

Table 15: Average Prices of Various Articles of Use or Consumption, 1837-1900

Component	Weight	Local / Import
Wheaten Flour	Per bag of 200lbs	Local
Wheat	Per Imperial bushel	Local
Wheaten Bread	Per lbs	Local
Horned Cattle	Per lbs	Local
Horses	Each	Local
Sheep	Each	Local
Goats	Each	Local
Swine	Per lbs	Local
Milk	Per gallon	Local
Butter, Fresh	Per lbs	Local
Butter, Salt	Per lbs	Import
Cheese	Per lbs	Local
Beef	Per lbs	Local
Bacon	Per lbs	Local
Mutton	Per lbs	Local
Pork	Per lbs	Local
Rice	Per lbs	Import
Coffee	Per lbs	Import
Tea	Per lbs	Import
Sugar	Per lbs	Import
Salt	Per lbs	Import
Wine, Imported	Per gallon	Import
Wine, Colonial	Per gallon	Local
Brandy	Per gallon	Import
Beer, Imported	Per gallon	Import
Beer, Colonial	Per gallon	Local
Tobacco	Per lbs	Import

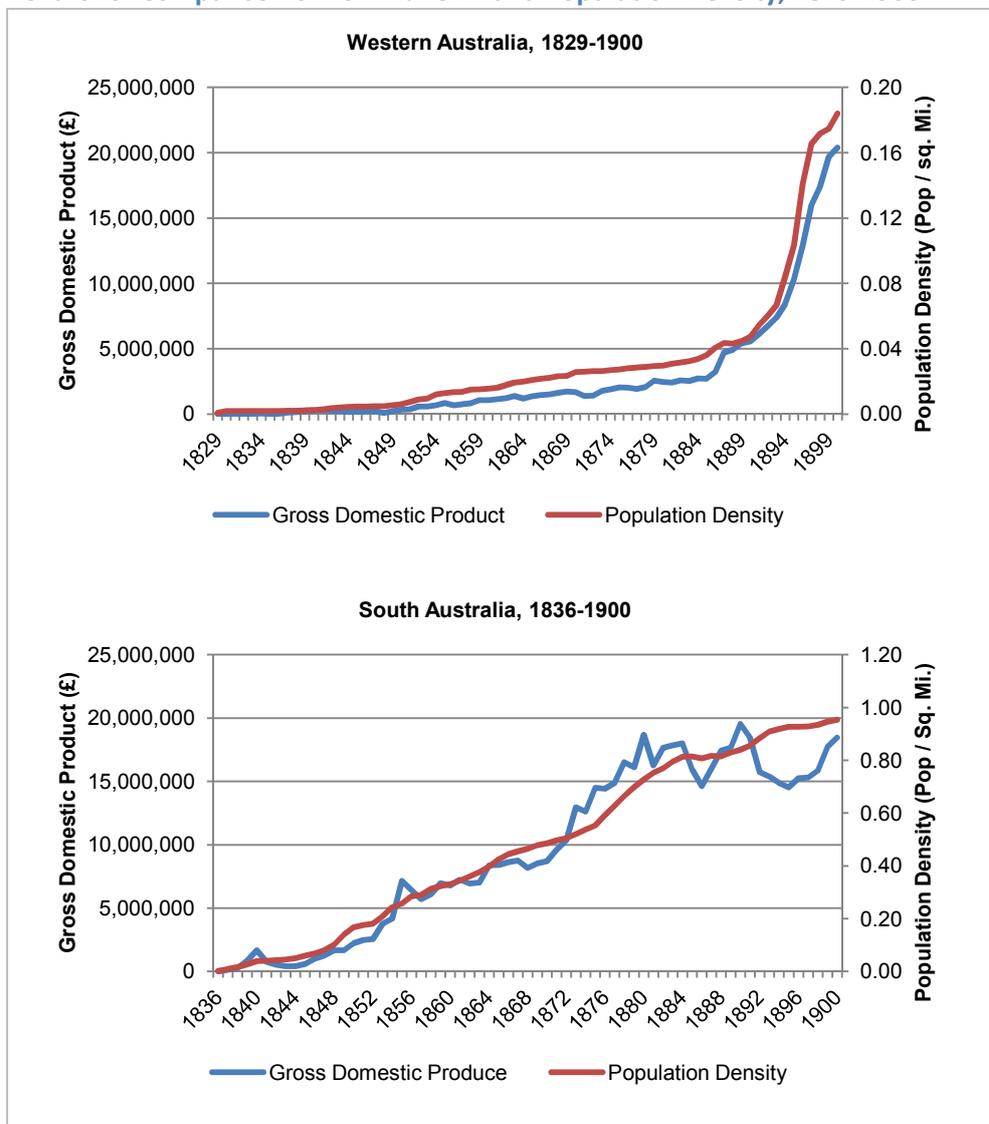
Source: The *Blue Books of Western Australia* & the *Statistical Registers of South Australia*.

¹⁰⁹ WA began recording the price of bacon only from WA 1885 despite it being part of the "basket" before this date.

Appendix D: Population Density

As mentioned [Chapter 7](#), population density is a valid measure of economic output for pre-industrialised nations and is a useful validator of the nominal GDP estimates. The chart below compares nominal GDP with population density. By creating a scatter plot of the two measures and fitting a linear trend line using OLS, the closeness of fit between the two measures can be determined. It is found for WA the nominal GDP estimate is highly correlated and a close fit to population density ($\rho=0.9925$; $R^2=.9766$). On the other hand, the estimate of nominal SA GDP also provides a close fit but with more variation compared to population density ($\rho=0.9657$; $R^2=0.9300$). As a result, a certain degree of confidence can held in the nominal GDP estimates derived from the primary source documents.

Chart 29: Comparison of nominal GDP and Population Density, 1829-1900



Source: *Blue Books of Western Australia & Statistical Registers of South Australia*

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South Australia Colonisation Act 1834

South Australian Government Act 1842

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Patent Law Amendment Act 1852

Joint Stock Act 1856

Education Act 1870

Western Australian Constitution Act 1889

Western Australian Acts

Imperial Acts Adopting Act 1844

Scab Act 1866

Education Act 1871

Goldfields Act 1886

Homesteads Act 1893

Imperial Acts Adopting Act 1844

Scab Act 1866

South Australian Acts

Scab Act 1840

Bullion Assay Act 1852

Real Property Act 1858

Waste Lands Amendment Act 1869

Education Act 1875

Crown Lands Consolidation Act 1877

The Sewer Act 1878

Real Property Act 1886

Scab Act 1840