School of Economics and Finance

# Essays on the Intra-Household Distribution of Wellbeing: Australian Mixed-Sex Couples at Key Life Course Stages

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# Declaration

To the best of my knowledge and belief this dissertation contains no material previously published by any other person except where due acknowledgment has been made. This dissertation contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature:

Date: 05/02/2021

# Abstract

Many policy makers and economists tend to regard what happens inside households as a private matter. However, the internal affairs of households cannot be ignored as intra-household inequalities are a significant aspect of overall gender inequalities, and accounting for such inequalities will allow for more effective policy design. As such, the aim of this thesis is to provide an intra-household analysis on the distribution of wellbeing in order to better understand the experiences of both men and women at key stages of the life course – ensuring that economic analysis and policy better represents their interests.

This thesis is comprised of three essays which include detailed examinations on how men's and women's subjective wellbeing is affected by changes in their work roles (Essay One), by parenthood (Essay Two), and by retirement (Essay Three). Insights are achieved by undertaking analyses using new quantitative methodologies which are informed by theoretical economic models of the household. Using data from the Household, Income and Labour Dynamics in Australia survey over the 2001–2018 period, fixed effects estimation strategies are employed. The findings within all the essays identify strong gender patterns and inequalities in wellbeing – thereby adding to the evidence base that points to the continued influence of gender norms within Australian households at key life stages, often to the detriment of women's wellbeing.

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I dedicate this thesis to all women who have been victims of domestic abuse and those who face inferior positions both within and beyond the household.

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# 1. Introduction

Investigating what happens within the household is often deemed an unnecessary intrusion into private matters that take place (literally) behind closed doors (Burgoyne et al., 2006, p. 619). However, in recent empirical research, scholars have demonstrated that intra-household investigations are essential (see for example, Sen, 1980; Thomas, 1989; Agarwal, 1997; Strauss et al., 2000; Friedberg & Webb, 2006; Vogler et al., 2008). These scholars have challenged the oversimplified dictum in most policy analysis that equates the wellbeing of individuals with the average wellbeing of the household to which they belong by identifying patterns of poverty and inequality within households. If the ultimate concern for economic policy is the wellbeing of individuals, policies which fail to account for the intra-household distribution of power and the allocation of household resources will be poorly designed and may further exuberate welfare inequalities (Haddad & Kanbur, 1990; Alderman et al., 1995).

Mainstream economics studies which have attempted to understand the underpinnings of the household have had a tendency to assume that spousal interdependencies were not problematic, since the head of the household would translate equally his employment and material benefits to all members of the family (Becker, 1981; Goldthorpe, 1983; Sorensen & McLanahan, 1987). They have also typically assumed a male breadwinner household type and neglected the importance of women's earnings and other contributions in the determination of the distribution of household resources. However, partly inspired by changes in women's education and employment over recent decades, and the associated widespread questioning of traditional gender norms, new approaches to the economic analysis of households have emerged. This thesis aims to contribute towards this effort – ensuring that economic analysis and policy better represents and reflects the experiences and interests of both women and men.

This thesis is comprised of three essays which include detailed empirical examinations of the intra-household distribution of wellbeing in Australia over the 2001–2018 period. Focusing on mixed-sex couple households, the study examines how men's and women's subjective wellbeing is affected by changes in their work roles (Essay One), by parenthood (Essay Two), and by retirement (Essay Three). This provides a unique perspective on how gender norms and other factors can influence

the allocation of resources within households, and on the impact that this allocation can have on the wellbeing of men and women at key stages over the life course.

This introductory chapter is devoted first to situating the current study in the economic literature on households, with Section 1.1 providing an overview of traditional and bargaining models. The chapter also provides an overview of the challenges associated with the measurement of key concepts such as wellbeing (in Section 1.2), before proceeding to a description of the data and approach used throughout the current study (Section 1.3). Section 1.4 concludes with details about the structure of this thesis and briefly outlines each of the main parts of the project.

## 1.1 Economic Models of the Household

Over the last few decades, economic models have been developed to better understand decision-making processes and the sharing of resources within households. Becker's (1965, 1981, 1991) work has largely influenced research in the economics of the family. In his book, *Treatise on the Family*, Becker proposes a *unitary model* of the household, relying on an assumption that household members act as a single decision-making unit with a single budget constraint. This implies that income and other resources are pooled within the household and that the household member who brings in the income (or not) has no more (and no less) influence on how this income is spent than other household members. In Becker's model, the head of the household is assumed to distribute income and other resources in a way that will maximise household utility.

Becker's analysis obscures issues of inequality and conflict within the household. In part this is because his primary concern was to lay down analytical foundations for thinking of households not only as expending resources but also producing resources such as making meals, cleaning, and childcare (Becker, 1965). Reflecting his commitment to the rational choice model, Becker interpreted the division of labour within the household as reflecting the relative productivity of different household members, the subsequent gains from specialisation, and, overall, an objective to maximise a total outcome:

> "Specialization of tasks, such as the division of labor between men and women, implies a dependence on others for certain tasks. Women have traditionally relied on men for provision of food, shelter, and protection,

> and men have traditionally relied on women for the bearing and rearing of children and the maintenance of the home. Consequently, both men and women have been made better off by a "marriage," the term for a written, oral, or customary long-term contract between a man and a woman to produce children, food, and other commodities in a common household." (Becker, 1991, p. 43)

In Becker's model the gains from specialisation and exchange within the household are assumed to be "priced into" the terms of the voluntary marital contract and, thus, issues of conflict within the household are assumed away. An alternative version of this logic is apparent in Becker's (1974) "rotten kid theorem," which proposed that members of the household would work towards maximising a single utility function because to do otherwise would compromise both total household income as well as their own outcomes (Becker, 1991, p. 26).

The unitary model that Becker developed suffers from a number of important limitations. First, the idea of a single household utility function is inconsistent with the methodological individualism of economics. Second, the assumption that all household members will be motivated to be cooperative rather than interested in "happiness destructive" behaviour can be questioned for its realism (Bergmann, 1995; Pollak, 2003). Third, the income-pooling assumption has been shown not to hold in a range of empirical studies that examine whether the pattern of household spending is affected by the distribution of income within the household (Schultz, 1990; Ward-Batts, 2008; Browning et al., 2014). Income pooling implies that the source of contributions of resources to the household (for example, his verses her earnings) does not affect the allocation of household resources. Contrary to this assumption, however, evidence shows that often whoever brings in the income has more influence over how the income is spent. An emblematic example of this was drawn by Lundberg et al.'s (1997) study which examined the impact of child welfare payments in the United Kingdom. A 1970s reform changed the payment of the benefits from fathers to mothers, and although the amount of the benefits remained the same, household expenditure reflected increased spending on children's clothing. Another example is a South African study by Duflo (2003), which demonstrated that the gender of the recipient of the social pension is of considerable importance in determining the distribution of resources within households. In particular, pension payments directed to grandfathers had no significant effects on the health of children within the

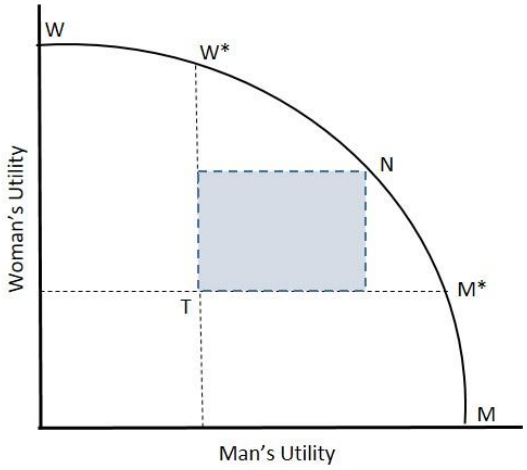
household. However, when the same amount of pension was paid instead to grandmothers, there was a significant improvement in the health status of granddaughters.

In an attempt to deal with some of the limitations of the unitary model, scholars have used ideas from game theory to propose household *bargaining models* (Manser & Brown, 1980; McElroy & Horney, 1981; Lundberg & Pollak, 1993; Nyman & Dema, 2007). These models recognise that individuals within the household may have different preferences over the allocation of household resources, and that household members have an incentive to attempt to influence the allocation of resources in their favour. In cooperative bargaining models, marital partners have separate utility functions and bargain with each other in such a way that all possible gains from trade between them are exploited. In other words, they achieve a Pareto efficient outcome, where neither partner can secure a higher level of utility without imposing a reduction on the other.

Figure 1.1 illustrates key concepts in the bargaining model. A household utility possibility frontier is defined to show the possible combinations of utility in a two-person household with a given level of resources. Points closer to W on the frontier favour the woman and points closer to M favour the man. As explained by Himmelweit et al. (2013), the outcomes from intra-household bargaining are determined by the woman's and the man's "threat position" – this is the utility each would receive should cooperation breakdown. Neither will agree to an outcome below the utility they receive at the threat point T. The area between T and the frontier represents the possible gains from cooperation; within this region both the woman and the man can improve on their outcome compared to T. In cooperative bargaining models interest thus focuses on the factors that influence whether the Pareto efficient outcome is closer to M* (where most of the gains from household bargaining are captured by the man) or W* (where most of the gains are captured by the woman). At the Nash bargaining solution (denoted by N in Figure 1.1), gains from trade are maximised and the distribution of these gains is proportional to the partners' respective threat position.

**Figure 1.1**

*Household Utility Possibility Frontier: Bargaining Model Outcomes*




*Note*. Adapted from Himmelweit et al. (2013, p. 629).

The central role of threat points in bargaining models has prompted a large theoretical (and associated empirical) discussion of their meaning and significance. Early work by Manser and Brown (1980), and McElroy and Horney (1981) defined the threat point as being the utility each partner would achieve if the relationship were to break down and the couple divorced. More recently, researchers found this definition of threat points to be quite radical, as it is unlikely that couples threaten each other with divorce during household decision-making processes (Phipps & Burton, 1995). As an alternative, Lundberg and Pollak (1993) proposed the "separate spheres" bargaining model where the threat point is not divorce but instead a non-cooperative internal threat point in which the outcome between partners reflects traditional gender roles. That is, in a non-cooperative arrangement where each partner restricts their engagement in bargaining, though they continue to fulfil their roles in producing particular household public goods as defined by gender ideologies as it is more beneficial than divorce, which may be associated with anticipated costs and low gains. Accordingly, partners remain together so they can allocate some of their resources to some public goods of the household and/or enjoy the benefits of mutual consumption economics (Lundberg & Pollak, 1993; Mattila-Wiro, 1999). Bergstrom (1996, p. 29) also agreed that divorce threats seemed quite extreme with regard to ordinary household matters and that "….a more likely outcome is harsh words and burnt toast". However, Pollak (2003) argued that threats could also be in form of domestic violence – an outcome that can be worse than divorce for one or both of the partners. It is clear

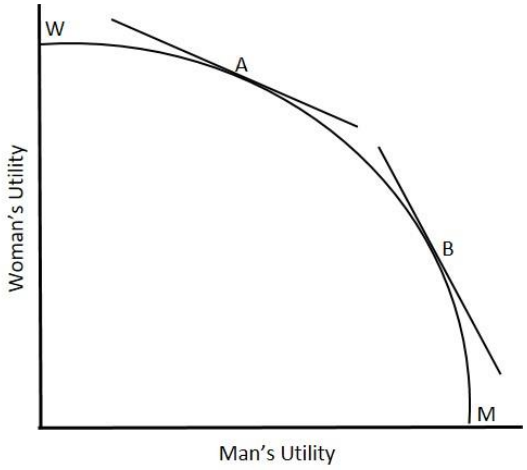
that while bargaining models address some of the issues associated with unitary models, there are still challenges in how to identify threat points.

Taking an alternative approach, Chiappori (1988), and Apps and Rees (1988) pioneered the *collective model* of the household. Collective models do not specify a particular bargaining structure, the only assumption is Pareto efficient outcomes on intra-household decisions. Household decision-making is described as being focused on the maximisation of household utility, with this comprised of the weighted sum of each partner's utility function, subject to the household's budget constraint. The weights attached to each partner's utility, referred to as Pareto weights, are used to represent the power each partner has in household decision-making processes.

Figure 1.2 illustrates key concepts of the collective model. It includes a household utility possibility frontier with outcomes determined by the slope of the household utility function and thus the Pareto weights attached to each partner's utility. Point A represents outcomes where the woman has higher Pareto weights than the man while point B represents outcomes where the man has higher Pareto weights than the woman.

**Figure 1.2**

*Household Utility Possibility Frontier: Collective Model Outcomes*




*Note*. Adapted from Himmelweit et al. (2013, p. 631).

Pareto weights are likely to depend on factors that enter the family budget constraint and shift the range of possible outcomes, such as prices, wages, and non-labour incomes (Chiappori et al., 2002, p. 43). Extra-household environmental parameters such as child benefits, the state of the remarriage market, and divorce laws are also important determinates of power within the household – these factors, which

do not affect individual preferences nor the household's budget constraint, are referred to as "distribution factors" by Bourguignon and Chiappori (1994). Changes in distribution factors will have no impact on the set of available Pareto efficient outcomes – the frontier in Figure 1.2 would not shift. However, the ratio of the Pareto weights of the man and the woman may be altered by changes in distributional factors, and this will impact on the gradient of the tangents in Figure 1.2. Therefore, the Pareto efficient outcome for the household may change as the distribution factors change (Himmelweit et al., 2013).

The application of the collective model to issues of resource allocation within households becomes clearer in the related literature on "sharing rules": rules that distribute household income within the household. Individuals within the household may then use their share of household income in a way that maximises their own utility (Chiappori, 1992). The expenditure pattern of the household will thus be linked to the preferences of the person within the household with the largest share of income. Initial versions of the sharing rule model assumed that each individual maximised their own utility function based on their private consumption of market goods and leisure. Later models acknowledged household production and allowed for the possibility that the partners might exploit possible specialisation and exchange opportunities to gain maximum "profits" from the goods produced at home. The profits were then assumed to be added to the household's non-labour income to be shared (Apps & Rees, 1997; Chiappori, 1997; Rapoport et al., 2011). More complex versions of these models take account of household public goods and, accordingly, couples first allocate resources towards public goods, after which the sharing rule assigns the remaining income to each partner (Browning et al., 1994; Alderman et al., 1995).

More recent developments in the literature on household bargaining have examined the influence of altruistic preferences. Given that households – and marital relationships – are commonly thought of as "sites" of emotional connection, this is an important change. In one study, Vermuelen (2002) showed how *caring preferences* may affect the sharing rule in ways that would lead to Pareto inefficient outcomes. For instance, Pareto efficient outcomes can only occur if both partners have no concern as to what the other spends his or her share of income on, as long as his or her partner's utility is maximised. However, there is lack of realism in this as most often, partners care about one another and with what the other actually spends his or her income share on (for example, that they spend their share to make healthy lifestyle choices rather

than spend excessively on alcohol). Therefore, such externalities in preferences effectively convert private goods into household public goods which could further complicate things (Fong & Zhang, 2001; Blundell et al., 2005).

Despite the significant advances in the analysis of intra-household issues that have been associated with bargaining and sharing rule literatures, key gaps still remain. Most notable is the limited capacity of these models to reflect the influence of gender norms. As Agarwal (1997) explained, gender norms may not be accurately reflected in threat points, Pareto weights, or a sharing rule. For example, if a woman takes up paid employment and consequently has greater power over the use of financial resources within the household, her relative share of unpaid work might remain the same if the division of labour within the household is governed by strict gender norms. In other words, gender norms can influence what can and cannot be bargained over within the household, with implications for the distribution of wellbeing, and in ways that bargaining/sharing rule models cannot reflect.

Sen (1990) addressed some of these discrepancies with his framework on *cooperative conflict*. He explained that household resource allocations can be an outcome of both cooperation and conflict – "….the nature of the family organization requires that these conflicts be moulded in a general format of cooperation, with conflicts treated as aberrations or deviant behaviour" (Sen, 1990, p. 481). Therefore, unlike bargaining models or collective models, which only consider that interests of household members may differ, Sen incorporates endogenous preferences and introduces a key role for perceptions.

In particular, Sen (1990) elaborated on three important elements. First, he argued that a weak sense of *perceived self-interest* can deter individuals from bargaining for their preferred outcomes from the allocation of household resources. For example, traditional gender norms can encourage women to align their own interests with their family's welfare and delegitimise their pursuit of their own wellbeing. Second, he explained that the prosperity of the household depends on various activities each partner performs both inside and outside the household which makes up a "production process". Accordingly, one partner's unpaid activities, such as cooking meals and looking after children, are a type of "social technology" which enables the other partner to go out and earn an income (Sen, 1990, p. 463). However despite these interdependencies, one or both partners might disregard non-market activities which indirectly support earnings as "unproductive labour" and therefore

these activities may not translate into bargaining power. Hence, instead of actual contributions, *perceptions of the value of paid and unpaid contributions* influence the social context of households and, in this way, identify a further link between gender norms and the allocation of household resources. Third, Sen explains that it is *perceived breakdown positions* and not actual breakdown positions that influence each partner's bargaining power. However, he does not elaborate further on this because breakdown positions described by the Nash bargaining solution follow the same qualitative property. Overall, the three elements within the cooperative conflict framework predict that the partner with the stronger perceived self-interest, greater perceived contributions to household resources, and more favourable perceived breakdown position will achieve a higher bargaining position, such that the allocation of household resources will better reflect his or her preferences. In this way, the cooperative conflict framework is more nuanced, by incorporating elements which are consistent with feminist arguments for the differential social valuation of women's work and wellbeing.

Upon reviewing models of the household, it is obvious that there have been many advances in the theoretical framework. The development of the unitary model sparked the agenda of analysing resource allocations of individuals within a household; although the model did not account for issues such as preference differentials between men and women within the household. This often led to a rejection of the unitary model. Scholars have dealt with some of the restrictions imposed by the unitary framework by developing bargaining and collective models to better understand the "black-box" of intra-household behaviour. However, capturing the overall complexities of intra-household behaviour and the influence of gender norms and perceptions is still a challenge within economic models. To this end, there is still much scope for the further development of economic models of the household (Chiappori, 1992; Donni & Ponthieux, 2011; Himmelweit et al., 2013).

## 1.2 The Empirical Analysis of Intra-Household Processes and Their Outcomes

The large advances in the theoretical analysis of intra-household issues over recent decades has been matched by a growing body of empirical research. Scholars have deployed a range of innovative approaches to measure bargaining power, sharing rules,

and intra-household inequalities in income and/or consumption through data on household demand for goods and services (Browning et al., 1994), usage and access to shared bank accounts (Woolley, 2000), variances in money spent between spouses (Ludwig-Mayerhofer et al., 2006), and more recently, differences in the subjective wellbeing (SWB) between marital partners (Alessie et al., 2006; Bonke & Browning, 2008).

A key challenge involved in empirically evaluating the predictions of economic models of the household is the absence of direct measures of the partners' utility. Studies which have focused on the intra-household distribution of income or consumption implicitly assume that these are direct proxies for wellbeing. However, a range of scholars have identified problems with equating higher resources to increased wellbeing. Sen (1990, p. 462) observed that what matters for wellbeing is not simply resources, but also one's ability to transform resources into "functionings" (or "doings and beings"), and also one's ability to choose between alternative sets of functionings. Adding an empirical perspective, pioneering works by Easterlin (1974), Diener (1984), and Veenhoven (1984) identified a rather weak relationship between increases in resources (income) and the level of SWB that people report.

Measures of SWB are now more commonly used by economists as an alternate proxy of utility, given that they arguably provide a more direct way of assessing whether intra-household processes favour one partner over another. The measures are also commonly available in large data sets and have been used widely by economists to study a diverse range of topics, including the effects of domestic violence (Anand & Santos, 2009), self-employment (Blanchflower & Oswald, 1998), the valuation of public goods (Luechinger, 2009), income differentials among countries (Deaton, 2008), the experience of marriage (Stutzer & Frey, 2006), unemployment and inflation trade-offs (Clark & Oswald, 1994), the effects of racial discrimination (Deaton & Stone, 2016), social comparisons (Clark et al., 2008b), and labour market outcomes (Booth & Van Ours, 2008).

However, SWB measures are not without their limitations. Most importantly, the interpretation of SWB can be questioned if individuals assess their own situation using endogenously determined standards of social comparisons. This goes to Sen's (1980, p. 218) point that people can become habituated to their existing set of circumstances. For example, women who face systematically inferior positions both inside and outside the household, may adapt to their poor conditions and inequality as

a coping strategy, and take pleasure in small mercies. They may report relatively high levels of SWB despite living in objectively inferior conditions. Accordingly, SWB may provide a slack indication of true levels of wellbeing, of what they "are able to be and do," or their capabilities (Robeyns, 2003, p. 62).

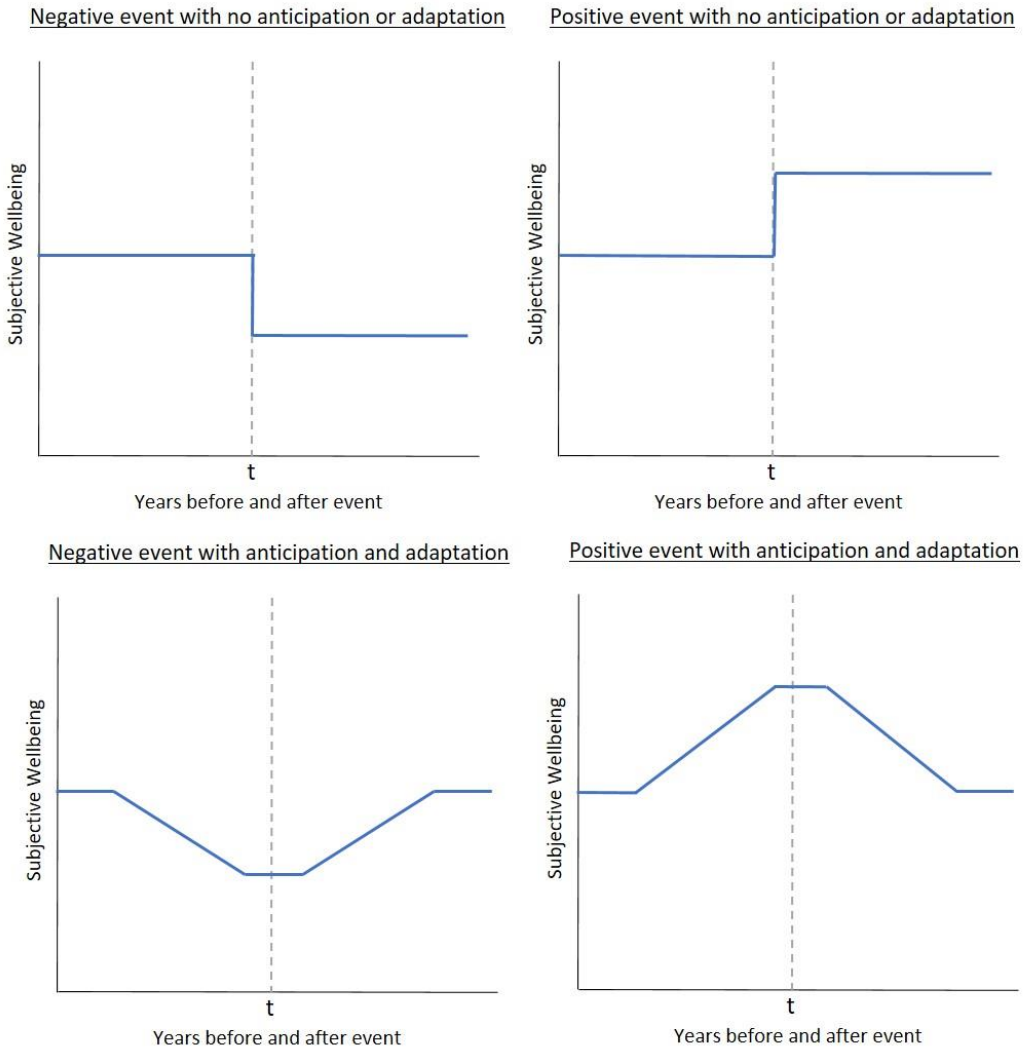
This leaves us with the dilemma of how to best measure wellbeing and study intra-household issues with quantitative methods. Notwithstanding their limitations, measures of SWB are likely to still provide partial insights into the outcomes from intra-household allocations and the factors that affect these outcomes. Indeed, Sen (2009, p. 26) clarified that happiness (a form of SWB) is extremely important and that "…the capability to be happy is a major aspect of the freedom that we have good reason to treasure. The perspective of happiness illuminates one critically important element of human living". He also emphasised that negative emotions such as frustration would relate to failure to achieve one's objectives. As such, this felt wellbeing can be thought of as evidential in checking whether people are succeeding or not in getting what they value and have reason to value (Sen, 2009, p. 27). Thus, although the process of habituation makes it important to be cautious when using SWB measures (for example, it would be wrong to assert that a rich man and a poor woman have the same wellbeing if their SWB are identical), measures of SWB still contain some useful information on individuals' lives. The value of this information can be maximised (and the risk of misinterpretation can be minimised) when the researcher is able to focus on *changes* in an individual's SWB over time and how, for example, this is correlated with change in their relative contribution to household resources. This longitudinal approach also has the advantage of keeping the social comparators, which might be having an impact of SWB, relatively constant.

Despite some of the advantages of using a longitudinal dataset, it is still possible that measuring changes in SWB may lead to distorted results if the anticipation and adaptation effects of the particular life event are not accounted for. As illustrated in Figure 1.3, according to the "hedonic treadmill model", both positive and negative life events are accompanied by anticipation effects which temporarily increase or decrease SWB levels prior to an important life event, however, after the event has taken place, over time, adaptation takes place whereby individuals tend to revert back to their baseline level of SWB (Brickman & Campbell, 1971). Addressing these issues, researchers have employed empirical methodologies to longitudinal data as proposed by Clark et al. (2008a) which allow us to analyse the patterns of change

in SWB in the years prior to, and following specific life events. In this way, a more accurate assessment can be made on whether if at key stages of the life course there are changes in SWB, and whether these changes are short lived or if they continue to be experienced in the long term.

**Figure 1.3**

*Models With and Without Anticipation and Adaptation Effects*




*Note*. Adapted from Clark (2018, p. 257).

## 1.3 The Empirical Approach of This Thesis

This study is situated in the empirical literature on intra-household issues that use SWB as the key measure of outcomes. The analysis is performed at key life stages, addressing important research questions on the changes in the distribution of intra-

household wellbeing when the household is engaged in paid work, when children are born, and when either or both partners retire. By studying these changes, insights can be provided on how certain life events might favour one partner's bargaining position over the other with implications on the distribution of resources and consequentially wellbeing. Measuring such changes in wellbeing is not as straightforward for couples as it is for single people. Fortunately, the emergence of "big data" and increasingly sophisticated econometric techniques has opened up new ways which allow us to draw inferences on the wellbeing of couples (Angrist & Pische, 2009).

The Household, Income, and Labour Dynamics in Australia (HILDA) survey is well-suited to the aims of this study. Funded by the Australian Government Department of Social Services and managed by the Melbourne Institute of Applied Economic and Social Research at the University of Melbourne, the HILDA survey collects extensive data each year on topics such as household and family relationships, employment, childcare, income, expenditure, health, and wellbeing. The survey also provides insight into individual values and attitudes as well as experiences relating to various life events. Data are collected at the household level and contain information on all adult family members within the household (Wilkins et al., 2020).

The survey commenced in 2001 and (at the time of writing) consists of 18 waves (years) of data. The first wave consisted of a sample including 19,914 individuals from 7,682 households. Since 2001, the Australian population has evolved in several ways; for example, more immigrants have permanently settled in Australia, the number of long-term visitors has increased, and Australians who were not in Australia have returned from overseas. The latter groups were estimated to represent 6.6% of the Australian population in 2011 (Watson, 2011). Therefore, to maintain national representativeness and also to account for attrition, a top-up sample of 5,562 individuals from 2,153 households was added in wave 11. As of wave 18, a total of 23,259 individuals in 7,615 households were followed in the HILDA panel (Summerfield et al., 2019).

HILDA offers some important advantages over other Australian datasets. Its large sample of households at national, urban, rural, and regional levels helps to ensure its representativeness. It also contains a rich set of variables which enables us to examine a variety dimensions of SWB (such as, overall life satisfaction, financial satisfaction, partner satisfaction, and free time satisfaction) and the influence of a wide variety of social and economic characteristics of Australian households and the men

and women residing in them. Additionally, HILDA's panel design means that the same individuals are interviewed every year; having multiple observations per individual allows us to focus on how the SWB of men and women in couple households change as household characteristics at key life course stages change. The panel design also allows for the empirical analysis to be extended to explore the transient changes in SWB leading up to and following major life events like the birth of a child (Essay Two) and retirement (Essay Three).[1]

The empirical analysis within this thesis uses fixed effects regression techniques, applied to the HILDA data. Employing such techniques has the significant advantage of controlling for time invariant unobservable factors (such as cultural background, individual innate abilities, and social comparators) that may play a role in determining the distribution of wellbeing within households. In other words, fixed effects estimations help to reduce omitted variable bias. However, issues of endogeneity may still be present. For example, when measuring changes in SWB within a household when one or both partners move into retirement, there is a possibility that other factors which are relevant to both the retirement decision and SWB (such as a negative economic shock) might also be in play. A standard approach to endogeneity is to incorporate an instrumental variable, and this is pursued where possible in this thesis.[2] However, strong instruments are not available to measure the casual effects of certain phenomena. For example, within the literature on parental SWB no reliable instruments have been found for number of children (relevant to Essay Two). In such cases, fixed effects estimations provide more robust estimates than fixed effects instrumental variable estimations in the presence of weak instruments (see for example, Deaton & Cartwright, 2018; Gibson, 2019). Therefore, the instrumental variable approach is not used in all essays. The issue of endogeneity is still acknowledged, however, and thus the estimates from the fixed effects regressions in this thesis are interpreted within a descriptive paradigm and still provide

[1] Empirical estimations with anticipation and adaptation effects are not included in Essay One since the study largely follows the methodology proposed by De Henau and Himmelweit (2013). Nonetheless, the main focus in Essay One is to identify the *immediate* effects of how paid and unpaid contributions impact each partner's perceived opportunities to benefit from household resources.

[2] There are still some limitations in using a fixed effects instrumental variable approach, given that the results represent a local average treatment effect. For brevity and to avoid duplication, these issues are elaborated upon in Essay Three.

important evidence in mapping out how couples' intra-household SWB evolves around key stages over the life course.

## 1.4 Structure of This Thesis and Essay Overviews

To accomplish an analysis on the intra-household distribution of wellbeing, using empirical methods which are guided by theoretical models, this thesis consists of three main essays. They are all written with publication in academic journals in mind.[3] Each essay contains subsections with the relevant background literature, a description of the specific data sample and measures used, the empirical methodology employed, the presentation of results, a discussion on the implication of the results, and a conclusion.

The first essay, presented in Chapter 2, "Employment and the Distribution of Intra-Household Wellbeing", applies a methodology used by De Henau and Himmelweit (2013) to study resource allocation in Australian mixed-sex couple households. The study identifies how men's and women's contributions via paid and unpaid work affects the intra-household distribution of subjective financial wellbeing. Employment status is used to proxy each partner's contribution to household resources. The results reveal that paid contributions through full-time employment have a strong role in determining subjective financial wellbeing. This is a source of gender difference because Australian men are much more likely to be engaged in full-time employment than women. Most often, for both men and women, unpaid contributions to household resources (proxied by less than full-time employment) has a detrimental effect on their own financial wellbeing, but smaller effects on their partner's financial wellbeing. These results imply that gender asymmetry in paid and unpaid contributions to household resources contribute to the reproduction of gender inequalities within Australian households. The results add external validity to the relevance of De Henau and Himmelweit's (2013) analysis of these issues.

The second essay, presented in Chapter 3, "Parenthood and the Distribution of Intra-Household Wellbeing", generates insights into the complex puzzle of the impacts of parenthood on wellbeing. With a focus on Australian mixed-sex couple households, this part of the study uses data on life satisfaction, financial satisfaction, and partner satisfaction. It examines how these elements of SWB alter with the number of children a couple has and the presence of a newborn child. It also examines the pattern of these

[3] Due to this format, there is some reiteration of the theoretical background across essays.

changes, accounting for anticipation effects (where, for example, the prospect of a child might influence SWB), and adaptation effects (where, for example, the effects of a child changes as he or she grows older). While there is a large body of literature on the effects of parenthood on wellbeing, an intra-household perspective has, thus far, been largely absent. This is a surprising research gap given that the experience of raising children is typically associated with interdependencies between mothers and fathers, and one partner's characteristics and experiences are likely to have impacts on the other's wellbeing. The results from the current study reveal mostly negative associations between parenthood and wellbeing, but they also point to some important gender differences. For example, the negative effects of having more than one child appear to be more pronounced for women (compared to men) in mixed-sex couple relationships. Accounting for couple interdependencies, there are some positive "honeymoon effects" brought about by a newborn child, though having children generally has negative associations with wellbeing and these effects increase in magnitude with the number of children within the household.

The third essay, presented in Chapter 4, "Retirement and the Distribution of Intra-Household Wellbeing", analyses the links between retirement and the distribution of intra-household wellbeing among Australian mixed-sex couples. The key outcome measures are of life satisfaction, financial satisfaction, and free time satisfaction. Building on the work in Essay Two, the study examines the anticipation and adaptation effects of retirement on SWB. A key contribution of the study is the analysis of intra-household effects. Most previous studies have tended to assume independence of retirement experiences between men and women in couple relationships. By failing to consider the spillover effects of individuals' retirement on their partners' wellbeing, these studies may have understated the overall effects of retirement and neglected some potential gendered effects. The results of the current study reveals that for men, there are on average positive associations between their overall life satisfaction and their own and their partner's retirement. In contrast, for women, their partner's retirement has insignificant effects on overall life satisfaction. The study finds that for both men and women, their own retirement does not lead to significant changes in financial satisfaction. Overall, the study produces evidence of gendered outcomes where in the long run, retirement has negative associations with women's (but not men's) financial satisfaction. However, as in accordance with the

hedonic treadmill model, both men and women adapt to changes in overall life satisfaction associated with their own or their partner's retirement.

Finally, Chapter 5 contains an overall conclusion of this thesis. It presents a summary of the main findings within the three essays, then initiates a brief discussion on policy implications. It also includes a discussion on possible avenues for future research.

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# 2. Employment and the Distribution of Intra-Household Wellbeing

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## 2.1 Introduction

Many policy makers and economists tend to regard what happens inside households as a private matter. However, the internal affairs of households cannot be ignored as intra-household inequalities are a significant aspect of overall gender inequalities, and accounting for such inequalities will allow for more effective policy design. In a paper published in the *Journal of Marriage and Family*, De Henau and Himmelweit (2013) analysed intra-household inequalities by proposing a new approach for investigating how gender influences the distribution of resources and wellbeing within households. Using data from the British Household Panel Survey (BHPS), they identified how men's and women's contributions to the provision of household resources influences each partner's satisfaction with household income. Employment status was used to proxy each person's contribution to household income, and as a corollary, less than full-time employment was used as an indicator of unpaid domestic contributions. Taking this approach, De Henau and Himmelweit (2013, p. 611) propose that changes in satisfaction with household income, which can differ between the man and the woman, indicate changes in how the benefits from household income are perceived. Their findings suggest that in Britain, gender asymmetry in contributions made to household resources are a source of gender inequalities within the household. These findings, however, might be limited to the single country context which the study is focused on, therefore prompting the question whether similar patterns might be present in other countries.

With the aim of identifying gender patterns in the intra-household distribution of wellbeing and how this is affected by paid and unpaid contributions in a new country

context and a more recent time-period, this study applies the methodology proposed by De Henau and Himmelweit (2013) to Australian data. The analysis enables a broad comparison of Australian and British patterns in the distribution of wellbeing and the effects of work roles. There are some good reasons to expect similar patterns across the two countries. For one, both have liberal welfare regimes and similar gendered labour force patterns. For example, in recent decades both countries have been characterised as having a high incidence of part-time employment compared to other advanced economies, with 25.5% of Australians and 23.1% of British working part-time. Furthermore, 68.3% of Australian and 74.4% of British part-timers were women (OECD, 2020). Both countries also have minimal provisions for child support compared to other advanced economies (such as Denmark and Norway), and this has hindered women's access to the labour market. Such state policies foster the male breadwinner model, with many mothers switching to part-time work or leaving the labour force altogether (Craig et al., 2010; Kalb, 2018). There are strong cultural ties between the two countries but also historical and geographic differences, and these might be consequential for the intra-household distribution of wellbeing. The British study by De Henau and Himmelweit is now also quite dated (having used data from 1996 to 2007). Thus, the question of whether the relationship between the pattern of paid and unpaid work within couple households and the intra-household distribution of wellbeing is similar across the countries and study periods is still open. Strong similarity would point to the continued influence of similar gender norms; whilst variances would point to different/changing norms – with implications for the relevance of De Henau and Himmelweit's findings, and the underpinning theoretical model, for Australian policy.

This study uses data from 18 waves of the Household, Income and Labour Dynamics in Australia (HILDA) survey and first considers the question, *"For mixed-sex couples, how does each partner's contribution towards household resources affect their own and their partner's level of subjective financial wellbeing?"* (RQ2.1). Following De Henau and Himmelweit (2013), contributions to household resources are assessed with reference to the partners' paid employment and unpaid roles. If paid work has a relatively large effect on perceived contribution to household resources, it may have a greater impact on financial wellbeing compared to domestic activities which indirectly support earnings. This will result in gendered differences in financial wellbeing if, as is often the case, the intra-household division of labour is unequal,

with men devoting more of their time to paid work and women devoting more time to unpaid work. The study also asks: "*For mixed-sex couples, does the influence of a type of contribution on financial wellbeing, in either or both partner's assessment, depend on the gender of the contributor?*" (RQ2.2). Here, gendered outcomes can be expected if men's employment is considered more important to household financial security than women's, perhaps as a result of social expectations and the influence of a male breadwinner ideology.

To address these important questions, this study is arranged as follows: Section 2.2 briefly outlines the relevant theory on household resource allocation and empirical studies, followed by a summary of the results in De Henau and Himmelweit's (2013) study. Section 2.3 elaborates on the data and measures used within this study. The empirical strategy is explained in Section 2.4. The results are presented in Section 2.5. For further specificity, Section 2.5 also includes an extension of results for an alternate specification, which analyses a breadwinner typology of households followed by some robustness checks. Section 2.6 includes a summary and discussion of the findings in relation to the proposed research questions. Section 2.7 concludes.

## 2.2 Background

### *2.2.1 Theoretical Perspectives on the Allocation of Resources Within Households*

Early economic models of household resource allocation followed the notion of a household with a single decision-maker. That is, traditionally household behaviour was analysed in the same way as the behaviour of an individual with a unique utility function and subject to a single budget constraint (Becker, 1981). This approach implied that household resources are "pooled" such that they would be allocated in a way that was proportional to the needs of different household members, regardless of who contributed towards their provision.

More sophisticated and realistic models have emerged in recent decades to account for differences in the preferences of individuals within the household. Bargaining models, and their later generalisation to collective models, describe households as being comprised of individuals with their own separate utility functions, and most often income pooling is not assumed (see for example, Apps & Rees, 1988;

Chiappori, 1988). In bargaining models, household decision-making outcomes are determined by the man's and the woman's 'threat position'— this is the utility each would receive should the partnership breakdown. In collective models, household decision-making is described as being focused on the maximisation of household utility, with this comprised of the weighted sum of each partner's utility function. The achieved outcomes of each partner depend, in part, on their bargaining power within the household as this would affect his or her threat position in a bargaining model, or the Pareto weights in a collective model. In turn, bargaining power is described as being linked to "distribution factors", such as the relative income of each partner (Friedberg & Webb, 2006), their relative wage rates (Pollak, 2005), or their relative labour market status (Thomas, 1990; Pollak & Wales, 1997; Tiefenthaler, 1999).

In feminist economics, key works on intra-household resource allocation have been informed by Sen's cooperative conflict model (see for example, Agarwal, 1997; Kabeer, 1997; Himmelweit, 2001; Iversen, 2003; Purkayastha, 2003; Nyman & Dema, 2007; Sung & Bennett, 2007). In this model, households are sites for potential gains from cooperation, but they are also sites of potential conflict between partners who might have different preferences about the use of household resources. As with other models, the cooperative conflict model predicts that the intra-household distribution of wellbeing will be affected by the bargaining power of the partners and, thus, their fallback positions. However, the model is unique in its inclusion of distribution factors that derive from gender norms. Sen (1990) highlights that an individual's *perceptions* of the value of their own and their partner's contributions to household resources can affect their sense of whether they (or their partner) is entitled to a share of household resources. Under the influence of gender norms, perception biases may ignore or understate the value of non-market activities (such as cooking and caring for children) within the household, and only consider paid employment and other market roles as "deserving" contributions. With women taking up the majority of domestic tasks, norms that either devalue unpaid work or link entitlements over financial resources to paid work are potentially an important source of unequal resource allocation and a gendered distribution of wellbeing within households. For example, within couples that adhere to male breadwinner ideologies the man's power is naturalised in a way which reduces the value attached to the woman's financial contributions and her claim over household resources (Bennett, 2013). However, perceptions matter not only to

the valuation of contributions but also to how households internalise and reproduce gender inequalities.

### *2.2.2 Empirical Studies of the Distribution of Wellbeing in Couple Households*

One of the main challenges in understanding the processes of distribution of resources within households is its unobservability. In an attempt to understand factors which capture each partner's relative access to household resources, recent studies have utilised new data on subjective wellbeing (SWB) (see Chapter 1 for a review on SWB measures). A number of these studies have observed the links between men's and women's relative income shares and their satisfaction with household finances. They have indirectly tested for income pooling by assessing whether changes in relative income shift the partners' opportunities to benefit from household resources, with these opportunities proxied by their relative financial SWB. If couples pool their income, changes in relative income shares, should have no impact on the distribution of financial wellbeing within the household, *ceteris paribus*.

The findings from these studies often rejected the assumption of income pooling. For instance, Alessie et al. (2006) found that on average in Denmark, France, Greece, Italy, Portugal, Spain, and the United Kingdom, an increase in the woman's income share results in an increase in her own financial satisfaction but a lower level of financial satisfaction for her partner. Bonke (2008) found mostly similar patterns in his study using the same data. Using a Danish sample, Bonke and Browning (2009) and Ahn et al. (2014) also found that an increase in the woman's income share results in an increase in her own financial satisfaction but a lower level of financial satisfaction for her partner. Ahn et al. (2014) additionally found that for a Spanish sample, an increase in the woman's income share contribution lowers her own financial satisfaction as well as her partner's financial satisfaction.

Mysíková (2016) found that in the Czech Republic, for couples without children, an increase in the woman's income share increases her own financial satisfaction but lowers the man's financial satisfaction; for couples with children, income share has no significant effects on either the man's or the woman's financial satisfaction. In a study using German data, Elsas (2016) ran regressions which account for various working arrangements between couples. Within the samples where both partners work full-time, on average, an increase in the woman's income share lowers,

her partner's financial satisfaction but has no effect on her own financial satisfaction. In the sample of male breadwinner couples (where the man works full-time and the woman works part-time or does not work), on average, increases in the woman's income share has insignificant effects on her partner's financial satisfaction, and only positive effects on her own financial satisfaction if she works part-time.

In sum, each of the reviewed studies have found income share to be an important distribution factor. However, none of these studies have systematically confronted the intra-household effects of employment on SWB. This is a potentially important gap because related studies have found that work roles are important in defining individuals' bargaining position within their household (see, for example, Vogler and Pahl, 1993; Agarwal, 1997; Noonan, 2001; Friedemann-Sánchez, 2008). Independent of income, employment status might matter for one's bargaining position if notions of effort (and the associated claims over a share of household resources) are tied to paid work hours. If part-time work is not associated with the long-term financial security of the household it might also fail to generate a claim over household resources, regardless of current income flows. Furthermore, if, for example, a woman is not earning any income, and is economically inactive so that she can provide more domestic and caring contributions, her bargaining position may be different compared to if she was not earning an income because of unemployment. Analysis of the links between employment patterns and the intra-household distribution of SWB can cast light on these possibilities and is, thus, an important alternate approach to the study of intra-household resource allocation. De Henau and Himmelweit's (2013) was the first – and, to date, most important investigation adopting this approach.

### *2.2.3 Findings from De Henau and Himmelweit (2013)*

De Henau and Himmelweit's (2013) study used BHPS panel data (from 1996 to 2007) to examine how changes in the employment status of men and women living in couple households affected their own and their partner's satisfaction with household income. They found that both men's and women's satisfaction with household income was generally highest when they were engaged in full-time work, indicating that paid work contributions were generally perceived to have more value than unpaid contributions. The authors identified this as a gendered effect since most often women take on the majority of the domestic roles and are therefore more likely to be the ones in less than

full-time employment. Furthermore, on average, men's own contributions from employment were more influential in determining their satisfaction with household income than their partner's contributions from employment. However, for women, on average, their level of satisfaction with household income was not influenced more by their own employment than their partner's. De Henau and Himmelweit (2013) thus concluded that both gender asymmetry in contributions, as well as gender norms affecting the valuation of his versus her contributions, affected the way in which gender inequalities are reproduced within the household.

De Henau and Himmelweit's study and its findings are important to the current project for a number of reasons. It developed an empirical methodology to examine key ideas in Sen's model of cooperative conflict. While other studies had been limited in their focus, tending to focus solely on how income shares affect the intra-household distribution of wellbeing, De Henau and Himmelweit address the gendered perceptions of partners' contributions to household resources, proxying this by a different distribution factor – employment status. Their results, as noted, suggest that such factors are important in determining the intra-household distribution of wellbeing. However, their findings have yet to be assessed in other country contexts and time periods. The current study attempts to address this research gap by conducting a similar analysis of the links between employment and the intra-household distribution of wellbeing using Australian data from a longer and more recent time period. The results of this study contribute important evidence on the broader (and current) relevance of the findings presented by De Henau and Himmelweit. In doing so, the study will help inform the direction of future theoretical and empirical work on the allocation of resources within households and the implications of this for the distribution of wellbeing.

## 2.3 Data and Measures

This study utilises data from the Household, Income, and Labour Dynamics in Australia (HILDA) survey. HILDA is nationally representative, and provides extensive information on the lives of Australians on topics such as employment, health and wellbeing, income, life events, childcare, values and attitudes, and relationships. It is the only such survey of its kind available in Australia and is comparable to the BHPS used by De Henau and Himmelweit (2013). At the time of writing, HILDA

consists of 18 waves, with interviews conducted each year from 2001 to 2018. The most recent wave includes information on 18,324 responding individuals within 9,639 households (Summerfield et al., 2019). An important feature is that data is collected at a household level, and therefore contains the information of both partners for couple households. This feature makes it a survey well-suited for studying intra-household elements.

Using all 18 waves of data, the study sample includes cohabitating men and women in couple relationships. Couples are either married or in a de-facto relationship, with or without children. Similar to De Henau and Himmelweit (2013), the sample is limited to working-age men and women (18–65 years). After imposing these restrictions, an unbalanced panel of 57,092 couple observations from 8,478 distinct couples is obtained.

The dependent variable in this study is a measure of each partner's subjective financial wellbeing (SFWB). The study utilises responses to a HILDA survey question which each year asks respondents: "How satisfied are you with your financial situation?" The responses to these questions are organised on a scale from 0 to 10, with a score of 0 indicating completely dissatisfied, and a score of 10 indicating complete satisfaction. As seen in Table 2.1, men and women within the sample reported, on average, similar SFWB scores, at 6.66 and 6.64 points respectively.

The measure used in this study differs slightly from the one used in De Henau and Himmelweit's (2013) model: "satisfaction with household income" because an equivalent measure is not available in HILDA. This is a potential limitation of the current study because when respondents answer questions on their satisfaction with household income, they are likely to be reflecting on their household's (rather than just their own) financial resources. With the HILDA question, the respondents might be reflecting only on their own resources. To assess the important of this measurement issue, in an initial step, the correlation between the partners' responses to questions on financial satisfaction were compared to those on more individual elements (their pay). The results show the correlation in the financial satisfaction of partners within household tends to be relatively high, at 0.49. In contrast, when comparing measures of satisfaction with truly individual measures of financial standing, pay, the correlation between partners is only 0.12. This provides some confidence that the key HILDA question on financial satisfaction does, in fact, capture the respondents' evaluation of their benefits from household, and not only individual, financial resources.

The main independent variables are similar to those used by De Henau and Himmelweit (2013), in that they capture each partner's employment status. Employment status is distinguished into four categories, including being employed full-time, being employed part-time, being unemployed, and being economically inactive. The last three employment statuses may indicate non-financial contributions each partner is likely to be making to the household. For example, partners who are employed full-time may be seen as largely making monetary contributions while those who are in part-time employment or are economically inactive are likely to be seen as contributing more towards care and domestic duties.

Referring to Table 2.1 which contains descriptive statistics for the sample person–year observations, the level of full-time work is more than twice as high for men as it is for women. A total of 84% of the employment observations for men are for full-time work, as compared to only 39% for women. Women in part-time work made up 36% of the observations, while only 9% of the observations for men are in part-time work. The sample distributions in Table 2.2 show that 34% of the observations capture dual earner couples. However, there is still a relatively high dominance of male breadwinner couples, with 19% of observations representing couples where only the man works and 31% of observations representing couples where the man is the primary earner and the woman works part-time.

Other variables comprising of equivalised household monthly income (in 2018 Australian dollars), number of dependent children, age, health, and education are included in this study to account for factors that may have independent effects on financial wellbeing.[4] The presence of dependent children may result in additional demands on household finances and may intensify traditional labour division within households. Age can be related to changing financial pressures as couples negotiate the life course. Education levels may signal career aspirations and different earning expectations too. A person's level of education might also impact the importance attached to equity within the household, and this may affect their level of satisfaction with the distribution of financial resources (Bonke, 2008).

[4] The "modified OECD" equivalence scale is built up by allocating points to each member in the household; the first adult in the household is allocated a weight of 1 point, additional persons over the age 15 years or above are allocated 0.5 points, and each child under the age of 15 is allocated 0.3 points.

**Table 2.1**

*Descriptive Statistics: HILDA, Mixed-Sex Couple Households, 2001–2018*

| | Mean | Standard deviation |
|---|---|---|
| Man's financial satisfaction | 6.65 | 1.89 |
| Woman's financial satisfaction | 6.66 | 1.95 |
| Man's employment status | | |
| Full-time | 0.84 | 0.37 |
| Part-time | 0.09 | 0.29 |
| Economically inactive | 0.05 | 0.22 |
| Unemployed | 0.02 | 0.16 |
| Woman's employment status | | |
| Full-time | 0.39 | 0.49 |
| Part-time | 0.36 | 0.48 |
| Economically inactive | 0.22 | 0.42 |
| Unemployed | 0.03 | 0.16 |
| Dependent children in household | 0.77 | 0.42 |
| Number of dependent children 0–4 Years | 1.37 | 0.55 |
| Number of dependent children 5–9 Years | 1.34 | 0.54 |
| Number of dependent children 10–14 years | 1.35 | 0.55 |
| Number of dependent children 15–24 years | 1.29 | 0.52 |
| Equiv. monthly household income (AUD) | 5,301.29 | 3,223.53 |
| Man's age | 41.91 | 11.29 |
| Woman's age | 39.69 | 11.00 |
| Man’s presence of a health condition | 0.18 | 0.39 |
| Woman’s presence of a health condition | 0.18 | 0.38 |
| Man's education (years) | 13.41 | 2.47 |
| Woman's education (years) | 13.38 | 2.63 |
| N (person-year observations) | 57,092.00 | |

*Note*. This sample consists of men and women in mixed-sex couples, between the ages of 18–65 years old.

**Table 2.2**

*Distribution of Household Types: HILDA, Mixed-Sex Couple Households, 2001–2018*

| | Mean | Standard deviation |
|---|---|---|
| Man employed full-time; woman not employed | 0.19 | 0.39 |
| Man employed full-time; woman employed part-time | 0.31 | 0.46 |
| Man employed full-time; woman employed full-time | 0.34 | 0.47 |
| Man employed part-time; woman not employed | 0.02 | 0.15 |
| Man employed part-time; woman employed part-time | 0.04 | 0.19 |
| Man employed part-time; woman employed full-time | 0.03 | 0.17 |
| Man not employed; woman not employed | 0.04 | 0.20 |
| Man not employed; woman employed part-time | 0.01 | 0.12 |
| Man not employed; woman employed full-time | 0.02 | 0.14 |

*Note*. *N* (person-year observations) = 57,092. This sample consists of men and women in mixed-sex couples, between the ages of 18–65 years old.

## 2.4 Empirical Strategy

### *2.4.1 Linear Estimation Strategy*

The focus of this study is on how changes in either partner's contributions towards household resources, as measured through changes in employment status, shift both partner's SFWB. An appropriate method for such an investigation is a fixed effects regression analysis, with each partner's SFWB modelled as a linear function of independent variables relating to their own and their partner's employment status:

$$s_{jt}^{m} = \beta_{1m}\boldsymbol{E_{jt}^{m}} + \beta_{1w}\boldsymbol{E_{jt}^{w}} + \gamma_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\mu_{jt}^{m}} + \varepsilon_{1jt} \quad (2.1)$$

$$s_{jt}^{w} = \beta_{2m}\boldsymbol{E_{jt}^{m}} + \beta_{2w}\boldsymbol{E_{jt}^{w}} + \gamma_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\mu_{jt}^{w}} + \varepsilon_{2jt} \quad (2.2)$$

The variables $s_{jt}^{m}$ and $s_{jt}^{w}$ denote the SFWB of the man and woman in the jth household at time t, respectively. The vectors $\boldsymbol{E_{jt}^{m}}$ and $\boldsymbol{E_{jt}^{w}}$ capture the employment status of the man and woman in the jth household with full-time employment as the reference category. The vector $\boldsymbol{C_{jt}^{O}}$ consists of a set of controls which capture the individual's own characteristics that may have independent impacts on levels of SFWB, including, age (with a squared term to capture possible non-linear effects), health, and years in education. The vector also includes other relevant controls for number and ages of children, and equivalised monthly household income.

Characteristics of the individual's partner are captured by $\boldsymbol{C_{jt}^{P}}$ , and these include their age (with a squared term to capture possible non-linear effects), health, and years in education. $t_1$ and $t_2$ consist of year fixed effects, while $\boldsymbol{\mu_{jt}^{m}}$ and $\boldsymbol{\mu_{jt}^{w}}$denote individual fixed effects that control for time invariant characteristics of the man and woman respectively. Finally, $\varepsilon_{1jt}$ and $\varepsilon_{2jt}$ are randomly distributed error terms with a mean of zero.

As an extension, an alternate specification which analyses a breadwinner typology of households is also included. This alternate model allows more specificity in accounting for gender role arrangements amongst couples. The models for both men and women are identical to (2.1) and (2.2) except that employment status is replaced with different employment combinations with a sole male breadwinner household (where the man works full-time and the woman is not employed) being the reference category.

An important feature of the estimation strategy is the use of fixed effects. By exploiting the panel nature of the data, within-individual comparisons are made such that the same individual is analysed at different points in time, thereby eliminating time invariant unobserved heterogeneity. This identification is therefore more comprehensive in testing the intra-household effects of contributions on each partner's SFWB compared to many previous studies which make generalised between-individual comparisons (such as Bonke, 2008; Bonke & Browning, 2009; Mysíková, 2016).

The choice of a linear fixed effects approach for studies of SWB has been debated, given the categorical nature of such variables (see Kristoffersen, 2010 for a summary). Nonetheless, a number of studies have compared results from linear and non-linear model estimations (see for example, Gardner & Oswald, 2001; Ferrer-i-Carbonell & Frijters, 2004; Headey & Wooden, 2004; Blanchflower & Oswald, 2004, 2005). These studies have concluded that both approaches produce similar results in terms of coefficient signs and significance. As such, given the ease of interpreting ordinary least squares (OLS) estimates, equations (2.1) and (2.2) are estimated by employing linear fixed effects models. Nonetheless, as a robustness check, estimates on the baseline model using a non-linear estimation strategy are also included in the analysis.

### *2.4.2 Non-linear Estimation Strategy*

In cases where the dependent variable takes an ordered limited set of values such as SWB measures, the standard approach to estimation is the ordered logit model. Implementing fixed effects estimators for ordered logit models is somewhat complex and the use of a random effects model as an alternative would be at the cost of not being able to address the issue of time invariant unobserved heterogeneity; thus leading to inconsistent results (Cameron & Trivedi, 2005). Nonetheless, Baetshmann et al. (2015) have provided insight into non-linear strategies which can incorporate fixed effects. In particular, they used Monte Carlo simulations to explore methodologies proposed by previous researchers who provided applications of ordered logit models in a way which incorporated fixed effects. Their assessment included the Ferrer-i-Carbonell and Frijters (FF) estimator, maximum distance methods (MD), generalised method of moments (GMM), empirical likelihood (EL), and blow-up and cluster (BUC) estimators (see Baetshmann et al., 2015 for technical details). Their results demonstrated that BUC estimators were generally unbiased and efficient relative to the FF, MD, GMM, and EL estimators, making them an attractive option. Moreover, the BUC approach has been used successfully by a number of studies on subjective wellbeing (see for example, Brown & Gray, 2016; Ambrey et al., 2017; Lepinteur, 2019). Hence the BUC method is employed for this robustness check. This leads to a latent variable model with ordered responses, modelled as follows:

$$s_{jt}^{*m} = \alpha_{1\mathrm{m}}\boldsymbol{E_{jt}^{m}} + \alpha_{1w}\boldsymbol{E_{jt}^{w}} + \delta_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \delta_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\gamma_{jt}^{m}} + \varepsilon_{1jt} \qquad (2.3)$$

$$s_{jt}^{*w} = \alpha_{2\mathrm{m}}\boldsymbol{E_{jt}^{m}} + \alpha_{2w}\boldsymbol{E_{jt}^{w}} + \delta_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \delta_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\gamma_{jt}^{w}} + \varepsilon_{2jt} \qquad (2.4)$$

As shown in equations (2.3) and (2.4), $s_{jt}^{*m}$ and $s_{jt}^{*w}$ are latent measures of the SFWB of the man and woman in the jth household at time t, respectively. The explanatory variables in equation (2.3) and (2.4) are defined as in equations (2.1) and (2.2). The vectors of variables $\boldsymbol{\gamma_{jt}^{m}}$ and $\boldsymbol{\gamma_{jt}^{w}}$ are individual fixed effects which capture time invariant unobservable heterogeneity for the man and the woman respectively. $\varepsilon_{1jt}$ and $\varepsilon_{2jt}$ are randomly distributed error terms with a mean of zero. Since the latent variables $s_{jt}^{*m}$ and $s_{jt}^{*w}$ are unobservable, $s_{jt}^{m}$ and $s_{jt}^{w}$ are observed such that:

$$s_{jt}^{m} = k \text{ if } \mu_k < s_{jt}^{*m} \leq \mu_{k+1},\ k = 1,\ldots.\mathrm{K} \qquad (2.3.1)$$

$$s_{jt}^{w} = k \text{ if } \mu_k < s_{jt}^{*w} \leq \mu_{k+1},\ k = 1,\ldots.\mathrm{K} \qquad (2.4.1)$$

As mentioned earlier, the answers from the HILDA survey to the question "How satisfied are you with your financial situation?" include categorical responses to the question on a scale from 0 to 10 therefore, K is equal to 11. The individual specific threshold parameters $\mu_k$ are increasing for all values of k, with $\mu_k = -\infty$ and $\mu_{k+1} = +\infty$. The fixed effects logit model assumes that the white noise error term $\varepsilon_{it}$ is independently and identically distributed (IID) with logistic cumulative distribution function:

$$F\left(\varepsilon_{1it}\middle|E_{jt}^{m},\ E_{jt}^{w}, C_{jt}^{O}, C_{jt}^{P}, t_1, \gamma_{jt}^{m}\right) = F(\varepsilon_{1it}) = \frac{1}{1+\exp(-\varepsilon_{1it})} \equiv \Lambda(\varepsilon_{1it}) \qquad (2.3.2)$$

$$F\left(\varepsilon_{2it}\middle|E_{jt}^{m},\ E_{jt}^{w}, C_{jt}^{O}, C_{jt}^{P}, t_1, \gamma_{jt}^{w}\right) = F(\varepsilon_{2it}) = \frac{1}{1+\exp(-\varepsilon_{2it})} \equiv \Lambda(\varepsilon_{2it}) \qquad (2.4.2)$$

$\Lambda(.)$ is the cumulative logistic distribution. The BUC estimators are implemented by replacing each observation in the sample by K-1 copies of itself. Each of the K-1 copies of the individual are then dichotomised at a different cut-off point. Essentially, this "blows up" the sample size (Baetshmann et al., 2015, p. 690). After the sample has been "blown up" a standard conditional logit estimation is applied to the sample, with clustered standard errors. One shortfall with regard to the BUC estimators is that marginal effects cannot be calculated, although the sign and statistical significance of the coefficients can be observed. Therefore, not much can be said about the independent magnitude of the coefficients, though it is possible to comment on the sign and statistical significance of the coefficients, as well as the ratio of coefficients. Nonetheless, this is sufficient for comparing the outcomes of the man's and the woman's employment outcomes on SFWB which is the main purpose of this study.

### *2.4.3 Interpreting the Research Questions*

Estimates for the coefficients in equations (2.1) and (2.2) provide insight into the key issues of interest in this study. In relation to RQ2.1, "*For mixed-sex couples, how does each partner's contribution towards household resources impact their own and their partner's level of subjective financial wellbeing?*" if the coefficients $\boldsymbol{E_{jt}^{m}}$ and $\boldsymbol{E_{jt}^{w}}$ on less than full-time employment statuses are negative, this is interpreted as contributions of the partner in less than full-time employment are perceived as less likely to sustain one's financial position in comparison to contributions through full-

time employment. If this is the case, then an immediate gender inequality will be acknowledged as cross-sectional patterns in Table 2.1 and Table 2.2 indicate that within the sample, women are more often engaged in less than full-time employment compared to men.

Comparing the differences in coefficient magnitudes between $\boldsymbol{E_{jt}^{m}}$ and $\boldsymbol{E_{jt}^{w}}$ provide insight into RQ2.2, *"For mixed-sex couples, does the influence of a type of contribution on financial wellbeing, in either or both partner's assessment, depend on the gender of the contributor?*" Differences might indicate that the value attached to similar contributions to household financial resources depends on the gender of the partner making the contributions. Within households it is possible, for example, that the man's employment is perceived to be more valuable that the woman's. The inclusion of controls for household income strengthen this analysis because they allow us to assess whether, when household income stays constant, each partner's financial satisfaction is still affected by a changing distribution of paid and unpaid contribution. Furthermore, if an individual's SFWB changes in a way that is dependent on the gender of the partner making the contributions, then there is little evidence of income pooling.

## 2.5 Results

### *2.5.1 Base Models*

The estimations are run with three different specifications for both men and women, as presented in Table 2.3. Model A is a baseline model that does not include controls for age, education, number and ages of children, and equivalised household income. Model B includes controls for number and ages of children, and equivalised household income. Finally, Model C includes controls for number and ages of children, and equivalised household income, as well as each partner's age, health, and years in education. Model A and Model B are comparable to the British results from De Henau and Himmelweit (2013), as these did not include controls for each partner's age, health, and education.

**Table 2.3**

*Fixed Effects Regression Results for Men's and Women's Financial Satisfaction*

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Model A | Model B | Model C | Model A | Model B | Model C |
| Man's employment status (ref: employed full-time) | | | | | | |
| Part-time | -0.473*** | -0.430*** | -0.441*** | -0.294*** | -0.253*** | -0.245*** |
| | (0.037) | (0.036) | (0.036) | (0.036) | (0.036) | (0.036) |
| Economically inactive | -0.982*** | -0.911*** | -0.908*** | -0.447*** | -0.379*** | -0.368*** |
| | (0.061) | (0.061) | (0.061) | (0.055) | (0.055) | (0.055) |
| Unemployed | -1.337*** | -1.289*** | -1.292*** | -0.696*** | -0.650*** | -0.646*** |
| | (0.065) | (0.064) | (0.064) | (0.065) | (0.064) | (0.064) |
| Woman's employment status (ref: employed full-time) | | | | | | |
| Part-time | -0.157*** | -0.078*** | -0.075*** | -0.329*** | -0.256*** | -0.252*** |
| | (0.021) | (0.022) | (0.022) | (0.025) | (0.025) | (0.025) |
| Economically inactive | -0.206*** | -0.086*** | -0.083*** | -0.538*** | -0.427*** | -0.418*** |
| | (0.029) | (0.031) | (0.031) | (0.033) | (0.035) | (0.035) |
| Unemployed | -0.388*** | -0.297*** | -0.294*** | -1.115*** | -1.030*** | -1.024*** |
| | (0.049) | (0.049) | (0.049) | (0.060) | (0.060) | (0.060) |
| Log equivalised monthly household income | | 0.430*** | 0.439*** | | 0.405*** | 0.401*** |
| | | (0.027) | (0.027) | | (0.028) | (0.028) |
| No. children 0–4 years | | -0.035* | -0.010 | | -0.027 | -0.033 |

| | | | | |
|---|---|---|---|---|
| | (0.019) | (0.020) | (0.020) | (0.022) |
| No. children 5–9 years | -0.015 | 0.018 | -0.005 | -0.007 |
| | (0.018) | (0.020) | (0.020) | (0.023) |
| No. children 10–14 years | -0.024 | 0.008 | -0.032* | -0.033 |
| | (0.017) | (0.019) | (0.019) | (0.021) |
| No. children 15–24 years | -0.037* | -0.009 | -0.014 | -0.014 |
| | (0.019) | (0.020) | (0.021) | (0.022) |
| Man's age | | -0.021 | | 0.083*** |
| | | (0.023) | | (0.026) |
| Man's age squared | | 0.000* | | -0.000* |
| | | (0.000) | | (0.000) |
| Woman's age | | 0.004 | | -0.051* |
| | | (0.022) | | (0.026) |
| Woman's age squared | | 0.000 | | 0.001* |
| | | (0.000) | | (0.000) |
| Man's presence of a health condition | | -0.110*** | | -0.047* |
| | | (0.024) | | (0.024) |
| Woman's presence of a health condition | | -0.080*** | | -0.140*** |
| | | (0.024) | | (0.026) |
| Man's years in education | | 0.004 | | 0.016 |
| | | (0.019) | | (0.020) |
| Woman's years in education | | 0.019 | | 0.017 |
| | | (0.014) | | (0.016) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| N (observations) | 57,092 | 57,092 | 57,092 | 57,092 | 57,092 | 57,092 |
| Couples | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men and women in mixed-sex couples, between the ages of 18–65 years old, who were interviewed in the HILDA survey, waves 1–18.
*p < .10. **p < .05. *** p < .01.

The results from Model A are presented in Columns 1 and 4 in Table 2.3. These show that, for both men and women, changes in their own and their partner's level of paid work away from full-time employment have a negative impact on SFWB. For example, for men, at mean values, a change from full-time to part-time employment is associated with a 0.473 point reduction in SFWB. For women, at mean values, a change from full-time to part-time employment is associated with a 0.329 point reduction in SFWB. As demonstrated in Table 2.1, the distribution of employment statuses is gendered with women less often making contributions through full-time employment compared to men within. This indicates that it is women who are more likely to be making domestic contributions, while men are more likely to be making financial contributions, which have greater influence on both partner's SFWB. However, the effect of being economically inactive is less negative than being unemployed. For women, on average, being economically inactive reduces SFWB by 0.538 points compared to being in full-time employment; while being unemployed reduces SFWB by more than double, in the amount of 1.115 points compared to being in full-time work. For both men and women, their own unemployment has the most detrimental effect on their own SFWB. These patterns may suggest that domestic contributions are not entirely discounted within the sample, as women who are economically inactive are likely to be contributing more to domestic work compared to those who are unemployed.

The results on the variables relating to own and partner employment in Model A reveal an important intra-household pattern. The data in Columns 1 and 4 of Table 2.3 show that, for men, less than full-time employment has much larger negative implications on their own SFWB than less than full-time employment of their partner. For example, when men move from full-time employment to part-time employment their SFWB drops, on average, by 0.473 points, whereas when their partners move from full-time employment to part-time employment men's SFWB is only reduced by 0.157 points. For women, at mean values, moving from full-time to part-time employment reduces their own SFWB by 0.329 points; and when their partner moves from full-time to part-time work women's SFWB drops by 0.294 points – a much smaller gap.

The addition of controls for household income in Model B reduces the magnitude of the coefficients on the employment variables but it does not alter the statistical significance of the measured effects. Furthermore, the interesting intra-

household patterns evident in the Model A results persist. As shown in Column 2 of Table 2.3, for men, their own less than full-time employment status reduces SFWB by a much larger amount than partner less than full-time employment. For example, at mean values, when men move from full-time employment to being economically inactive their SFWB reduces by 0.911 points on average. In contrast, when men's partners move from full-time employment to being economically inactive their SFWB only reduces by 0.086 points. As seen in Column 5 of Table 3, for women, on average, moving from full-time employment to part-time employment reduces SFWB by 0.256 points; similarly, when their partners move from full-time employment to part-time employment, women's SFWB drops by 0.253 points. For other non-employed statuses (economically inactive and unemployed), own lack of financial contributions through employment reduces one's own SFWB by a larger amount compared to reductions in one's partner's level of paid work.

Generally, these results are similar to those reported by De Henau and Himmelweit (2013). However, the results in the British study suggest that, for women, their partner's unemployment is more detrimental to their SFWB than their own unemployment, whilst this is not apparent in the Australian data. For women, at mean values, moving from full-time employment to unemployment is associated with a 1.030 point reduction in own SFWB, whilst when women's partners move from full-time employment to unemployment their SFWB falls by a smaller amount of 0.650 points on average.

The additional controls - for each partner's age, health, and education - in Model C still does not alter the pattern of results on the employment status variables. This helps to confirm the importance of employment status as a key determinant SFWB. The similarity between the results from this analysis of recent Australian data and those reported by De Henau and Himmelweit (2013) from their British sample adds further weight to the proposition that employment matters to individual's claims over household resources.

### *2.5.2 An Alternate Specification*

The results from models that replaced the employment status variables with measures that identify different household types (as defined by the pattern of male/female employment) are presented in Table 2.4. The reference category in these models is the

traditional breadwinner household where the man is employed full-time and the woman is not employed. The coefficients on the variables that represent the other categories show, for example, what happens, on average, to men's and women's SFWB when the arrangement of paid and unpaid contributions changes  The other details of  Model A, Model B, and Model C are as they were in the above sub-section.

The results on the household arrangement variables largely follow the same pattern across Models A, B and C. This is consistent with the results presented in the previous section and helps to further confirm the independent significance of household employment patterns in the determination of SFWB. It also allows the description of the results to focus only on Model C, for brevity. The results for Model C show that, for men, moving from a sole breadwinner household to one where his partner is engaged in part-time work has no impact on his SFWB. The opposite is true for women; their SFWB increases, on average by 0.277 points, when such a change occurs. The results for Model C also show that when moving from a sole male breadwinner arrangement to one where both partners are employed full-time, both men and women report the highest SFWB. These results confirm the findings from the previous specification where both partners become more satisfied if they are both making paid contributions from being in full-time employment.

The move from a sole breadwinner household to one where the man works part-time has negative implications for men's SFWB regardless of whether his partner remains unemployed or starts working either part-time or full-time. However, on average, moving from a sole breadwinner household where the man works full-time to a sole breadwinner household where the man works part-time is associated with a 0.393 point drop in the woman's SFWB. On average, for men moving from a sole male breadwinner household to a sole female breadwinner household is associated with a drop in their SFWB by 0.889 points. However, for women, being the sole breadwinner has positive associations with their SFWB although these effects are statistically insignificant.

**Table 2.4**

*Alternate Specification: Fixed Effects Regression Results for Men's and Women's Financial Satisfaction*

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Model A | Model B | Model C | Model A | Model B | Model C |
| Employment status combinations (ref: man employed full-time, woman not employed) | | | | | | |
| Man employed full-time; woman employed part-time | 0.055** | 0.022 | 0.022 | 0.259*** | 0.231*** | 0.227*** |
| | (0.026) | (0.026) | (0.026) | (0.030) | (0.030) | (0.030) |
| Man employed full-time; woman employed full-time | 0.225*** | 0.114*** | 0.112*** | 0.587*** | 0.492*** | 0.485*** |
| | (0.029) | (0.030) | (0.030) | (0.034) | (0.036) | (0.036) |
| Man employed part-time; woman not employed | -0.453*** | -0.408*** | -0.418*** | -0.445*** | -0.400*** | -0.393*** |
| | (0.065) | (0.065) | (0.065) | (0.071) | (0.071) | (0.071) |
| Man employed part-time; woman employed part-time | -0.364*** | -0.360*** | -0.372*** | -0.006 | 0.003 | 0.009 |
| | (0.055) | (0.055) | (0.055) | (0.056) | (0.056) | (0.056) |
| Man employed part-time; woman employed full-time | -0.346*** | -0.413*** | -0.425*** | 0.340*** | 0.286*** | 0.283*** |
| | (0.055) | (0.055) | (0.055) | (0.058) | (0.059) | (0.059) |
| Man not employed; woman not employed | -1.233*** | -1.169*** | -1.169*** | -0.652*** | -0.590*** | -0.579*** |
| | (0.074) | (0.073) | (0.074) | (0.072) | (0.072) | (0.072) |
| Man not employed; woman employed part-time | -1.015*** | -1.003*** | -1.003*** | -0.313*** | -0.297*** | -0.292*** |
| | (0.086) | (0.086) | (0.085) | (0.085) | (0.084) | (0.084) |
| Man not employed; woman employed full-time | -0.844*** | -0.886*** | -0.889*** | 0.114 | 0.083 | 0.078 |
| | (0.080) | (0.079) | (0.080) | (0.074) | (0.074) | (0.074) |

| | | | | |
|---|---|---|---|---|
| Log equivalised monthly household income | 0.428*** | 0.437*** | 0.402*** | 0.399*** |
| | (0.027) | (0.027) | (0.028) | (0.028) |
| No. children 0–4 years | -0.027 | -0.002 | -0.010 | -0.014 |
| | (0.019) | (0.020) | (0.020) | (0.022) |
| No. children 5–9 years | -0.014 | 0.020 | -0.003 | -0.004 |
| | (0.018) | (0.020) | (0.020) | (0.023) |
| No. children 10–14 years | -0.022 | 0.010 | -0.030 | -0.031 |
| | (0.017) | (0.019) | (0.019) | (0.021) |
| No. children 15–24 years | -0.037* | -0.009 | -0.014 | -0.013 |
| | (0.019) | (0.020) | (0.021) | (0.022) |
| Man's age | | -0.022 | | 0.083*** |
| | | (0.023) | | (0.026) |
| Man's age squared | | 0.000* | | -0.000* |
| | | (0.000) | | (0.000) |
| Woman's age | | 0.005 | | -0.051* |
| | | (0.022) | | (0.026) |
| Woman's age squared | | 0.000 | | 0.001* |
| | | (0.000) | | (0.000) |
| Man's presence of a health condition | | -0.106*** | | -0.045* |
| | | (0.024) | | (0.025) |
| Woman's presence of a health condition | | -0.079*** | | -0.136*** |
| | | (0.024) | | (0.026) |
| Man's years in education | | 0.003 | | 0.016 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | (0.019) | | | (0.020) |
| Woman's years in education | | | 0.018 | | | 0.015 |
| | | | (0.014) | | | (0.017) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| N (observations) | 57,092 | 57,092 | 57,092 | 57,092 | 57,092 | 57,092 |
| Couples | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men and women in mixed-sex couples, between the ages of 18–65 years old, who were interviewed in the HILDA survey, waves 1–18.
*p < .10. **p < .05. *** p < .01.

### *2.5.3 Robustness to Change in Estimation Strategy*

The results for the ordered logit BUC estimations are presented in Table 2.5. The results for the ordered logit BUC estimations of the baseline regression models are presented in Table 5. As a result of using this methodology, the number of observations artificially increases to 197,704 for men and 212,444 for women. In addition, the number of blown up observations are different for men and women because individuals who do not display any variation in their financial satisfaction are excluded in the estimation samples.

As before, controlling for equivalised household income, number and ages of children, age, health, and education does not alter the sign or the statistical significance of the employment variables. Thus, the description of the results is focused on Model C. For both men and women, if either partner is employed less than full-time there are negative associations with SFWB. For men, their own contributions are more important than their partner's contributions in determining their SFWB. That is, for men, negative outcomes are more pronounced if they move from full-time employment to being part-time employed, unemployed or economically inactive, compared to if their partners made the same move. For women, the negative effects of her own move from full-time employment to part-time employment and her partners move from full-time employment to part-time employment are very similar. However, the negative effects of her own move from full-time employment to unemployment or being economically inactive are larger than those associated with a similar move by her partner.

The similarity between the results using ordered logit BUC and OLS fixed effects estimation strategies confirm that the results are robust to either methodology. Furthermore, although not the main focus of this study, this application contributes towards the literature suggesting that when measuring SWB, whether one assumes linear or non-linear fixed effects strategies, very similar outcomes are reached.

**Table 2.5**

*Ordered Logit BUC Regression Results for Men's and Women's Financial Satisfaction*

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Model A | Model B | Model C | Model A | Model B | Model C |
| Man's employment status (ref: employed full-time) | | | | | | |
| Part-time | -0.654*** | -0.598*** | -0.614*** | -0.391*** | -0.338*** | -0.334*** |
| | (0.050) | (0.050) | (0.050) | (0.049) | (0.049) | (0.049) |
| Economically inactive | -1.231*** | -1.134*** | -1.131*** | -0.569*** | -0.481*** | -0.469*** |
| | (0.074) | (0.074) | (0.074) | (0.068) | (0.068) | (0.069) |
| Unemployed | -1.635*** | -1.576*** | -1.582*** | -0.845*** | -0.784*** | -0.782*** |
| | (0.079) | (0.079) | (0.079) | (0.079) | (0.079) | (0.080) |
| Woman's employment status (ref: employed full-time) | | | | | | |
| Part-time | -0.232*** | -0.119*** | -0.119*** | -0.457*** | -0.357*** | -0.353*** |
| | (0.033) | (0.034) | (0.034) | (0.035) | (0.036) | (0.036) |
| Economically inactive | -0.304*** | -0.126*** | -0.126*** | -0.726*** | -0.573*** | -0.565*** |
| | (0.044) | (0.045) | (0.045) | (0.045) | (0.047) | (0.047) |
| Unemployed | -0.543*** | -0.410*** | -0.408*** | -1.386*** | -1.279*** | -1.276*** |
| | (0.068) | (0.069) | (0.068) | (0.072) | (0.072) | (0.072) |
| Log equivalised monthly household income | | 0.634*** | 0.650*** | | 0.563*** | 0.564*** |
| | | (0.041) | (0.041) | | (0.040) | (0.041) |
| No. children 0–4 years | | -0.065** | -0.023 | | -0.052* | -0.050 |

| | | | | |
|---|---|---|---|---|
| | (0.028) | (0.030) | (0.028) | (0.031) |
| No. children 5–9 years | -0.029 | 0.024 | -0.017 | -0.008 |
| | (0.027) | (0.030) | (0.028) | (0.032) |
| No. children 10–14 years | -0.049* | 0.001 | -0.057** | -0.048 |
| | (0.026) | (0.030) | (0.027) | (0.030) |
| No. children 15–24 years | -0.073** | -0.030 | -0.031 | -0.022 |
| | (0.031) | (0.033) | (0.031) | (0.032) |
| Man's age | | -0.024 | | 0.103*** |
| | | (0.032) | | (0.032) |
| Man's age squared | | 0.001 | | -0.001 |
| | | (0.000) | | (0.000) |
| Woman's age | | -0.004 | | -0.070** |
| | | (0.032) | | (0.032) |
| Woman's age squared | | 0.000 | | 0.001** |
| | | (0.000) | | (0.000) |
| Man's presence of a health condition | | -0.154*** | | -0.067* |
| | | (0.035) | | (0.034) |
| Woman's presence of a health condition | | -0.125*** | | -0.190*** |
| | | (0.035) | | (0.035) |
| Man's years in education | | 0.006 | | 0.016 |
| | | (0.028) | | (0.027) |
| Woman's years in education | | 0.013 | | 0.009 |
| | | (0.020) | | (0.021) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| N (observations) | 57,092 | 57,092 | 57,092 | 57,092 | 57,092 | 57,092 |
| Couples | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 | 8,478 |
| BUC observations | 197,704 | 197,704 | 197,704 | 212,444 | 212,444 | 212,444 |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men and women in mixed-sex couples, between the ages of 18–65 years old who were interviewed in the HILDA survey, waves 1–18.
*p < .10. **p < .05. *** p < .01.

## 2.6 Discussion

The key findings of this analysis confirm on the importance of paid employment and its distribution within the household to SFWB. The results from the various stages of the empirical analysis that has been presented broadly confirm that gender asymmetries in contributions is one way in which intra-household inequalities arise. With RQ2.1, "*For mixed-sex couples, how does each partner's contribution towards household resources impact their own and their partner's level of subjective financial wellbeing?"* the results suggest that, for both partners, contributions through paid employment are more important to SFWB than unpaid contributions. These results are important given the unequal distribution of paid work within many Australian households, with a large proportion of women in either part-time work or not economically active. The findings imply that part-time work may have effects beyond those noted in previous studies – around precarious employment and long term reductions in employment opportunities (Bianchi & Milkie, 2010). They show, in particular, that women's participation in paid work is important to their level of SFWB, achieved in part at least through access to claims on household resources.

However, "For mixed-sex couples, *does the influence of a type of contribution on financial wellbeing, in either or both partner's assessment, depend on the gender of the contributor?*" (RQ2.2). For men, on average, partner contributions from employment have less influence on SFWB compared to their own contributions from employment. This difference is still prevalent in models that control for equivalised household income (and a range of other factors). As such, it is consistent with a proposition that male breadwinner ideologies will cause men to prioritise their own contributions to household resources. For women, the pattern in similar. Changing from full-time employment to being unemployed or economically inactive reduces women's own SFWB more than do equivalent changes to their partner's employment. However, the gap in the effect of own versus partner employment on SFWB are smaller for women than men and, for women, a shift from full-time to part-time work has a similar effect on her own SFWB as an equivalent change by her partner. This might also be showing the influence of male breadwinner ideology, in that the importance attached to men's full-time employment is relatively high for both men and women.

Additionally, for men, moving from sole male breadwinner household to one where his partner works part-time, for example, does not, on average, improve his SFWB. The results are in line with Sen's (1990) proposition that differences in the perceptions of the value of men's and women's contributions to household resources can lead to intra-household asymmetries in wellbeing. Perhaps for men already in full-time work there may be some tendency to not to perceive their partner's part-time work as important to the household's financial position. Her earnings from part-time employment might be dismissed as "pin money"; as useful for non-essential purchases but not critical to the household's financial position or his SFWB at least. The fact that SFWB rises only with high levels of paid work, however, implies that unpaid contributions do not translate into claims on financial resources and SFWB in the same way that paid work contributions do. The findings of this study generally suggest that, most often, the SFWB of men and women in Australian couple households depends on the pattern of paid and unpaid contributions – and this evidence, in turn, indicates that income pooling should *not* be assumed for modelling or policy purposes.

Many of the results in this paper show the cross-country relevance of the gender inequalities identified by De Henau and Himmelweit (2013) for the UK. They also point to a persistence of these gender patterns despite the substantial changes in women's workforce participation that have been underway over recent decades. Moreover, some scholars (Potuchek, 1992; Markusen, 1981) believe that models that focus on male breadwinner ideologies need to be reconsidered given the breakdown in the patriarchal family pattern (where the man is the primary earner and woman's earnings are of lesser importance). However, the findings within this study and those in De Henau and Himmelweit (2013) about the possible persistence in male breadwinner ideologies are thought-provoking given the important transformations in labour trends over the last few decades. Despite the increased number of women joining the labour force and the increase in dual earner couples there appears to be some perseverance in gendered ideologies and perceptions. This raises caution for future studies and policy inferences which assume the breakdown of patriarchal family trends in our *modern* society, given that such trends might continue to exuberate gender inequalities within the household, with concomitant impacts on wellbeing.

## 2.7 Conclusion

To conclude, the results presented broadly confirm that types of contributions and the gender of the contributor of household resources are important in determining SFWB. These findings reinforce the widespread perception that who makes paid contributions matters for the distribution of wellbeing, therefore rejecting the idea of the unitary family. The results also provided external validity regarding the methodology proposed by De Henau and Himmelweit (2013) and demonstrate that employment is an important distribution factor in determining the distribution of intra-household wellbeing.

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# 3. Parenthood and the Distribution of Intra-Household Wellbeing

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## 3.1 Introduction

Although there are a large number of empirical studies on the impact of children on wellbeing, issues relating to the intra-household aspects of parenthood are currently under researched. This is somewhat surprising since most often parenthood is a transition that both partners in a couple relationship experience together and thus, each partner's characteristics are likely to have impacts on the other partner's experience of parenthood. This study aims to redress the gap in the empirical literature on the links between parenthood and wellbeing by contributing an intra-household analysis of how men's and women's overall life satisfaction, as well as their satisfaction with their own financial situation, and their satisfaction with their partner, changes with parenthood. It considers how the effects of parenthood are distributed within the household, with the aim of helping to ensure adequate policies can be designed to address issues relating to the wellbeing of mothers and fathers.[5]

This study contributes to the growing body of literature in economics that is concerned with intra-household allocations, addressing the historical tendency within mainstream economics to ignore these issues. Many early studies of the household, for example, relied on a unitary model of the household which assumed that household members acted as a single decision-making unit with a joint budget constraint, and that all household resources were essentially pooled (Becker, 1991). As such, the sources of contributions of resources to the household (for example, his versus her earnings)

[5] Haddad and Kanbur (1990, p. 879) argue more generally that intra-household effects need to be considered in the policy design process – as failing to do so may lead to under or over estimation of poverty levels.

were not considered to affect the allocation of household resources or, in turn, the intra-household distribution of wellbeing. Applied to the issue of parenthood, the unitary model implies that the impact of children on the wellbeing of household members will not be influenced by who takes up the paid and unpaid roles associated with provisioning the child's needs. In other words, according to the unitary model, the tasks associated with raising children will be distributed within the household in a way which simply ensures that total household utility will be maximised and that this parallels to the wellbeing of all members of the household.

The unitary approach suggests that households are "mini factories" where parents divide the labour associated with child raising and specialise in tasks that they are most productive in. Applications of the theory tend to convey the notion that all women have a comparative advantage in child rearing and homemaking, and this is used to "explain" why women tend to allocate more time to unpaid labour than men; while men are assumed to have comparative advantage in the market sector, and this is used to "explain" their relatively large allocation of time to paid labour. However, as Boserup (1987) and many other feminist scholars (see for example, Braunstein & Folbre, 2001; MacDonald et al., 2005) have noted this so called "efficient" division of labour within the household is essentially a patrimony system that has resulted in the exploitation of many women, with profound implications for their wellbeing. In fact, the changes in wellbeing associated with parenthood may look very different for the man and the woman within a couple – therefore, assuming a unitary model provides little reliable guidance on the factors that might influence the intra-household pattern of change in wellbeing following parenthood.

Collective models of the household provide more useful guidance for studies of the different impacts of parenthood on men and women within the same household. These models recognise that individuals within a household will typically have different and sometimes conflicting preferences (see for example, Apps & Rees, 1988; Chiappori, 1988). As a result, the intra-household distribution of resources and wellbeing will be affected by the distribution of bargaining power (Browning & Chiappori, 1998). If, for example due to oppressive gender norms, women have limited power to negotiate within their households, their access to resources will be constrained and their wellbeing will be impacted. If, as De Hanau and Himmelweit (2013) and Sen (1990) have suggested, individuals' bargaining power within the household is affected by perceptions of their entitlement to common household

income, resources and wellbeing might follow the person who is in paid work (more often men) and be short for the person who makes unpaid contributions (more often women).

This alternative approach raises new questions about the intra-household distribution of the effects of parenthood, such as: "*Do changes in overall wellbeing associated with parenthood differ within mixed-sex couple households by the gender of the parent?"* (RQ3.1). To address this question, we need to take account of both the positive changes in wellbeing that are experienced by many parents as well as possible negative impacts (such as time and financial pressures), and how these are distributed within the household. As such, depending on each partner's contribution towards parenting (for example paid work versus unpaid housework), their own and their partner's wellbeing may be influenced in a way which could exhibit gendered outcomes in overall life satisfaction.

The notion that the distribution of wellbeing might be affected by a partners' participation in paid versus unpaid work (and thus their claim over financial resources within the household) raises the question: "*How does parenthood affect the financial wellbeing of men and women living in mixed-sex couple households?*" (RQ3.2). There are good reasons to expect that the financial impacts of parenthood are more prevalent for mothers than fathers. In many countries including Australia, parenthood typically leads to career interruptions with many women spending less time in paid work and more time in unpaid work, due to parental leave and ongoing child rearing responsibilities, with subsequent impacts on earnings (see Breusch & Gray, 2004; Baxter et al., 2008; Angelov et al., 2016; Austen & Mavisakalyan, 2018). Thus, women are more likely to experience a fall in their ability to influence expenditure decisions within their households, and the impacts of parenthood on their financial wellbeing might be especially large.

The notion that the preferences of partners might be in conflict, and that they might disagree on the allocation of resources within the household raises the question: "*For mixed-sex couples, does parenthood influence men's and women's satisfaction with their partner?*" (RQ3.3). One of the primary sources of conflict among couples is unmet expectations with regard to gender division of domestic labour and childcare (Mencarinin & Sironi, 2012). Conflict may be particularly pronounced for women who often have commitments to both the labour market and childrearing tasks, which can lead to work overload (Perry-Jenkins et al., 2007). Moreover, changes in the time each

partner spends in paid and unpaid housework associated with the increased caring and financial needs of children may lead to time conflicts and result in less time spent with one's spouse (Pailhe & Solaz, 2009; Dew & Wilcox, 2011). This may exacerbate the conflictual elements within the household, resulting in changes to levels of partner satisfaction.

The last research question in this study focuses on the differences in wellbeing between mothers and fathers, specifically in relation to the years preceding and following the birth of a child: "*Do men and women in mixed-sex couple relationships exhibit similar patterns of anticipation and adaptation of parenthood on overall life satisfaction, financial satisfaction, and partner satisfaction?"* (RQ3.4). Accounting for anticipation effects is important given that many children are pre-planned and pregnancy might thus be associated with a higher level of wellbeing. It might also be the case that the positive change in wellbeing diminishes after the initial excitement of having a child. Furthermore, because the division of labour associated with the care of very young children tends to be highly gendered, with women typically taking on the primary care roles (Baxter et al., 2008), there is also good reason to expect that the process of adaptation following the birth of a child will differ between mothers and fathers.

To address these important questions, this study is arranged as follows: Section 3.2 provides a literature review of studies on parenthood and wellbeing, followed by a description of the Household, Income, and Labour Dynamics in Australia (HILDA) survey and measures used within this study in Section 3.3. The empirical strategy is explained in Section 3.4. Section 3.5 includes results from the intra-household analysis of the effects of parenthood on wellbeing. Finally, Section 3.6 and Section 3.7 provide a summary discussion of the implications of the findings and some concluding remarks.

## 3.2 Background

Over the last few decades, there has been a remarkable rise in the number of economic studies attempting to measure wellbeing, with the aim of achieving a more direct evaluation of various aspects of individuals' lives than is possible from, for example, measures of income (see Clark, 2018 for a review). Most quantitative studies of wellbeing rely on survey data of people's levels of satisfaction with various elements

of their lives, including their finances and relationships. That is, they target subjective wellbeing (SWB).

Studies of individuals' SWB typically include controls for the number of children, acknowledging how children can be a key determinant of SWB. Therefore, despite the effect of parenthood not being their main focus, a large number of studies have produced insights into the impacts of parenthood on SWB. Additionally, during the 2010s, a number of studies that directly addressed effects of children on SWB were conducted, motivated by concern for the impacts of the global financial crisis on the costs of raising children (see for example, Cooper, 2014). A number of studies analysed the SWB of parents at this time to elucidate reasons for lower fertility rates in several countries (see for example, Aassve et al., 2015). Increased women's workforce participation and changing social norms also motivated studies of parental SWB around this time (see for example, Milkie et al., 2010). In total, the literature on the effects of parenthood and SWB is now quite substantial. However, as discussed below, the evidence on the effects of parenthood and SWB is still quite mixed.

### *3.2.1 International Studies*

Many studies of SWB have concluded that children are associated with negative or insignificant effects. Early studies reviewed by McLanahan and Adams (1987), for example, found that individuals with children reported lower levels of happiness and overall life satisfaction compared to childless individuals. They explained that despite children often being a great source of joy, the rewards of parenting were often offset by negative aspects of parenthood, such as increased financial and time constraints. More recently, Di Tella et al. (2003), in their study, *The Macroeconomics of Happiness*, used Euro-Barometer Survey Series data from 12 European nations, and concluded that SWB reduced significantly as the number of children present in the household rose. A subsequent study by Alesina et al. (2004) using the same dataset reached a similar conclusion, finding that children contributed higher levels of stress. An analysis of data from the British Household Panel Survey (BHPS) by Clark (2006) also established significant negative effects on individual SWB with the presence of one or two children (although the effect of three children on SWB was found to be statistically insignificant). Using data from the World Values Survey (WVS), including a sample of individuals from 94 countries, Stanca (2012) found a direct

negative relationship between parenthood and SWB. However, he also found that the negative relationship was mediated by the individual's socio-demographic characteristics, their financial situation, and their nationality—suggesting the influence of cultural norms on the effects of parenthood and wellbeing.

A small number of studies found, in contrast, a positive relationship between parenthood and SWB. Stutzer and Frey (2004) used data from the German Socio-Economic Panel Study (GSOEP) and their estimates demonstrate a small but significantly positive relationship between having children and life satisfaction. A decade later, using the same data, Pollmann-Schult (2014) also found evidence that parenthood had positive implications on the SWB of Germans, though his findings demonstrate that these effects were offset by financial and time constraints associated with raising children. Haller and Hadler (2006) generated similar results using data from the WVS, comprising of 41 countries, while a recent study by Mikucka (2016) on parenthood and SWB in Russia concluded that life satisfaction increased on the arrival of a first child but the effect was even stronger on the birth of a second child. The positive relationship of parenthood on SWB was similarly found within the Hungarian context, where using data from the Turning Points of Life Course Survey, Radó (2019) found that first and second children increased SWB. She also split the sample by gender to reveal that women benefitted from children in both the short and long term, however men only experienced a short-term increase in SWB arising from parenthood.

Other studies produced mixed results. For example, using U.S. data from the National Survey of Families and Household, Nomaguchi and Milkie (2003) found that having children could be both disadvantageous and fulfilling. Married mothers were found to spend more time on housework and faced higher levels of marital conflict, yet were less depressed than childless women. However, unmarried parents were reported to be more depressed than their childless counterparts. Interestingly, their study established that parenthood had little effect on the lives of married men. A study of British households using BHPS data by Angeles (2009) also found that married individuals were better off with children while unmarried parents were worse off compared to their childless counterparts. He elucidated that generally, children had a large and positive effect on SWB but only when individual characteristics such as gender, marital status, and income were controlled for.

### *3.2.2 Australian Studies*

Most Australian studies on the effects of parenthood use data from the HILDA survey. The majority fall into the subset of empirical literature that has found negative or statistically insignificant effects of parenthood on SWB. Shields and Wooden (2003) concluded that SWB declines with the presence of children within the household, with these negative effects increasing in magnitude with the number of children. In a decade review of the patterns of life satisfaction in Australia, Ambrey and Fleming (2014) also found that dependent children reduce individuals' SWB. Dockery (2010) provided more evidence that SWB is negatively associated with parenthood, however, when splitting the sample by gender he found that the negative effects of children on SWB are significant for men but not for women. In comparison, Powdthaveea et al. (2015) found no significant effects associated with number of children on SWB for both men and women. Yet more recently, Matysiak et al. (2016) found differing results; when accounting for work–family conflict associated with parenthood, the birth of a first or second child resulted in a decline in women's SWB, with no such effects being observed for men.

### *3.2.3 Studies With Anticipation and Adaptation Effects*

A recent and important alternate set of studies has provided a new perspective on the impacts of parenthood on SWB by finding that major life events such as having a child have transient effects on individuals (Nomaguchi & Milkie, 2020). This empirical literature was first advanced by Clark et al. (2008), who studied the anticipation and adaptation effects of five major life events, including the birth of a child. Using GSOEP data, they found that a newborn has a positive effect on SWB for women but not for men; however, these effects become negative once the child is between 2 to 3 years old. Clark and Georgellis (2013) later found very similar results, demonstrating complete adaptation of SWB for a sample of parents included in the BHPS. Following the same methodology, although focusing on quarterly life-event data, Frijters et al. (2011) used data from the HILDA survey and found positive effects of a newborn on SWB that were very similar for both men and women; however, they also found that complete adaptation is reached very quickly: within five quarters of the child's birth. Another relevant study by Rudolf and Kang (2015), using data from the Korean Labor

and Income Panel Study, established gendered effects on SWB. Men show positive anticipation effects related to the birth of a child, however, Korean women experience long-term significant negative effects on SWB, which become apparent two years after birth. Many of the above results on the transient effects of parenthood on SWB are consistent with the baseline hypothesis theory established by Brickman and Campbell (1977). This suggests individuals go through life on a so-called "hedonic treadmill," where various events (such as having children) have anticipation and adaptation effects on wellbeing, but the effects of such events ultimately diminish over time, with individuals reverting to their baseline level of wellbeing.

### *3.2.4 Summary*

While some of the reviewed studies incorporate analysis by gender, they still do not account for intra-household aspects. As highlighted above, the study by Matysiak et al. (2016) did include some intra-household elements in terms of work-family conflict. However, apart from including partner's labour force status, no other partner characteristics were taken into account. Many studies on parenthood and wellbeing (including Matysiak et al., 2016), have included single, coupled, and divorced men and women in their samples. As such, the focus has been on how parenthood affects men and women separately – hence, neglecting interdependencies between parents. Couples often make decisions regarding parenting contributions based on their shared circumstances rather than individual circumstances. For example, adjustments in paid and unpaid work from parenthood may have implications not only on an individual's wellbeing but also on their partner's wellbeing –further emphasising the need for an intra-household analysis.

Furthermore, most prior studies have only provided insights on the impact of parenthood on overall wellbeing. Thus they have neglected the way in which the net overall impact of parenthood is produced by potentially different impacts on various domains of SWB, and how the pattern of these impacts might be gendered. This study helps fill this gap by analysing changes in overall life satisfaction, as well as two other domains of SWB that are particularly relevant to the gendered effects parenthood: financial satisfaction, and partner satisfaction.

In total, informed by collective models of the household, and using data from the HILDA survey, this study contributes an intra-household analysis of how men's

and women's overall life satisfaction, financial satisfaction, and their partner satisfaction changes with parenthood.

## 3.3 Data and Measures

The HILDA survey is a nationally representative longitudinal panel that is comparable to the GSOEP and the BHPS. Commencing in 2001, HILDA provides information on the lives of Australians including topics such as employment, childcare, family relationships, health and wellbeing, income, and expenditure. At the time of writing the survey consists of 18 waves conducted between 2001 and 2018, with information on 9,639 households and 18,324 responding individuals in the most recent wave (Summerfield et al., 2019). The survey collects data at the household level, and for couple households it includes interviews with each of the partners. It is thus well-suited to a study of the intra-household effects of parenthood on wellbeing.

This study uses HILDA data for the period from 2002 to 2018 (that is, from wave 2 onwards) because relevant information on the birth of a newborn child is not available in wave 1.[6] The sample comprises men and women in mixed-sex couples for whom relevant partner information is also available, and includes those who were either formally married or in a de-facto relationship, and with or without children. The sample is limited to individuals aged between 20 and 50 years old, as these are the key years of child-raising. As the study attempts to examine both the lead and lag effects of parenthood on wellbeing, there is inevitably some missing data for some couples, and this reduces the sample size. Furthermore, to avoid capturing adaptation effects of multiple births, the sample is also limited to men and women in couple relationships where no more than one child was born across the years in which they were interviewed. These restrictions were applied to all models (even those without lead and lag intertemporal effects).[7] Meeting the criterion, the study still achieves an

[6] The presence of a newborn child within a family is measured through changes in the number of children reported between consecutive waves. As such, the presence of a newborn in wave 1 cannot be identified due to missing lagged data. Alternatively, HILDA includes data on questions regarding important life events, one of which includes the birth of a child. However, this question is also not available in wave 1.

[7] The purpose of imposing restrictions on all models is so that the intertemporal and contemporaneous effects of a parenthood can be compared.

unbalanced panel consisting of 12,608 female-year observations and 12,262 male-year observations from 3,140 couple households.[8]

Given this study's research questions, the key dependent variables of interest are those that proxy wellbeing. These are constructed from a set of HILDA survey questions which asked each year about the respondent's life, financial, and partner satisfaction: (i) "All things considered, how satisfied are you with your life?" (ii) "How satisfied are you with your financial situation?" and (iii) "How satisfied are you with your partner?" For each of these questions, the survey allowed responses on a scale from 0 to 10, with a response of 0 indicating that the individual is completely dissatisfied and a response of 10 indicating complete satisfaction.

The main explanatory variables are measures capturing parental status as categorised by the number of children and the presence of a newborn child. Number of children is a categorical variable that varies over time. The newborn variable captures the presence of a child below the age of one within the household. As shown in Table 3.1, men and women who are parents generally report lower scores across each of the three SWB domains compared to men and women with no children. However, women with a newborn report on average the same overall life satisfaction score (of 8.13 points as seen in Column 1) as women with no children. In households with one, two, and three or more children, women report marginally higher average overall life satisfaction scores than men. Comparing data between men and women on financial satisfaction scores (Column 2), men with a newborn child record on average, the lowest scores. Both mothers and fathers of two children report higher financial satisfaction scores compared to mothers and fathers with one or three or more children. Moreover, for both men and women having a child is associated with lower partner satisfaction (as seen in Column 3), although the negative impact of parenthood is less when a newborn is present.

Table 3.2 provides summary statistics for other important measures used in this study. Previous studies have established that changes in hours spent in paid and unpaid work are important mediators between parenthood and wellbeing (Namaguchi & Milkie, 2003; Craig & Bittman, 2008). Thus, this analysis includes measures to control for different levels of paid and unpaid work across the sample. Average paid work

[8] The number of couple observations in different parts of the analysis varies, since in some parts observations with missing data on key dependent variables of interest are dropped.

hours are lower for partnered women with children compared to those without children (by 15.18 hours) but their housework hours are higher (by 10.01 hours). However, partnered men with children spend slightly more time in paid work (1.36 hours, on average) and marginally more time in housework (0.27 hours, on average) than partnered men without children. These features of the data point to the gender division of the paid and unpaid work associated with parenthood inside many Australian households.

Other control variables used in this study include measures of income (in 2018 Australian dollars), marital status, duration of relationship, and a range of demographic factors. The data in Table 3.2 show that average income is lower for partnered women with children than it is for other partnered women (AUD33,789 versus AUD47,791). In contrast, partnered men with children have higher average incomes than their peers without children (AUD70,308 versus AUD60,785). As previous studies have found income and SWB to be positively correlated (Tao, 2005; Stanca, 2012), it is possible that the effects of parenthood on SWB will be mediated by the changes in the level of income that are associated with this life event.

Controls for marital status are included in the study because the extant literature indicates that individuals in de facto relationships can experience higher parenting strains and lower wellbeing compared to married couples (Stavrova & Fetchenhauer, 2015; Sassler & Lichter, 2020). The controls for relationship duration respond to a common shortfall in previous research, namely a failure to distinguish between changes in wellbeing associated with parenthood and changes produced by a longer duration of the relationship (Nomaguchi & Milkie, 2020). In other words, the study attempts to isolate the changes in wellbeing associated with parenthood from those produced by the passage of time itself (Dew & Wilcox, 2011; Keizer & Schenk, 2012). As seen in Table 3.2, men and women with children have been together for 11.78 years on average compared to men and women without children, who have been together for 3.28 years on average.

The demographic controls include measures of each partner's age, the presence of a health condition, and years in education. Age and health status have been shown in other studies to significantly affect wellbeing, and age and long-term health conditions may affect the experience of parenthood (Dolan et al., 2008; Pollmann-Schult, 2014). A number of studies have also indicated that the positive effects of

parenthood are, on average, larger for individuals with higher levels of education (Myrskylä & Margolis, 2014; Roeters et al., 2016).

**Table 3.1**

*Number of Children, and Men's and Women's SWB: HILDA, Mixed-Sex Couple Households, 2002–2018*

| | Men | | | | | |
|---|---|---|---|---|---|---|
| | Life satisfaction | | Financial satisfaction | | Partner satisfaction | |
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| No children | 8.01 | 1.19 | 6.80 | 1.88 | 8.96 | 1.25 |
| One child | 7.84 | 1.28 | 6.33 | 1.98 | 8.31 | 1.70 |
| Two children | 7.86 | 1.22 | 6.59 | 1.92 | 8.26 | 1.72 |
| Three or more children | 7.78 | 1.39 | 6.33 | 2.04 | 8.34 | 1.76 |
| Newborn | 7.90 | 1.36 | 6.18 | 2.18 | 8.51 | 1.52 |
| N (person–year observations) | 12,262.00 | | 12,261.00 | | 11,215.00 | |
| | Women | | | | | |
| | Life satisfaction | | Financial satisfaction | | Partner satisfaction | |
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| No children | 8.13 | 1.14 | 6.82 | 1.88 | 8.91 | 1.36 |
| One child | 7.98 | 1.24 | 6.40 | 2.08 | 8.29 | 1.72 |
| Two children | 7.99 | 1.24 | 6.53 | 1.91 | 8.14 | 1.82 |
| Three or more children | 7.99 | 1.25 | 6.39 | 2.05 | 8.07 | 1.93 |
| Newborn | 8.13 | 1.22 | 6.31 | 2.01 | 8.36 | 1.75 |
| N (person–year observations) | 12,608.00 | | 12,606.00 | | 11,730.00 | |

*Note*. This sample consists of men and women in mixed-sex couples, between the ages of 20–50 years old.

**Table 3.2**

*Descriptive Statistics: HILDA, Mixed-Sex Couple Households, 2002–2018*

| | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|
| | Non-parents | | Parents | | Non-parents | | Parents | |
| | Mean | Standard deviation | Mean | Standard Deviation | Mean | Standard deviation | Mean | Standard deviation |
| Paid work hours per week | 41.96 | 14.64 | 43.32 | 15.38 | 35.06 | 15.17 | 19.88 | 16.89 |
| Housework hours per week | 13.35 | 23.98 | 13.62 | 23.16 | 15.33 | 21.70 | 25.34 | 21.28 |
| Individual income in AUD | 60,784.76 | 36,396.99 | 70,307.91 | 50,354.98 | 47,791.02 | 25,803.43 | 33,789.08 | 27,626.76 |
| Married | 0.53 | 0.50 | 0.90 | 0.31 | 0.53 | 0.50 | 0.89 | 0.31 |
| Duration of relationship (years) | 3.28 | 3.51 | 11.78 | 6.50 | 3.24 | 3.44 | 11.88 | 6.47 |
| Age (years) | 30.19 | 5.89 | 38.82 | 5.66 | 28.51 | 5.53 | 37.05 | 5.81 |
| Education (years) | 13.81 | 2.28 | 13.25 | 2.41 | 14.28 | 2.23 | 13.05 | 2.55 |
| Presence of a health condition | 0.12 | 0.32 | 0.16 | 0.37 | 0.14 | 0.34 | 0.14 | 0.35 |
| N (person–year observations) | 5,161.00 | | 7,101.00 | | 5,286.00 | | 7,322.00 | |

*Note*. This sample consists of men and women in mixed-sex couples between the ages of 20–50 years old.

## 3.4 Empirical Strategy

The basic approach to modelling the relationship between parenthood and SWB is to describe an individual's life satisfaction, financial satisfaction, and partner satisfaction as a linear function of a set of independent variables, including the presence of children. As the focus of this study is on how these effects play out within households, a key feature of the models used in this study is to control for partner characteristics in the estimation of SWB. The study also deploys a fixed effects regression modelling approach as this allows for within-individual comparisons, such that the same individual's wellbeing is analysed at different points in time and thus, time invariant unobserved heterogeneity can be eliminated (Wooldridge, 2010).[9] Sources of time invariant unobserved heterogeneity may include factors such as cultural norms which may shape an individual's wellbeing in certain ways, as well as affect choices of having children. This identification strategy adds a more rigorous test for the effects of parenthood on wellbeing compared to studies which make more generalised between-individual comparisons, while not accounting for fixed effects (for example Shields & Wooden, 2003; Alesina et al., 2004; Straca, 2012).

With this approach, each partner's SWB is estimated as follows:

$$s_{jt}^{m} = \beta_{1\mathrm{m}}\boldsymbol{K_{jt}} + \beta_{2m}N_{jt} + \gamma_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\mu_{jt}^{m}} + \varepsilon_{1jt} \quad (3.1)$$

$$s_{jt}^{w} = \beta_{1w}\boldsymbol{K_{jt}} + \beta_{2\mathrm{w}}N_{jt} + \gamma_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\mu_{jt}^{w}} + \varepsilon_{2jt} \quad (3.2)$$

The variables $s_{jt}^{m}$ and $s_{jt}^{w}$ denote the SWB of the man and the woman in the jth household at time t, respectively. The vector $\boldsymbol{K_{jt}}$ captures the presence of one child, two children, and three or more children in the jth household, with no children as the reference category. Given a fixed effects approach, the coefficient on the one child

[9] It is acknowledged that some debate exists on the use of a linear fixed effects model with a categorical dependent variable (see Kristoffersen, 2010). While a large number of studies have deployed linear models leading to OLS estimates, some argue that satisfaction variables are only comparable ordinally and hence they assert that ordered probit or logit models of estimations should be used. Against this, recent studies of subjective wellbeing which have used both linear and non-linear regressions have produced similar estimates. That is, ordered probit or logit models and OLS models have been found to estimate coefficients with similar signs and levels of statistical significance (see Gardner & Oswald, 2001; Ferrer-i-Carbonell & Frijters, 2004; Headey & Wooden, 2004; Blanchflower & Oswald, 2004, 2005). As such, and due to the easier interpretation of OLS estimates, this study uses linear fixed effects models. Nonetheless, regressions were run using both ordered logit and ordinary least squares estimations, yielding similar results.

variable represents the difference in average SWB of, for example, a woman in the years when she had no children compared to her average level of SWB in the years when she has one child. The difference in magnitude of the coefficients on the one child and two children variables show, in the case of women, the difference in her average SWB in the years when she had one child, and in the years when she had two children, and so on. These variables, however, do not capture how the effects of parenthood on SWB might vary with the age of the (existing) children in the household. It could expected that the immediate effects of an extra child within the household will be different from the effects of the child as measured across all of the years following its birth. To account for this, a second variable $N_{jt}$, captures the presence of a newborn in the jth household with no newborn as the reference category. The vector $\boldsymbol{C_{jt}^{O}}$ includes a set of controls which capture the individual's own characteristics that may have independent impacts on levels of SWB, including, as noted, marital status (formally married or de facto), relationship duration (in years),[10] age, individual income (in logs), presence of a health condition, years in education, average hours of paid work per week, and average hours of housework per week. The vector $\boldsymbol{C_{jt}^{P}}$ captures characteristics of the individual's partner, including his/her age, individual income (in logs), presence of a health condition, years in education, average hours in paid work per week, and average hours of housework per week. Both own and partner's age controls include squared terms to capture possible non-linear effects. In addition, own and partner's average hours in paid work and housework per week controls are treated as continuous variables and top coded at 84 hours per week to account for implausible values in the data such as individuals reporting spending 24 hours on paid work per day. Variables $t_1$ and $t_2$ consist of year fixed effects, while the vector of variables $\boldsymbol{\mu_{jt}^{m}}$ and $\boldsymbol{\mu_{jt}^{w}}$ denote individual fixed effects that control for time invariant characteristics of the man and woman respectively. Variables $\varepsilon_{1jt}$ and $\varepsilon_{2jt}$ are randomly distributed error terms with a mean of zero.

The inclusion of an extensive list of partner characteristics serves to capture the intra-household effects in the analysis of the wellbeing implications of parenthood, and thus helps capture intra-household interdependencies. They also enable an

[10] To address possible non-linearity associated with wellbeing and relationship duration, all regressions were also run with a squared term for relationship duration. The results were similar to those from models with a linear measure and hence, relationship duration is treated as linear within this study.

assessment of whether changes in SWB associated with parenthood are differently affected by adjustments in the person's time spent in paid work and unpaid work, as compared to their partner's time spent in paid work and unpaid work. Successively, variables for own and partner's hours in paid and unpaid work are added to the modelling. The goal of this step-wise approach is to determine how the relationship between SWB and parenthood may be altered by factors relating to adjustments in average time spent in paid work and housework for both genders.

Using this strategy, the study is able to measure how parenthood affects SWB (across three domains, including overall life satisfaction, financial satisfaction, and partner satisfaction) of men and women in mixed-sex couple households by comparing, in particular, the coefficients on $K_{jt}$ and $N_{jt}$ across models (3.1) and (3.2). This method provides insights into RQ3.1, RQ3.2, and RQ3.3. If the coefficients are significantly different across the men and women samples, this can be interpreted as evidence of the gendered effects of parenthood, whereby the perceived costs and benefits of parenthood are not evenly distributed.

To address RQ3.4, which focuses specifically on the anticipation and adaptation effects of a newborn, the modelling is altered to include measures of SWB in the time prior and subsequent to the arrival of a new child in the family. Following Clark and Georgellis (2013), each partner's SWB is modelled as a linear function of an extended set of independent variables:

$$s_{jt}^{m} = \beta_{1m,T-4}N_{jt,T-4}^{m} + \beta_{1m,T-3}N_{jt,T-3}^{m} + \beta_{1m,T-2}N_{jt,T-2}^{m} + \beta_{1m,T-1}N_{jt,T-1}^{m} + \beta_{1m,T}\,N_{jt,T}^{m} + \beta_{1m,T+1}N_{jt,T+1}^{m} + \beta_{1m,T+2}N_{jt,T+2}^{m} + \beta_{1m,T+3}N_{jt,T+3}^{m} + \beta_{1m,T+4}N_{jt,T+4}^{m} + \beta_{1m,T+5}N_{jt,T+5}^{m} + \alpha_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \alpha_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\mu_{jt}^{m}} + \varepsilon_{1jt} \quad (3.3)$$

$$s_{jt}^{w} = \beta_{1w,T-4}N_{jt,T-4}^{w} + \beta_{1w,T-3}N_{jt,T-3}^{w} + \beta_{1w,T-2}N_{jt,T-2}^{w} + \beta_{1w,T-1}N_{jt,T-1}^{w} + \beta_{1w,T}N_{jt,T}^{w} + \beta_{1w,T+1}N_{jt,T+1}^{w} + \beta_{1w,T+2}N_{jt,T+2}^{w} + \beta_{1w,T+3}N_{jt,T+3}^{w} + \beta_{1w,T+4}N_{jt,T+4}^{w} + \beta_{1w,T+5}N_{jt,T+5}^{w} + \alpha_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \alpha_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\mu_{jt}^{w}} + \varepsilon_{2jt} \quad (3.4)$$

In contrast to entering a simple newborn dummy that will pick up the average wellbeing effect of all the individuals with a newborn, individuals with a newborn are split into six groups, those who had a newborn 0–1 years ago, 2–3 years ago, and so on. Thus, for example, for lead effects, if the individual is observed in the year preceding the birth of a child, $N_{T-1}$ is coded as 1. Similarly, for lag effects, if the individual is observed two years after the birth of their child, $N_{T+2}$ is coded as 1. With no anticipation effects, all the coefficients on the lead variables will be roughly the

same. If there are adaptation effects, the lag coefficients will be less positive than the base coefficients, or even statistically insignificant – and this would imply that individuals, on average, revert to a baseline level of SWB in the years following the birth of a child. The omitted category includes individuals who do not have a newborn within the four-year timeframe.

It should be noted that this stage of the analysis does not separately compare the effects of a first newborn child for example, with the effects of a newborn in households where other children are already present. Rather, this factor is controlled for by including a variable for the number of children present within the household.[11] The implicit assumption is thus that the effects of a first-born child on SWB are similar to those of a subsequent child. This is an acknowledged limitation of the analysis, but it is a constraint imposed by the sample size. Other variables in equations (3.3) and (3.4) are as defined in equations (3.1) and (3.2).

## 3.5 Results

The results from the estimations of overall life satisfaction, financial satisfaction, and partner satisfaction for men and women are presented in Table 3.3, Table 3.4, and Table 3.5 respectively. For all three domains of SWB, three models are specified. Model A does not include controls for own and partner's hours in paid work, or housework per week. In Model B, controls for own hours in paid work and housework per week are added. Finally, Model C contains the full set of controls including both partners' hours in paid work and housework per week.

[11] One option for measuring the differences in SWB for first, second, and third newborns could be to include an interaction term between the newborn variables and number of children categorical variables. However, despite the fairly large sample size, the number of specific cases of such combinations were too small to produce robust results.

**Table 3.3**

*Fixed Effects Regression Results for Effects of Parenthood on Overall Life Satisfaction*

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | (1) Model A | (2) Model B | (3) Model C | (4) Model A | (5) Model B | (6) Model C |
| One child | -0.152* | -0.153* | -0.135 | -0.172** | -0.213*** | -0.213*** |
| | (0.091) | (0.091) | (0.090) | (0.079) | (0.082) | (0.082) |
| Two children | -0.214* | -0.215* | -0.191 | -0.443*** | -0.501*** | -0.499*** |
| | (0.125) | (0.125) | (0.125) | (0.118) | (0.121) | (0.121) |
| Three or more children | -0.366** | -0.367** | -0.335* | -0.705*** | -0.772*** | -0.770*** |
| | (0.170) | (0.170) | (0.171) | (0.162) | (0.165) | (0.165) |
| Newborn | 0.082 | 0.082 | 0.091 | 0.271*** | 0.258*** | 0.257*** |
| | (0.059) | (0.059) | (0.059) | (0.056) | (0.056) | (0.056) |
| Married | -0.043 | -0.042 | -0.038 | -0.075 | -0.083 | -0.083 |
| | (0.062) | (0.062) | (0.062) | (0.057) | (0.057) | (0.057) |
| Duration of relationship (years) | -0.021* | -0.021* | -0.021* | -0.018 | -0.020* | -0.019* |
| | (0.012) | (0.012) | (0.012) | (0.011) | (0.011) | (0.011) |
| Age (years) | -0.047 | -0.046 | -0.045 | -0.019 | -0.012 | -0.012 |
| | (0.084) | (0.084) | (0.084) | (0.054) | (0.055) | (0.056) |
| Age squared (years) | -0.001 | -0.001 | -0.001 | 0.000 | 0.000 | 0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Log (individual income +1) | 0.005 | 0.006 | 0.007 | -0.024* | -0.019 | -0.019 |
| | (0.019) | (0.019) | (0.019) | (0.012) | (0.013) | (0.013) |
| Presence of a health condition | -0.186*** | -0.187*** | -0.187*** | -0.164*** | -0.167*** | -0.167*** |
| | (0.044) | (0.044) | (0.044) | (0.040) | (0.041) | (0.041) |
| Education (years) | -0.030 | -0.029 | -0.029 | -0.008 | -0.003 | -0.003 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.021) | (0.021) | (0.021) | (0.021) | (0.021) | (0.021) |
| Average work hours per week | | -0.001 | -0.001 | | -0.002** | -0.002* |
| | | (0.001) | (0.001) | | (0.001) | (0.001) |
| Average housework hours per week | | -0.000 | -0.000 | | 0.001** | 0.002** |
| | | (0.001) | (0.001) | | (0.001) | (0.001) |
| Partner characteristics | | | | | | |
| Age (years) | 0.096 | 0.096 | 0.095 | 0.151*** | 0.143** | 0.143** |
| | (0.082) | (0.082) | (0.083) | (0.056) | (0.057) | (0.057) |
| Age squared (years) | 0.000 | 0.000 | 0.000 | -0.002** | -0.002** | -0.002** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Log (individual income +1) | 0.006 | 0.006 | 0.003 | 0.030** | 0.029** | 0.028** |
| | (0.012) | (0.012) | (0.013) | (0.014) | (0.014) | (0.014) |
| Presence of a health condition | -0.021 | -0.021 | -0.020 | 0.069** | 0.070** | 0.070** |
| | (0.038) | (0.038) | (0.037) | (0.035) | (0.035) | (0.035) |
| Education (years) | 0.004 | 0.005 | 0.001 | 0.017 | 0.018 | 0.018 |
| | (0.019) | (0.019) | (0.019) | (0.025) | (0.025) | (0.025) |
| Average work hours per week | | | 0.002* | | | 0.000 |
| | | | (0.001) | | | (0.001) |
| Average housework hours per week | | | 0.000 | | | -0.000 |
| | | | (0.001) | | | (0.001) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| N (observations) | 12,262 | 12,262 | 12,262 | 12,608 | 12,608 | 12,608 |
| Couples | 3,088 | 3,088 | 3,088 | 3,140 | 3,140 | 3,140 |
| Tests for statistical significance of gender differences | | | | | | |
| $H_o$: $\beta_{\text{One Child.f}} = \beta_{\text{One Child.m}}$ | | | | $\chi^2(1) = 0.62$<br>Prob>$\chi^2$=0.4327 | | |

| | Accept $H_o$ |
|---|---|
| $H_o$: $\beta_{\text{Two Children.f}} = \beta_{\text{Two Children.m}}$ | $\chi^2(1) = 4.54$<br>Prob>$\chi^2$=0.0331<br>Reject $H_o$ |
| $H_o$:$\beta_{\text{Three plus children.f}} = \beta_{\text{Three plus children.m}}$ | $\chi^2(1) = 4.35$<br>Prob>$\chi^2$=0.0370<br>Reject $H_o$ |
| $H_o$: $\beta_{\text{Newborn.f}} = \beta_{\text{Newborn.m}}$ | $\chi^2(1) = 5.49$<br>Prob>$\chi^2$=0.0191<br>Reject $H_o$ |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men and women in mixed-sex couples, between the ages of 20–50 years old who were interviewed in the HILDA survey, waves 2–18. Tests for statistical significance of gender differences are based on models with all controls.
* Denotes significance at 10%; ** at 5%; *** at 1% levels.

**Table 3.4**

*Fixed Effects Regression Results for Effects of Parenthood on Financial Satisfaction*

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | (1) Model A | (2) Model B | (3) Model C | (4) Model A | (5) Model B | (6) Model C |
| One child | -0.417*** | -0.365** | -0.310** | -0.648*** | -0.387*** | -0.375*** |
| | (0.148) | (0.144) | (0.145) | (0.122) | (0.124) | (0.124) |
| Two children | -0.687*** | -0.614*** | -0.538*** | -1.015*** | -0.666*** | -0.645*** |
| | (0.198) | (0.193) | (0.195) | (0.214) | (0.216) | (0.216) |
| Three or more children | -1.030*** | -0.925*** | -0.827*** | -1.558*** | -1.128*** | -1.105*** |
| | (0.267) | (0.264) | (0.266) | (0.304) | (0.306) | (0.304) |
| Newborn | -0.034 | -0.054 | -0.029 | 0.146 | 0.237** | 0.223** |
| | (0.093) | (0.091) | (0.092) | (0.098) | (0.098) | (0.098) |
| Married | 0.211** | 0.183* | 0.195* | 0.038 | 0.084 | 0.075 |
| | (0.106) | (0.102) | (0.102) | (0.121) | (0.118) | (0.119) |
| Duration of relationship (years) | 0.039* | 0.034* | 0.035* | 0.005 | 0.009 | 0.009 |
| | (0.021) | (0.020) | (0.020) | (0.030) | (0.029) | (0.029) |
| Age (years) | 0.208* | 0.191* | 0.195* | 0.139 | 0.108 | 0.096 |
| | (0.112) | (0.108) | (0.107) | (0.128) | (0.125) | (0.128) |
| Age squared (years) | -0.002 | -0.001 | -0.001 | -0.000 | -0.000 | -0.001 |
| | (0.002) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Log (individual income +1) | 0.126*** | 0.089*** | 0.092*** | 0.065*** | 0.028 | 0.033 |
| | (0.034) | (0.031) | (0.031) | (0.022) | (0.021) | (0.021) |
| Presence of a health condition | -0.205*** | -0.181*** | -0.181*** | -0.044 | -0.036 | -0.037 |
| | (0.062) | (0.060) | (0.060) | (0.057) | (0.056) | (0.055) |
| Education (years) | 0.014 | -0.020 | -0.022 | 0.050 | 0.011 | 0.006 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.041) | (0.040) | (0.040) | (0.035) | (0.035) | (0.035) |
| Average work hours per week | | 0.020*** | 0.020*** | | 0.018*** | 0.017*** |
| | | (0.002) | (0.002) | | (0.002) | (0.002) |
| Average housework hours per week | | 0.001 | 0.001 | | 0.001 | 0.001 |
| | | (0.001) | (0.001) | | (0.001) | (0.001) |
| Partner characteristics | | | | | | |
| Age (years) | 0.008 | 0.001 | -0.001 | 0.160 | 0.196 | 0.196 |
| | (0.104) | (0.101) | (0.100) | (0.133) | (0.130) | (0.133) |
| Age squared (years) | -0.001 | -0.001 | -0.001 | -0.002* | -0.003* | -0.002* |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Log (individual income +1) | 0.004 | 0.009 | -0.001 | 0.095*** | 0.104*** | 0.086*** |
| | (0.016) | (0.016) | (0.016) | (0.033) | (0.034) | (0.033) |
| Presence of a health condition | -0.084 | -0.085 | -0.082 | -0.024 | -0.019 | -0.005 |
| | (0.054) | (0.053) | (0.053) | (0.058) | (0.058) | (0.058) |
| Education (years) | 0.070* | 0.059 | 0.049 | 0.076** | 0.068* | 0.050 |
| | (0.037) | (0.037) | (0.037) | (0.039) | (0.038) | (0.037) |
| Average work hours per week | | | 0.005*** | | | 0.010*** |
| | | | (0.002) | | | (0.002) |
| Average housework hours per week | | | -0.000 | | | 0.001 |
| | | | (0.001) | | | (0.001) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| N (observations) | 12,261 | 12,261 | 12,261 | 12,606 | 12,606 | 12,606 |
| Couples | 3,088 | 3,088 | 3,088 | 3,139 | 3,139 | 3,139 |
| Tests for statistical significance of gender differences | | | | | | |
| $H_o$: $\beta_{\text{One Child.f}} = \beta_{\text{One Child.m}}$ | | | | $\chi^2(1) = 0.16$<br>Prob>$\chi^2$=0.6868 | | |

| | |
|---|---|
| | Accept $H_o$ |
| $H_o$: $\beta_{\text{Two Children.f}} = \beta_{\text{Two Children.m}}$ | $\chi^2(1) = 0.21$<br>Prob>$\chi^2$=0.6483<br>Accept $H_o$ |
| $H_o$:$\beta_{\text{Three plus children.f}} = \beta_{\text{Three plus children.m}}$ | $\chi^2(1) = 0.71$<br>Prob>$\chi^2$=0.3986<br>Accept $H_o$ |
| $H_o$: $\beta_{\text{Newborn.f}} = \beta_{\text{Newborn.m}}$ | $\chi^2(1) = 4.78$<br>Prob>$\chi^2$=0.0289<br>Reject $H_o$ |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men and women in mixed-sex couples, between the ages of 20–50 years old who were interviewed in the HILDA survey, waves 2–18. Tests for statistical significance of gender differences are based on models with all controls.
* Denotes significance at 10%; ** at 5%; *** at 1% levels.

**Table 3.5**

*Fixed Effects Regression Results for Effects of Parenthood on Partner Satisfaction*

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | (1) Model A | (2) Model B | (3) Model C | (4) Model A | (5) Model B | (6) Model C |
| One child | -0.606*** | -0.609*** | -0.621*** | -0.523*** | -0.535*** | -0.531*** |
| | (0.119) | (0.119) | (0.120) | (0.128) | (0.131) | (0.131) |
| Two children | -1.001*** | -1.005*** | -1.025*** | -0.948*** | -0.963*** | -0.958*** |
| | (0.171) | (0.171) | (0.172) | (0.197) | (0.200) | (0.200) |
| Three or more children | -0.960*** | -0.963*** | -0.992*** | -1.157*** | -1.176*** | -1.171*** |
| | (0.239) | (0.239) | (0.242) | (0.256) | (0.260) | (0.261) |
| Newborn | 0.282*** | 0.282*** | 0.275*** | 0.263*** | 0.259*** | 0.256*** |
| | (0.076) | (0.076) | (0.076) | (0.087) | (0.087) | (0.087) |
| Married | -0.032 | -0.031 | -0.033 | 0.026 | 0.024 | 0.022 |
| | (0.108) | (0.108) | (0.108) | (0.101) | (0.101) | (0.102) |
| Duration of relationship (years) | -0.063** | -0.063** | -0.063** | -0.016 | -0.016 | -0.016 |
| | (0.025) | (0.025) | (0.025) | (0.024) | (0.024) | (0.024) |
| Age (years) | -0.134 | -0.133 | -0.136 | 0.102 | 0.103 | 0.100 |
| | (0.125) | (0.124) | (0.124) | (0.109) | (0.109) | (0.108) |
| Age squared (years) | 0.001 | 0.001 | 0.001 | -0.001 | -0.001 | -0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Log (individual income +1) | 0.000 | 0.002 | 0.002 | -0.009 | -0.008 | -0.007 |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.015) | (0.015) |
| Presence of a health condition | -0.038 | -0.039 | -0.039 | -0.171*** | -0.172*** | -0.173*** |
| | (0.049) | (0.049) | (0.049) | (0.059) | (0.059) | (0.059) |
| Education (years) | 0.005 | 0.007 | 0.007 | -0.016 | -0.014 | -0.015 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.033) | (0.034) | (0.034) | (0.035) | (0.036) | (0.036) |
| Average work hours per week | | -0.001 | -0.001 | | -0.001 | -0.001 |
| | | (0.001) | (0.001) | | (0.002) | (0.002) |
| Average housework hours per week | | -0.001 | -0.001 | | -0.000 | -0.000 |
| | | (0.002) | (0.002) | | (0.001) | (0.001) |
| Partner characteristics | | | | | | |
| Age (years) | 0.197 | 0.197 | 0.199 | -0.063 | -0.064 | -0.064 |
| | (0.130) | (0.129) | (0.128) | (0.114) | (0.114) | (0.113) |
| Age squared (years) | -0.001 | -0.001 | -0.001 | -0.000 | 0.000 | 0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Log (individual income +1) | -0.007 | -0.007 | -0.005 | 0.016 | 0.016 | 0.010 |
| | (0.014) | (0.015) | (0.015) | (0.023) | (0.022) | (0.022) |
| Presence of a health condition | -0.085* | -0.086* | -0.088* | -0.007 | -0.007 | -0.004 |
| | (0.047) | (0.047) | (0.047) | (0.054) | (0.054) | (0.054) |
| Education (years) | 0.001 | 0.002 | 0.003 | 0.042 | 0.042 | 0.037 |
| | (0.028) | (0.028) | (0.028) | (0.035) | (0.035) | (0.035) |
| Average work hours per week | | | -0.000 | | | 0.003 |
| | | | (0.001) | | | (0.002) |
| Average housework hours per week | | | 0.002 | | | 0.000 |
| | | | (0.001) | | | (0.001) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| N (observations) | 11,215 | 11,215 | 11,215 | 11,730 | 11,730 | 11,730 |
| Couples | 2,949 | 2,949 | 2,949 | 3,043 | 3,043 | 3,043 |
| Tests for statistical significance of gender differences | | | | | | |
| $H_o$: $\beta_{\text{One Child.f}} = \beta_{\text{One Child.m}}$ | | | | $\chi^2(1) = 0.43$<br>Prob>$\chi^2$=0.5118 | | |

| | |
|---|---|
| | Accept $H_o$ |
| $H_o$: $\beta_{\text{Two Children.f}} = \beta_{\text{Two Children.m}}$ | $\chi^2(1) = 0.10$<br>Prob>$\chi^2$=0.7533<br>Accept $H_o$ |
| $H_o$:$\beta_{\text{Three plus children.f}} = \beta_{\text{Three plus children.m}}$ | $\chi^2(1) = 0.38$<br>Prob>$\chi^2$=0.5369<br>Accept $H_o$ |
| $H_o$: $\beta_{\text{Newborn.f}} = \beta_{\text{Newborn.m}}$ | $\chi^2(1) = 0.04$<br>Prob>$\chi^2$=0.8500<br>Accept $H_o$ |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men and women in mixed-sex couples, between the ages of 20–50 years old who were interviewed in the HILDA survey, waves 2–18. Tests for statistical significance of gender differences are based on models with all controls.
* Denotes significance at 10%; ** at 5%; *** at 1% levels.

### *3.5.1 Overall Life Satisfaction*

Addressing the research question: "*Do changes in overall wellbeing associated with parenthood differ within mixed-sex couple households by the gender of the parent?*" (RQ3.1), Table 3.3 provides results demonstrating changes in overall life satisfaction in the presence of children for men and women respectively. Comparing results (for models with no hours of paid work or housework controls) in Columns 1 and 4 at mean values, for men, having one child is estimated to reduce life satisfaction by 0.152 points compared to when having no children. This negative impact increases in magnitude with two children and three or more children. At mean values, partnered women who have one child experience a drop in life satisfaction of 0.172 points compared to when they had no children. The negative impact of parenthood increases in magnitude for women with two children and three or more children. In relation to the effects of the presence of a newborn child within the family, men with a newborn child do not record a significant change in their level of overall life satisfaction; however, for women, in the initial period following the birth of a child, their life satisfaction increases by 0.271 points.

As mentioned above, comparing coefficients between models with and without own and partner's time spent in paid and unpaid housework enables an assessment of whether changes in work patterns may be responsible for changes in SWB associated with parenthood. For men, comparing results in Table 3.3 (Columns 2 and 3), adding controls for their own hours of paid work and housework has little impact on the measured effect of parenthood on life satisfaction. However, in the presence of controls for their partner's average hours of work, the measured effect of one child and two children on men's life satisfaction becomes statistically insignificant; and the measured negative impact of three or more children falls slightly, from -0.397 to -0.335 points. These results suggest that when women's work hours remain constant in households following parenthood, the negative pressures of parenthood for men are less. For women, comparing results in Columns 5 and 6 reveals an opposite pattern. In the presence of controls for her own hours in paid and unpaid housework, the negative coefficients on each of the parenthood variables increase. Controlling for women's partner's work hours has negligible effects on the relationship between women's overall life satisfaction and parenthood. These results may imply that when women's

work hours remain constant following parenthood, the negative pressures on them increases, while the pressure on their partners falls.

The lower panel of Table 3.3 adds some additional details on the gender distribution of the impacts of parenthood on overall life satisfaction by showing the results of tests of the statistical significance of the observed gender gaps. The statistically significant gender gaps are those relating to the presence of a newborn, and the second and third child. Women with a newborn report in increase in life satisfaction by 0.257 points; however, this pattern is not seen for men. The presence of two children in a household is not associated with statistically significant changes in life satisfaction for men, but for women there is a large and statistically significant 0.499 point drop in life satisfaction (see Columns 3 and 6 in Table 3.3). The presence of three or more children is linked to life satisfaction that is 0.335 points lower for men, but a more than double 0.770 point drop for women compared to when they had no children. Thus, and relevant to RQ3.1, this analysis of the changes in overall life satisfaction associated with parenthood show important gender differences. While women appear on average to experience a larger increase in their overall life satisfaction on the arrival of a newborn than men, they also appear to typically experience larger long-term (and negative) effects, specifically when they have more than one child.

### *3.5.2 Financial Satisfaction*

Results in Table 3.4 provide insights into the research question: "*How does parenthood affect the financial wellbeing of men and women living in mixed-sex couple households?*" (RQ3.2). As before, Columns 1 and 4 report the coefficients for baseline models of financial satisfaction (without additional work controls) for men and women respectively. Partnered men who had one child, at mean values, experienced a reduced level of financial satisfaction by 0.417 points; this negative correlation increased with the number of children in the household. Similarly, at mean values, partnered women who had one child became less satisfied with their financial situation by 0.648 points, and this negative effect also increased with the number of children. It is worth noting that the drop in financial satisfaction for women as the number of children increased is relatively steep. For example, women whose family size increased to three or more children experienced an average decline in their level of financial satisfaction over the

study period of 1.558 points. In contrast, their overall life satisfaction fell by 0.705 points, suggesting that the changes in financial satisfaction were important drivers of the change in life satisfaction in this group. In contrast, the results in Columns 1 and 4 of Table 3.4 show that the arrival of a newborn had insignificant effects on financial satisfaction for both men and women.

A comparison of the above results to those in Column 2 of Table 3.4 (where men's own paid work and housework hours per week are controlled for) and those in Column 3 (where their partner's paid work and housework hours per week are controlled for) provides further insights into the effects of parenthood on financial wellbeing. When men's own and their partner's work hours are held constant, the negative effects of parenthood become smaller, but only by a small margin. In contrast, the results for women in Columns 4, 5 and 6 of Table 3.4 show that when their own work hours are held constant, the measured negative impact of parenthood on their financial satisfaction become much smaller. For example, the impact of a newborn becomes positive and statistically significant, and the negative effect of one child on financial satisfaction scores almost halved, from -0.648 points to -0.375 points. These results indicate that an important driver of the negative impact of parenthood on women's financial satisfaction is their own lower paid work hours. That is, if women's hours in work were not affected by parenthood, the financial impacts would lessen. The results also point to the importance of women's paid work to their financial satisfaction, suggesting, contra to the pooling assumption of the unitary model, that earned income does influence women's perceived capacity to benefit from household financial resources.

It is also worth noting the different pattern of change across the models with and without work hours controls in Tables 3.3 and 3.4. In Table 3.3 – on overall life satisfaction – the controls saw an increase in the negative effects of parenthood for women and an opposite effect for men. In Table 3.4 – on financial satisfaction – the controls pushed the results in the opposite direction. That is, the measured negative effects fell for women. Thus, while paid work appears to support the financial wellbeing of mothers, it must generate other costs, including time pressures, and these contribute to a reduction in overall life satisfaction for women whose work hours do not change with parenthood.

The lower panel in Table 3.4 includes the results of tests of the statistical significance of the observed gender gap in the effect of parenthood on financial

satisfaction. It shows that the differences in the estimated effects of one child, two children, and three or more children on men's and women's financial satisfaction are not statistically significant. In contrast, a newborn has no effect on men's satisfaction with their financial situation, while, for women, a newborn is associated with higher financial satisfaction by 0.223 points in situations where work hours remain constant. A possible explanation for this is that for women, a higher financial position is a prerequisite in the decision to have a child, given the "motherhood penalty." This, however, is not the case for men who often benefit from "fatherhood premiums"—this idea is further elaborated on later in this study. Therefore, in relation to the second research question in this study, there is some evidence that the perceived financial costs associated with parenthood are not equally distributed between men and women in couple relationships, particularly in relation to a newborn child.

### *3.5.3 Partner Satisfaction*

The estimations from the models of partner satisfaction are presented in Table 3.5. These results help investigate the research question: "*For mixed-sex couples, does parenthood influence men's and women's satisfaction with their partner?*" (RQ3.3). Results from the initial models (without own and partner's paid work and housework hours per week controls) in Columns 1 and 4 show that when there is one child, partner satisfaction is on average lower by 0.606 points for men and 0.523 points for women than it was when no child was present. Interestingly, for men, moving from having two children to three or more children increases partner satisfaction slightly by 0.041 points (1.001–0.960), yet for women, moving from having two children to three or more children further reduces partner satisfaction by 0.209 points (1.157–0.948). For both men and women, having three or more children is still associated with a drop in partner satisfaction of 0.960 points and 1.157 points respectively, compared to when having no children. Men's and women's satisfaction with their partner typically increases when they have a newborn child: by 0.282 points for men and 0.263 points for women.

In contrast to the findings on the other domains of satisfaction, the results in Table 3.5 show that own and partner work hours do not moderate the influence of parenthood on partner satisfaction. The data in Columns 2 and 3 (for men), and 5 and 6 (for women), which show the relationships when work hours are controlled for, are similar to the results of the "baseline" regressions. It would seem then that changes in

work hours are not a key source of the relationship stressors associated with parenthood.

The size of these negative impacts of parenthood on partner satisfaction are similar in magnitude to the effects of parenthood on financial satisfaction. Thus, heightened conflict within households once children are present appears to contribute, alongside larger financial pressures, to lower overall levels of SWB. These negative impacts are similar for men and women, as demonstrated in the results in the lower panel of Table 3.5.

### *3.5.4 Anticipation and Adaptation Effects of a Newborn*

The final set of results presented in this study address the research question: "*Do men and women in mixed-sex couple relationships exhibit similar patterns of anticipation and adaptation of parenthood on overall life satisfaction, financial satisfaction, and partner satisfaction?*" (RQ3.4). As noted in the introduction, this stage of the analysis is important because it addresses the implicit assumption in previous stages that the effects of parenthood on SWB are contemporaneous. To allow for the likely anticipation and adaptation effects of parenthood, this stage of the analysis estimates lead and lag relationships between the arrival of a child (as measured by the newborn variable) and each of the three domains of satisfaction, while still controlling for couple interdependencies as before. The results are presented in Table 3.6. For ease of reading and comparison of gendered effects, a visual representation of the results are summarised graphically in Figure 3.1.

**Table 3.6**

*Fixed Effects Regression Results for Newborn Lead and Lag Effects on Life Satisfaction, Financial Satisfaction, and Partner Satisfaction*

| | Men | Women | Men | Women | Men | Women |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Life satisfaction | | Financial satisfaction | | Partner satisfaction | |
| T-4 | 0.122** | 0.082* | 0.087 | 0.090 | 0.054 | 0.050 |
| | (0.056) | (0.048) | (0.082) | (0.093) | (0.070) | (0.075) |
| T-3 | 0.030 | 0.141** | 0.074 | 0.147 | 0.120 | 0.144* |
| | (0.066) | (0.055) | (0.088) | (0.095) | (0.076) | (0.084) |
| T-2 | 0.155** | 0.170*** | 0.082 | 0.166 | 0.294*** | 0.257*** |
| | (0.069) | (0.060) | (0.097) | (0.108) | (0.080) | (0.095) |
| T-1 | 0.205*** | 0.316*** | 0.098 | 0.248** | 0.422*** | 0.300*** |
| | (0.075) | (0.069) | (0.106) | (0.118) | (0.090) | (0.110) |
| T | 0.063 | 0.194** | 0.021 | 0.086 | 0.187 | 0.161 |
| | (0.083) | (0.087) | (0.136) | (0.159) | (0.126) | (0.156) |
| T+1 | -0.002 | -0.020 | 0.080 | -0.170 | -0.012 | -0.148 |
| | (0.083) | (0.094) | (0.132) | (0.156) | (0.130) | (0.160) |
| T+2 | -0.035 | -0.164* | 0.056 | -0.098 | -0.046 | -0.104 |
| | (0.083) | (0.086) | (0.132) | (0.150) | (0.144) | (0.146) |
| T+3 | -0.015 | -0.097 | 0.105 | -0.079 | -0.080 | 0.026 |
| | (0.088) | (0.095) | (0.159) | (0.164) | (0.146) | (0.155) |
| T+4 | -0.008 | 0.031 | 0.079 | 0.087 | -0.199 | -0.034 |
| | (0.102) | (0.105) | (0.140) | (0.159) | (0.149) | (0.170) |
| T+5 or more | 0.029 | 0.032 | -0.059 | -0.052 | -0.073 | 0.053 |
| | (0.058) | (0.048) | (0.085) | (0.088) | (0.068) | (0.084) |
| N (obs.) | 12,262 | 12,608 | 12,261 | 12,606 | 11,215 | 11,730 |
| Couples | 3,088 | 3,140 | 3,088 | 3,139 | 2,949 | 3,043 |

*Note.* The bracketed terms are robust standard errors (clustered by couples). The sample consists of men and women in mixed-sex couples, between the ages of 20–50 years old who were interviewed in the HILDA survey, waves 2–18. Controls are: number of children, marriage, duration of relationship, own and partner's individual income (in logs), own and partner's hours of paid work and housework, own and partner's presence of a health condition, own and partner's years in education, own and partners age, year dummies, and individual fixed effects.
* Denotes significance at 10%; ** at 5%; *** at 1% levels.

**Figure 3.1**

*Dynamic Effects of a Newborn by SWB Domain*


*Note*. ♦, ■, and ● denote significance at the 1%, 5% and 10% levels, respectively.

The results in Table 3.6 start with the coefficients on a set of lead variables (T-4 through T-1) in regression models of overall life satisfaction (Columns 1 and 2). These show strong positive "anticipation" effects of a newborn. For men, these are highest in the year prior to the child's birth (T-1), when life satisfaction is higher by 0.205 points for men and by 0.316 for women, as compared to the period more than four years prior to the birth. However, for women, positive anticipation effects are present in each of the four years prior to the birth of a child, while for men they are present in most of the years.

In the birth year (T), women's life satisfaction stays high but men's falls to become insignificantly different from the level recorded four years prior to the birth. However, reflecting on the pattern of the results in Table 3.3, the pattern changes in subsequent years. Statistically significant negative impacts on life satisfaction emerge for women when the child is around two years old, while men's life satisfaction stabilises at that time. For women, adaptation back to a baseline level of overall life satisfaction occurs, on average, when the child is three years old, much later than is the case for men. These results also demonstrate that the insignificant coefficient on men's the newborn coefficient in Table 3.3 is due to positive anticipation effects that are prevalent before the birth of the child, which are not captured in the contemporaneous estimates.

The results presented in Columns 3 and 4 in Table 3.6 on financial satisfaction reveal fairly large significant positive anticipation effects a year prior to birth for women. However, in the year of birth, financial satisfaction reverts to a level that is not statistically different from the level prevailing four years prior, and it remains at this relatively low level for three years after the child's birth. For men, the birth of a child does not cause large changes in financial satisfaction. These patterns suggest that financial satisfaction is important to women's decision to have a child, but having a child pushes them back to a lower financial position. It also implies that the financial impacts of parenthood are not equally shared between mothers and fathers.

Referring to Columns 5 and 6 in Table 3.6, for men, partner satisfaction increases in the two years leading up to having a child, and these effects are highest in the year prior to birth. For women, increased partner satisfaction is apparent three years prior to having a child. Exhibiting similar adaptation effects for both genders, the positive effects of a newborn on partner satisfaction diminish in the year of birth with negative (although insignificant) lag effects when the child is around one year old.

Overall, the results from this stage of the analysis reveal differences in the anticipation and adaptation effects of parenthood between men and women, particularly in the domains of overall life satisfaction and financial satisfaction. The results highlight the importance of taking account of these effects, as they show how the positive effect of newborns on SWB is, in large part, due to changes occurring prior to the child's birth. This is suggestive of a selection into parenthood effect. The measured negative effects of parenthood evident in these results suggest that, especially for women, the positive changes in financial and other forms of SWB that encouraged them to have a child do not survive the early years of parenthood, and it takes four or more years to regain this lost ground.

## 3.6 Discussion

The findings of the analyses presented in this study are broadly consistent with those produced in a range of other Australian studies as they show that, in general, parenthood is associated with lower levels of SWB. The findings of this study, however, reveal some additional gender patterns and suggest that the financial vulnerability and time pressures of parenthood are more strongly experienced by women than men. This can be linked to the gendered roles associated with parenting. A range of studies have documented the increase in women's time spent on domestic roles when they become mothers, and of a fall in their ability to participate in paid work (see for example, Craig & Mullan, 2010). However, some economists have claimed that this is a voluntary arrangement, agreed to by women in an implicit contract with their partner (Becker, 1991). The accuracy of such claims can be rejected on the basis of the information presented in this study. Rather than showing similar changes in life satisfaction for both partners, this study finds substantial gender differences in the effects of parenthood. This evidence is not supportive of the assumptions of the unitary model of the household, but rather, the divergence in the effects of parenthood on SWB within households are better captured by frameworks informed by collective models of the household.

These results add to the emerging literature on the intra-household allocation of resources and how this affects the distribution of wellbeing. Women who are able to maintain their work appear to suffer a smaller drop in financial wellbeing with parenthood. However, maintaining paid work hours is also associated with lower

overall satisfaction, perhaps because with weak institutional supports, juggling work and care duties tends to be a difficult task – and one that falls on women.

The results on adaptation and anticipation effects of parenthood are another important contribution of this study. They show, first, some of the limitations of models that do not account for the process of changes in SWB. When controlling for anticipation and adaptation effects, while still accounting for partner interdependencies, the results are also very much consistent with the idea of the hedonic treadmill model – providing evidence that the impact of life events such as the birth of a child on wellbeing are better understood as a process occurring not only in the year of the event, but also in the years proceeding and following it.

Positive anticipation effects are present on some domains of wellbeing for both men and women. For example, the positive effects on overall life satisfaction quickly diminish in the year of birth and one year after birth for men and women respectively. While there appear to be no anticipation effects for men's financial satisfaction, there are positive anticipation effects on financial satisfaction for women the year before the birth of a child. These findings support results in Danish (Andersson et al., 2014), Norwegian (Hart, 2015) and Finnish (Vikat, 2004) samples which demonstrated that higher financial positions for women are translated into higher fertility. Given that parenthood is often associated with the "motherhood penalty," women may opt to only have children once a certain level of career maturity (and financial security) is reached (Andersson et al., 2014). Using Australian data, the results in this study indicate some possible cross-country similarities.

The results in this study are subject to some limitations. Regardless of the comprehensive list of controls and the use of fixed effects estimation strategies which control for unobserved time invariant heterogeneity, issues of unobserved time variant heterogeneity and reverse casualty may still be present. For example, "(un)happy" individuals' self-selection into parenthood cannot be ruled out. Moreover, Kravdal (2014) argues that estimations in previous studies about the effect of parenthood are biased since none of them controlled for expectations about the effect of parenthood. In that case, it could be assumed that models which account for the anticipation effects of a newborn would capture an individual's wellbeing in the years prior to the event and would to some degree minimise this bias. Nonetheless, to avoid any unwarranted claims on this issue, the results presented in this study simply point out how parenthood and wellbeing are related.

The results provide some insight on policy implications, demonstrating the importance of advocating for supportive childcare and promotion of flexible work practices. The results in this study are obtained using Australian data, however they are also likely to be relevant in other countries (for example the US) which have similar parental public policies with minimal support for parents who juggle full-time work and family obligations. Previous empirical work on parental wellbeing has demonstrated that countries (such as Germany) in which policies support gender-egalitarian patterns, as in contrast to countries where institutional support promotes traditional division of gender roles, parents report higher wellbeing compared to non-parents.

In particular, within the Australian context, the relatively low access to childcare services provides greater support to traditional households where women take up childcare responsibilities while men provide financial support (Baxter et al., 2015). This arrangement reduces time conflicts arising from trying to balance both work and childcare for mothers. Yet as the results of this study show, such a reduction in women's participation in paid work has consequences on her financial wellbeing.

Despite the fact that Australia is a country with a high rate of part-time work, the transition from full-time work to part-time work arising from childcare commitments has large effects on women's future career prospects and their long-term financial positions (Baxter et al., 2008). The modest public support for (dual earner) working parents should be addressed. Affordable childcare and flexible work policies may help support parents combine both full-time work and parenting roles, and translate into higher levels of wellbeing.

## 3.7 Conclusion

The aim of this study was to assess the impact of parenthood on wellbeing from an intra-household perspective. While a large number of empirical studies have focused on the impact of children on wellbeing, the majority do not incorporate factors such as partner characteristics as a potential mediator of wellbeing outcomes. To this end, this study examined the gendered differences in life satisfaction, financial satisfaction, and partner satisfaction associated parenthood while also accounting for household interdependencies.

Results from the fixed effects regressions demonstrated mostly negative associations between parenthood and SWB, and identified some significant gender differences in the effects of parenthood on life satisfaction, financial satisfaction, and partner satisfaction. The study found that controlling for hours in work has a substantial effect on the measured impact of parenthood on, especially, men's life satisfaction and women's financial satisfaction. This implies that changes in work patterns arising from parenthood play an important part in explaining lowered levels of wellbeing. The study also found strong anticipation and adaptation to parenthood, and showed the importance of investigating the relationship between parenthood and SWB as a process rather than a one-off effect. Finally, the study establishes the importance of taking an intra-household perspective while accounting for each partner's characteristics and acknowledging couple interdependencies to achieve a more accurate representation in unpacking the parenthood puzzle and the resulting gendered outcomes.

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## 3.9 Appendix

### Table 3.7

*Leads and Lags Person-Year Observations*

| Leads and lags | Men | Women |
|---|---|---|
| T-4 | 545 | 573 |
| T-3 | 829 | 852 |
| T-2 | 1,178 | 1,220 |
| T-1 | 1,747 | 1,763 |
| T | 455 | 466 |
| T+1 | 338 | 356 |
| T+2 | 260 | 273 |
| T+3 | 184 | 192 |
| T+4 | 152 | 159 |
| T+5 or more | 2,009 | 2,252 |

*Note*. The sample consists of men and women in mixed-sex couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1-18.

# 4. Retirement and the Distribution of Intra-Household Wellbeing

*This chapter has been presented at the Bankwest Curtin Economics Centre Research Development Series Workshop, Curtin University (2020, Perth, Western Australia). Feedback and commentary has subsequently been included in this thesis.*

## 4.1 Introduction

Retirement is a major event in the lives of individuals. Undoubtedly, this important life change not only affects the individual who has retired from the labour force, but also those around them – particularly their partner. There is an obvious degree of interdependence in retirement outcomes between individuals in a couple relationship. Yet ironically, economics studies have tended to neglect this, often analysing the effects of retirement on wellbeing in a way which has implicitly assumed independence of retirement experiences between men and women in couple relationships. Failing to consider the spill-over effects of individuals' retirement on the wellbeing of partners may have caused the overall effects of retirement to be understated. This study addresses this important gap in the literature by providing a gendered intra-household analysis of the effects of individuals' retirement on their own and their partner's wellbeing.

Contributing to the lack of attention to the intra-household impacts of retirement, early household economics models assumed that households have a single utility function and, accordingly, resources of household members are presumed to be used jointly in a way which maximises household utility as decided by the (usually male) head of the household (Becker, 1981). Applied to retirement, these models suggest that individuals in a couple relationship would benefit from household wealth (including retirement savings) in a way that would not depend on who made the contributions to this wealth. In turn, this would imply some level of symmetry in the cross-partner effects of retirement on wellbeing.

In recent decades, feminist economists, among others, have raised a number of objections with the traditional unitary model and called for a fresh approach to understanding intra-household issues. The unitary model fails to address meaningful questions on how resources are actually redistributed between individuals within the household, and how a skew in income can imply consumption differentials and economic dependency of one partner with implications on wellbeing (see Folbre, 1986; Strassmann, 1993; Woolley, 1993; Burgmann, 1995). It does not allow for differing preferences between marital partners, nor conflicts in decision-making between them.

Collective models of the household have emerged in response. Acknowledging that a process of bargaining takes place within the household, these models focus on the distribution of power within the household, and its consequences for the intra-household allocation of resources and wellbeing. The models often link partners' bargaining power with factors such as relative incomes earned by each spouse (Browning et al., 2014). [12] For couples approaching retirement, each partner's bargaining power is likely to be influenced by their labour-market opportunities and their accumulated wealth. In many households, women may find themselves in a relatively weak bargaining position, as individuals' wealth position at retirement is likely to closely reflect their employment history. Employment experiences themselves are gendered, with women commonly earning lower wages and facing more career interruptions than men when child rearing. Yet conversely, with retirement and the loss of labour-market earnings that this entails, bargaining power in the household may become more equal, with consequences for the allocation of resources (Lundberg, 2000). Either way, retirement is likely to lead to a change in the bargaining environment between older couples, with likely repercussions for each partner's wellbeing.

This study adopts a collective approach to guide its exploration of how changes in overall life satisfaction are associated with individuals' own retirement and that of their partner. As noted, the approach suggests that the partner with greater control over

[12] Lundberg (2000, p. 260) notes that bargaining can sometimes lead to a non-cooperative outcome. For older couples a non-cooperative marriage in which both partners benefit from joint consumption of public goods is a more plausibly outcome than divorce given the lower divorce rates amongst elderly couples and the lack of remarriage prospects. Non-cooperative outcomes arising for conflict may not involve hostility, yet instead, each partner fulfils their roles depending on gender specific division of household responsibilities and social norms as denoted by the 'separate spheres' equilibrium.

household resources will be more likely to achieve allocation of resources that best reflects their interests. In turn, this perspective suggests that at retirement, as at other points in the life course, the intra-household distribution of the benefits and costs associated with changing circumstances will favour the partner with greatest access to resources, and this is likely to have implications for the pattern of change in overall life satisfaction between men and women in couple relationships.

In addition to analysing the changes in overall life satisfaction, this study examines two other domains of subjective wellbeing – financial satisfaction and satisfaction with free time – and how these are affected by retirement. These domains are important components of overall life satisfaction and measures of how they change with one's own and/or one's partner's retirement offer a more comprehensive view into the effects of retirement on wellbeing (Bonsang & Klein, 2012). Financial satisfaction has been shown to have important influences on overall life satisfaction (van Praag & Ferrer-i-Carbonell, 2004; Easterlin, 2006). Furthermore, for men and women in couple relationships, retirement may have an important impact on each partner not only through changes in household income and the perceived benefits from it, but also through changes in free time.

This study also examines the intertemporal effects of retirement through an analysis of changes in overall life satisfaction, financial satisfaction, and satisfaction with free time before and after one's own and one's partner's retirement. This accounts for the anticipation and adaptation effects of retirement, whereby the prospect of retirement is likely to affect wellbeing in the lead up to the event, and post-retirement individuals are likely to adapt to their new circumstances. Again considering a collective approach, it could be expected that changes in wellbeing effects vis-à-vis anticipation and adaptation to retirement may be different for men and women depending on each partner's access to resources.

The study is arranged as follows: Section 4.2 provides a background on studies on retirement and wellbeing. Section 4.3 elaborates on the data and measures used in this study. The empirical strategy is explained in Section 4.4, followed by a presentation of the results in Section 4.5. Finally, Section 4.6 and Section 4.7 provide a discussion of the findings, followed by some concluding remarks.

## 4.2 Background

Early economic studies of the effects of retirement on economic wellbeing tended to rely on objective measures of individual or household income and wealth (Andrews, 1993; Radner, 1998; Levine et al., 2000). These studies made the implicit assumption that higher levels of retirement income and wealth would translate into increased overall wellbeing. However, the relationship between income and wellbeing has been found to be weak in a range of studies and thus, more recent efforts have focused on measuring wellbeing more directly, through self-reported subjective wellbeing measures (SWB) (see Clark, 2018 for a survey on the rising use of SWB measures in the field of economics). In the context of retirement there are now three clear strands to this literature: a strand which focuses on the effects of an individual's retirement on their own SWB, another that considers the cross-partner effects of retirement on SWB, and a third (and growing) strand that examines anticipation and adaptation effects of life events, including the dynamic effects of retirement on SWB.

### *4.2.1 The Effects of Retirement on Own SWB*

The impact of retirement on SWB has been a shared interest of psychologists and economists. Early psychological studies focused primarily on the male retiree (Kutner et al., 1956; Thompson et al., 1960; Thompson, 1973), reflecting the historical low labour force participation rate for women. With women now commonly a part of the labour force, more recent studies typically include both retired men and women in their study samples. A common finding is that retirement is associated with lower SWB (Atchley & Robinson, 1982; de Grace et al., 1994). However, some studies have found that individuals who had retired reported relatively low levels of stress and depression (Jackson et al., 1993; Midanik et al., 1995).

Charles (2002) presented one of the first economic studies on the impact of retirement on SWB. Using U.S. data from The National Longitudinal Survey of Mature Men, he identified a negative correlation between retirement and men's SWB. However, after accounting for endogeneity relating to retirement (by exploiting social security retirement incentives), he concluded that retirement tended to improve men's SWB. Panis (2003) analysed a cross-sectional sample of both men and women using U.S. data from the Health and Retirement Study (HRS) and concluded that the retirees

were, on average, very happy with their overall life situation and reported lower symptoms of depression than their peers. The degree of satisfaction, however, was found to depend on individual characteristics such as health status and financial resources. Using the same HRS database, Bender (2004) and Rohwedder (2006) also demonstrated that individual characteristics played an important role in determining overall SWB. Bad health and financial insecurity significantly lowered satisfaction in retirement (Rohwedder, 2006). Bender (2004) explained that individuals who were forced to retire reported on average lower levels of SWB compared to those who retired voluntarily, although male retirees reported lower SWB compared to female retirees. Relatedly, Bonsang and Klein (2012) used data from the German Socio-Economic Panel (GSOEP) and found that generally, retirement led to negligible effects on life satisfaction, though involuntary retirement had a negative impact on SWB.

Several other economic studies have used data provided by Statistics Canada. Alan et al. (2008) found that retired Canadians on average reported that they were either as satisfied or more satisfied with their financial wellbeing compared to the year before retirement. Latif (2011) established that retirement had a positive effect on the psychological wellbeing of older Canadian men and women; this effect appeared to be slightly higher for men. Baker et al. (2009) found inconclusive evidence in their analysis of the happiness of elderly retired Canadians.

A handful of notable economic studies on the effects of retirement on wellbeing have used data from the Household, Income and Labour Dynamics in Australia (HILDA) survey. Barrett and Kecmanovic (2013) focused on data from the 2007 HILDA wealth module and found that individuals mainly reported higher overall happiness in retirement. Heybroek et al. (2013) used a longitudinal approach to measure changes in life satisfaction among Australian retirees. Using 11 waves of data, their results were mixed, based on diverse samples: some retirees maintained high or increased life satisfaction while other retirees experienced declining levels of life satisfaction. Retirees reporting declining life satisfaction tended to have lower economic resources and poor health. Using 12 waves of HILDA data, Zhu and He (2015) analysed how women's life satisfaction responded to retirement. They found that overall retirement had a positive impact on women's life satisfaction, however the life satisfaction of female retirees declined with retirement duration. Using a sample including both men and women, Nguyen et al. (2020) identified positive effects of retirement on overall life satisfaction. By analysing different domains of satisfaction,

they linked the increase in life satisfaction to improvements in financial satisfaction, health, free time, and greater involvement in community activities.

### *4.2.2 Cross-Partner Retirement Effects on SWB*

A second strand of literature, though fairly limited, focused on the effects on SWB of a partner's retirement. Bertoni and Brunello (2017) analysed effects of the so-called "retired husband syndrome," which refers to a stress-induced condition affecting the wives of retired men, and is associated with symptoms of low mental wellbeing. Using Japanese data from the Preference Parameters Study, they found that the husband's retirement increased the probability of lower mental wellbeing of wives. More recently, Zang (2020) studied the same phenomenon using data from the China Health and Retirement Longitudinal Survey, however, her results contrast with those of Bertoni and Brunello (2017), with men's retirement leading to increased subjective health of wives, though effects on overall life satisfaction were insignificant. Using data from the HILDA survey, Atalay and Zhu (2018) analysed the contrary effects of a wife's retirement on her husband's mental wellbeing. Their estimates demonstrated that a wife's retirement had positive impacts on her husband's mental wellbeing and that the positive impact increased with the wife's time spent in retirement.

A recent study by Picchio and van Ours (2019) is perhaps most relatable to the current analysis as it captures the effect of both partners' retirement on mental wellbeing. Using Dutch data from the Longitudinal Internet Studies for the Social Sciences panel, they found that men's retirement had positive impacts on both their own and their partner's mental wellbeing, while women's retirement had insignificant effects on mental wellbeing.

### *4.2.3 Anticipation and Adaptation Effects of Retirement on SWB*

The third strand of literature, on the dynamic effects of retirement on wellbeing is, as Clark et al. (2008) note, motivated by a concern to move beyond a sole focus on the contemporaneous correlations between retirement and wellbeing. Studies with such a focus implicitly assume that life events induce permanent long-term effects to individuals' SWB. However, there are strong arguments in the theory of adaptation against such an assumption.

The phenomenon of adaptation, established by Brickman and Campbell (1977), is often referred to as the hedonic treadmill model. Based on this model, both positive and negative life events are accompanied by anticipation effects which temporarily increase or decrease SWB levels prior to an important life event. However, after the event has taken place, over time, adaptation takes place whereby individuals tend to revert back to their baseline level of SWB. From this perspective, empirical models which do not control for anticipation or adaptation are likely to overestimate or underestimate the changes in SWB due to retirement.

Economic studies that incorporate anticipation and adaptation effects in response to retirement are rare. A notable exception is Kesavayuth et al.'s (2020) study and a discussion paper by Merz (2018). Zhu and He (2015) and Nguyen et al. (2020) did account for duration in retirement and thus made conclusions on retirement adaptation. However, Clark and Georgellis (2013) and Qari (2014) argue that when studying events that are often predictable and planned (such as retirement) it is critical to also control for anticipation effects to correctly interpret adaptation effects. For example, finding that retirement effects become insignificant is not synonymous with complete adaptation if the individual's SWB had already increased in anticipation of retirement.

Kesavayuth et al. (2020) studied a sample including both men and women using data from the British Household Panel Survey and found positive anticipation effects on leisure satisfaction up to two years prior to retirement. No anticipation effects were identified for income satisfaction. Moreover, the positive effects of retirement on leisure satisfaction tended to be permanent, but the positive adaptation effects on income satisfaction was complete within two years of retirement. Using GSOEP data with a sample including both men and women, Merz (2018) found positive anticipation effects whereby life satisfaction typically increased a year before retirement. Merz also found that upon and after retirement there were commonly some fluctuations in life satisfaction, however these effects were not found to be statistically significant. He concluded that individuals in his sample completely adapted to retirement as predicted by the hedonic treadmill model.

### *4.2.4 Summary*

The literature on the effect of retirement on SWB is thus already quite extensive, with a range of studies, many informed by high-quality panel data, now in the field. Most studies have examined the key relationships for men and women separately; some have controlled for marital status. Other studies, have analysed the effect of one partner's (but not both partner's) retirement on wellbeing. The latter group of studies have tended to focus on mental distress measures and not specifically overall SWB. Therefore, one element is still under researched – how retirement plays out within households while accounting for *both* partner's retirement. As noted in the introduction, this is an important research gap, and it is one that has motivated the current investigation. Seeking to fill the gap by means of fixed effects regressions, using data from the HILDA Survey, this study disentangles both the contemporaneous and intertemporal intra-household spill-over aspects of own retirement and partner's retirement on three domains of SWB including, overall life satisfaction, financial satisfaction, and satisfaction with free time.

## 4.3 Data and Measures

The HILDA Survey currently (at the time of writing) consists of 18 waves of data with interviews conducted each year from 2001 to 2018. The most recent wave of data includes information on 18,324 individuals within 9,639 households (Summerfield et al., 2019). The survey provides rich information about various life aspects including employment, income, education, health, wellbeing, and relationships. Data are inclusive of detailed information on individuals as well as their partners, making it an ideal dataset for an intra-household study.

Making use of all 18 waves of HILDA data, the sample for this study includes mixed-sex couples who are either married or in a de-facto relationship. Individuals within the sample are aged between 55 years and 75 years.[13] Since this study exploits the panel aspects of the HILDA data, individuals in the sample are observed in at least two waves of the survey. If own or partner information on any variable used in the empirical model is missing, the individual is dropped from the sample. In addition,

[13] This age restriction is in line with many previous studies which study retirement outcomes (for example, Atalay et al., 2020; Nguyen et al., 2020).

individuals who make multiple transitions from work to retirement are also excluded. After applying these restrictions, the study still attains an unbalanced panel of 12,720 male-year observations and 12,717 female-year observations from 1,992 couple households.[14] Over the observation period, 656 men and 878 women in this sample have made a transition into retirement.

As noted above, this study evaluates the effects of retirement in three domains of SWB: overall life satisfaction, financial satisfaction, and satisfaction with free time. These outcomes are measured using data collected each year from the respondents of the HILDA survey to the following questions: (i) "All things considered, how satisfied are you with your life?" (ii) "How satisfied are you with financial situation?" and (iii) "How satisfied are you with the amount of free time you have?" Responses to these questions are organised on a scale of 0 to 10, whereby 0 indicates "completely dissatisfied" and 10 indicates "completely satisfied."

The two key explanatory variables are indicators of own retirement and partner's retirement. In the field of economics, there are various definitions of what constitutes "retirement." Some studies define an individual as retired if he or she is receiving a pension or departs from prime-age employment and works shorter hours (Lumsdaine et al., 1996; Coile, 2015). Other studies consider older individuals (often defined as those above the age of 50 years) whose labour force status is stated as "not in the labour force" as retired (Charles, 2002; Zhu & He, 2015; Atalay & Zhu, 2018). The HILDA survey approaches the issue of retirement from a number of angles. It is possible to use self-reported labour force status (which only includes broader measures for employment, unemployment, and "not in the labour force" statuses), for example, to define retirement with reference to whether a person in the relevant age range is "not in the labour force." Such an approach may lead to inaccurate conclusions about the effects of retirement because individuals who are not in the labour force include not only retired individuals but also discouraged workers, homemakers, and carers. This is a significant issue in studies such as this one, given that care roles are largely determined by gender, and the aims of the study include a gendered analysis of the effects of retirement on wellbeing.

[14] The number of couple observations in different parts of the analysis varies, since in some parts observations with missing data on key variables of interest are dropped.

An alternative approach to defining retirement (see Ryan & Whelan, 2013), and the one used here, is to rely on the responses to survey questions that ask one household member to report the "labour market status" of each member in the household. Within the HILDA household level dataset, the labour-market status of each household member is defined in a more comprehensive way and includes various states including, "retired," employed full-time or part-time, not employed, engaged in home duties, and non-working student. This approach would not assume, for example, that homemakers or discouraged workers whose self-reported labour force status was "not in the labour force" are retired. A constraint with this approach, however, is that it is not available in HILDA survey wave 2. For this wave, an alternative variable, which asks all individuals over the age of 45 whether they identify as "retired completely from the workforce" is used.[15, 16]

Table 4.1 presents summary statistics on these outcome variables and how they vary with retirement for the men and women in our sample. On average, both men and women in households where the man is retired report a relatively high level of overall life satisfaction. Similar patterns are evident when the woman is retired. In terms of financial satisfaction, contrasting patterns are seen for men and women. For men, own retirement is associated, on average, with a lower level of financial satisfaction (7.19 points for retirees as compared to 7.17 points for other men). However, women whose partners are retired record a relatively high level of financial satisfaction (7.34 points as compared to 7.24 points for other women). Both men and women in households where the woman is retired report higher financial satisfaction compared to households where the woman is working. As would be expected, both men and women report higher scores for satisfaction with free time when they are (or their partner is) retired. These patterns suggest the importance in analysing own as well as partner effects of retirement on wellbeing; failing to account for cross-partner effects may not capture the overall impact of retirement for men and women in couple relationships.

[15] This particular variable is only available in waves 1, 2, 5, 6, 8–10, and 12–18. In waves where both variables are present there is a high degree of overlap between the two. Therefore, issues associated with the lack of consistency in measurement over the years are minimal.

[16] The analysis for each regression within this study was repeated excluding wave 2 due to the slight difference in retirement definitions. The results were consistent across both specifications.

Table 4.2 includes summary statistics for other control variables used in this study. Following previous studies on retirement and SWB, a set of controls is included for factors which capture individual characteristics that are likely to be correlated with wellbeing and retirement. Individual characteristics include age, education, and health.[17] Household characteristics are also controlled for: the number of children, home ownership, and equivalised monthly household income (in 2018 Australian dollars).[18] The data in the table show that retired men and women have a relatively high rate of home ownership (84% of retired men are homeowners as compared to 65% of other men). As could be expected, for both men and women, retirement is associated with a lower level of equivalised monthly household income. Retired men have a lower equivalised household monthly income by AUD2533.42 compared to non-retired men. However, in contrast, for retired women, equivalised household monthly income is AUD2016.80 less than non-retired women.

[17] Following previous studies on retirement wellbeing which often include measures for health as a control (Charles, 2002; Bender, 2004; Latif, 2011; Zhu & He, 2015), the health measure used is derived from the 36-item Short Form Health Survey (SF-36). This is an internationally tested and widely used tool for measuring health, and accounts for physical health and mental health (including social functioning) (Hemingway et al., 1997).

[18] The "modified OECD" equivalence scale is built up by allocating points to each member in the household; the first adult in the household is allocated a weight of 1 point, additional persons over the age 15 years or above are allocated 0.5 points, and each child under the age of 15 is allocated 0.3 points.

**Table 4.1**

*Retirement, and Men's and Women's SWB: HILDA, Mixed-Sex Couple Households, 2001–2018*

| | Men | | | | | |
|---|---|---|---|---|---|---|
| | Life satisfaction | | Financial satisfaction | | Free time satisfaction | |
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| Man not retired | 8.24 | 1.21 | 7.19 | 1.91 | 7.05 | 2.12 |
| Man retired | 8.37 | 1.40 | 7.17 | 2.02 | 8.47 | 1.91 |
| Woman not retired | 8.19 | 1.29 | 7.06 | 1.98 | 7.28 | 2.18 |
| Woman retired | 8.43 | 1.32 | 7.32 | 1.94 | 8.36 | 1.93 |
| N (person–year observations) | 12,719.00 | | 12,720.00 | | 12,708.00 | |
| | Women | | | | | |
| | Life satisfaction | | Financial satisfaction | | Free time satisfaction | |
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| Man not retired | 8.28 | 1.29 | 7.24 | 1.95 | 7.20 | 2.31 |
| Man retired | 8.43 | 1.32 | 7.34 | 1.96 | 8.03 | 2.05 |
| Woman not retired | 8.22 | 1.31 | 7.13 | 1.96 | 7.05 | 2.29 |
| Woman retired | 8.51 | 1.29 | 7.47 | 1.94 | 8.29 | 1.93 |
| N (person–year observations) | 12,709.00 | | 12,717.00 | | 12,708.00 | |

*Note.* This sample consists of men and women in mixed-sex couples, between the ages of 55–75 years old.

**Table 4.2**

*Descriptive Statistics: HILDA, Mixed-Sex Couple Households, 2001–2018*

| | Men | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Man not retired | | Man retired | | Woman not retired | | Woman retired | |
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| Age (years) | 62.40 | 4.40 | 68.32 | 4.76 | 63.14 | 4.81 | 68.10 | 4.93 |
| Health | 67.72 | 19.42 | 59.54 | 23.14 | 65.21 | 21.07 | 61.53 | 22.47 |
| Education (years) | 13.19 | 2.81 | 12.42 | 3.04 | 12.99 | 2.89 | 12.56 | 3.01 |
| Total number of children | 2.47 | 1.23 | 2.66 | 1.37 | 2.54 | 1.27 | 2.60 | 1.35 |
| Home owner (fully paid) | 0.65 | 0.48 | 0.84 | 0.37 | 0.66 | 0.47 | 0.85 | 0.36 |
| Equivalised household monthly income (AUD) | 6,336.99 | 5,590.15 | 3,803.57 | 2,921.66 | 5,971.85 | 5,258.80 | 3,955.05 | 3,391.71 |
| N (person-year observations) | 6,115.00 | | 6,605.00 | | 6,726.00 | | 5,994.00 | |
| | Women | | | | | | | |
| | Man not retired | | Man retired | | Woman not retired | | Woman retired | |
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| Age (years) | 60.78 | 4.11 | 65.49 | 5.07 | 60.87 | 4.20 | 65.87 | 4.93 |
| Health | 68.34 | 20.62 | 65.39 | 21.88 | 68.12 | 20.72 | 65.35 | 21.92 |
| Education (years) | 12.40 | 2.91 | 11.65 | 2.97 | 12.38 | 3.00 | 11.59 | 2.86 |
| Total number of children | 2.50 | 1.24 | 2.63 | 1.36 | 2.54 | 1.26 | 2.61 | 1.35 |
| Home owner (fully paid) | 0.65 | 0.48 | 0.84 | 0.37 | 0.66 | 0.47 | 0.85 | 0.36 |
| Equivalised household monthly income (AUD) | 6,334.70 | 5,589.38 | 3,802.68 | 2,618.89 | 5,971.00 | 5,258.54 | 3,953.60 | 3,390.59 |
| N (person-year observations) | 6,113.00 | | 6,604.00 | | 6,721.00 | | 5,996.00 | |

*Note*. This sample consists of mixed-sex couples, between the ages of 55–75 years old.

## 4.4 Empirical Strategy

### *4.4.1 Fixed Effects Estimations*

Because this study is concerned with the effect of retirement on SWB it is important to go beyond the cross-sectional patterns evident in Table 4.1 and enquire into how the transition to retirement affects men and women within couple households. An appropriate method for such an investigation is fixed effects regression analysis.[19] Each partner's overall life satisfaction, financial satisfaction, and free time satisfaction modelled as a linear function of independent variables relating to their own and their partner's retirement status:

$$s_{jt}^{m} = \beta_{1m}R_{jt}^{m} + \beta_{1w}R_{jt}^{w} + \gamma_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\mu_{jt}^{m}} + \varepsilon_{1jt} \qquad (4.1)$$

$$s_{jt}^{w} = \beta_{2m}R_{jt}^{m} + \beta_{2w}R_{jt}^{w} + \gamma_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\mu_{jt}^{w}} + \varepsilon_{2jt} \qquad (4.2)$$

In equations (4.1) and (4.2), $s_{jt}^{m}$ and $s_{jt}^{w}$ denote subjective wellbeing outcomes of the man and woman in the jth household at time t, respectively. $R_{jt}^{m}$ and $R_{jt}^{w}$ represent the main variables of interest—retirement status of the man and woman in the jth household. The vector $\boldsymbol{C_{jt}^{O}}$ consists of a set of controls which capture the individual's own characteristics that may have independent impacts on levels of SWB, including age, health, and years in education.[20] The vector also includes other relevant controls for number of children, home ownership status, equivalised monthly household income, and local unemployment rates by region.[21] The vector $\boldsymbol{C_{jt}^{P}}$ captures characteristics of the individual's partner, including his/her age, health, and years in education. $t_1$ and $t_2$ consist of year fixed effects while $\boldsymbol{\mu_{jt}^{m}}$ and $\boldsymbol{\mu_{jt}^{w}}$ denote individual fixed effects that control for time invariant characteristics of the man and woman respectively. $\varepsilon_{1jt}$ and $\varepsilon_{2jt}$ represent idiosyncratic error terms.

[19] Models with a categorical dependent variable are argued to be ordinally comparable and typically analysed using ordered probit or logit models. However, recent studies on SWB demonstrate that results from linear and non-linear regressions produced similar coefficient estimates (see Gardner & Oswald, 2001; Ferrer-i-Carbonell & Frijters, 2004; Headey & Wooden, 2004; Blanchflower & Oswald, 2005).

[20] Following previous studies on retirement and SWB, age controls include third-order polynomials (see for example, Bonsang & Klein, 2012).

[21] Local unemployment rates match the Australian Bureau of Statistics unemployment rates for 13 regions including, Sydney, Melbourne, Brisbane, Adelaide, Perth, the remainder of the six states and the two territories.

Many previous studies on retirement and wellbeing intentionally do not control for changes in household income, so as to account for the changes in wellbeing associated with retirement which arise from changes in one's financial position (Bonsang & Klein, 2012; Kesavayuth et al., 2020). However, as part of the empirical strategy, focusing on an intra-household analysis informed by collective models, it is key to control for changes in household income. By holding equivalised monthly household income constant, changes in SWB brought about by each partner's retirement can pick up the effects of changes in bargaining power within the household as the partners' contribution of resources to the household shift with retirement.

The use of fixed effects (FE) estimation strategies allows within-individual comparisons such that the same individual's wellbeing is analysed at different points in time. Therefore, unobserved time invariant individual heterogeneity (such as cultural norms) can be eliminated (Wooldridge, 2010). However, FE estimations lead to a strict exogeneity assumption that each partner's retirement and other variables in the model are uncorrelated with the transitory components error term. Transitory components can be induced by time varying unobserved conditions which may induce retirement and be linked to changes in SWB. For example, individuals may involuntarily retire due to a health or economic shock (Bender, 2012). To address this concern, health and local unemployment rate controls are included. These controls mitigate the problem of omitted variable bias and also help to control for involuntary retirement.[22] However, even in the presence of these controls it is impossible to fully rule out reverse causality in the FE estimations. Therefore, as an extension, to deal with the possible endogeneity of retirement, a fixed effects instrumental variable (FEIV) approach is employed in a subsequent stage of the analysis.

### *4.4.2 Fixed Effects Instrumental Variable Estimations*

Several studies on retirement and wellbeing have analysed the causal effects of retirement using instrumental variables (IV) based on age pension eligibility (Bonsang & Klein, 2012; Zhu & He, 2015; Kesavayuth et al., 2020). However, with any IV

[22] As noted earlier, previous studies have found that individuals who are forced to retire report lower levels of SWB (see for example Bender, 2004). We do not explicitly control for voluntary or involuntary retirement as data on this is only available in HILDA waves 3, 7, 11, and 15. Therefore, data for retirees who were not interviewed in those waves would be missing, further restricting the size of the sample and reducing the robustness of our results.

model, results identify a local average treatment effect (LATE), that is, the estimates capture the effects of retirement for individuals who are compliers of the treatment effect. Therefore, these studies focus on a narrow group of individuals who retire due to reaching the age pension eligibility age. Within the Australian context, the pension was designed as a "safety net," with governments having introduced policies to stimulate individual's own provision for retirement through greater private savings; such policies included savings incentives created by the concessional tax treatment of superannuation contributions, subsidies for contributions by low-income earners, and compulsory savings mandated by the Superannuation Guarantee (OECD, 2019). Hence, Australian studies which use pension eligibility instrumental variables may not necessarily be nationally representative. Nonetheless, the Australian 1993 Age Pension Reform provides a good opportunity to exploit the causal effects of retirement, given the exogenous variation in retirement status (Atalay & Barrett, 2015). Therefore, while FE estimations are used in the main analysis, as an extension, age pension eligibility instrumental variables are used to explore the casual effects of own and partner's retirement on overall life satisfaction, financial satisfaction, and satisfaction with free time.

The Australian Age Pension is publicly funded, with its main objective being to alleviate poverty among the elderly. To qualify for the pension, one must meet three conditions. First, the residency condition requires applicants to have been a resident in Australia for a minimum of 10 years. Second, individuals have to pass an income and assets means test. Third, the age condition requires that applicants should have reached the age threshold. The Age Pension qualifying age was 65 for men and 60 for women from 1910 to 1995. Though to increase labour force participation of older workers and to reduce social security costs, the Australian government embarked on an age pension reform. The *Social Security Legislation Amendment Act 1993*, announced a gradual increase in the pension eligibility age for women from 60 years to 65 years. The progression began in mid-1995 such that by 2014, women's pension eligibility age matched that of men. From July 2017, the pension eligibility age for both men and women began to further increase, towards a target eligibility age of 67 for both men and women by July 2023 (Atalay & Barrett, 2015). Australian Age Pension eligibility ages are displayed in Table 4.3.

**Table 4.3**

*Age Pension Eligibility Ages for Various Birth Cohorts Based on Pension Reforms*

| Date of pension age change | Birth Cohort | Eligibility Age | |
|---|---|---|---|
| | | Women | Men |
| | Before 01/07/1935 | 60 | 65 |
| 1/07/1995 | 01/07/1935 to 31/12/1936 | 60.5 | 65 |
| 1/07/1997 | 01/01/1937 to 30/06/1938 | 61 | 65 |
| 1/07/1999 | 01/07/1938 to 31/12/1939 | 61.5 | 65 |
| 1/07/2001 | 01/01/1940 to 30/06/1941 | 62 | 65 |
| 1/07/2003 | 01/07/1941 to 31/12/1942 | 62.5 | 65 |
| 1/07/2005 | 01/01/1943 to 30/06/1944 | 63 | 65 |
| 1/07/2007 | 01/07/1944 to 31/12/1945 | 63.5 | 65 |
| 1/07/2009 | 01/01/1946 to 30/06/1947 | 64 | 65 |
| 1/07/2011 | 01/07/1947 to 31/12/1948 | 64.5 | 65 |
| 1/07/2013 | 01/01/1949 to 30/06/1952 | 65 | 65 |
| 1/07/2017 | 01/07/1952 to 31/12/1953 | 65.5 | 65.5 |
| 1/07/2019 | 01/01/1954 to 30/06/1955 | 66 | 66 |
| 1/07/2021 | 01/07/1955 to 31/12/1956 | 66.5 | 66.5 |
| 1/07/2023 | After 01/01/1957 | 67 | 67 |

*Note.* Sourced from the Australian Government Department of Social Services (2020)

Age pension eligibility is exploited as an instrument in identifying the causal effect of retirement on the SWB of men and women in couple relationships. For the instrument to be valid, first the relevance condition must be met; that is, pension eligibility should be sufficiently correlated with retirement. Second, the exogeneity condition must be met, that is, pension eligibility should be uncorrelated with SWB, except through its effect on retirement itself. In other words, the instrument must be uncorrelated with the error term, $\varepsilon_{jt}$ in equations (4.1) and (4.2) (Wooldridge, 2010). The FEIV estimation leads to two stages. In the first stage each partner's retirement is estimated using FE panel regressions:

$$R_{jt}^{m} = \theta_{1m}E_{jt}^{m} + \theta_{1w}E_{jt}^{w} + \alpha_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \alpha_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\mu_{jt}^{m}} + \epsilon_{1jt} \qquad (4.3)$$

$$R_{jt}^{w} = \theta_{2m}E_{jt}^{m} + \theta_{2w}E_{jt}^{w} + \alpha_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \alpha_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\mu_{jt}^{w}} + \epsilon_{2jt} \qquad (4.4)$$

$E_{jt}^{m}$ and $E_{jt}^{w}$ are retirement instrumental variables for the man and woman in the jth household at time t, respectively. $E_{jt}^{m}$ takes the value of 1 if the man's age is equal to or greater than the pension eligibility age at the time of interview, and 0 otherwise, while $E_{jt}^{w}$ takes the value of 1 if the woman's age is equal to or greater than

the pension eligibility age at the time of interview, and 0 otherwise.[23] The idiosyncratic error term is represented by $\epsilon_{jt}$. Other variables in equations (4.3) and (4.4) are defined as in equations (4.1) and (4.2).

In the second stage, the specifications are the same as in equations (4.1) and (4.2) however $R_{jt}^{m}$ and $R_{jt}^{w}$ are replaced with predicted retirement variables $\hat{R}_{jt}^{m}$ and $\hat{R}_{jt}^{w}$ derived from the first stage estimations such that:

$$s_{jt}^{m} = \beta_{1m}\hat{R}_{jt}^{m} + \beta_{1w}\hat{R}_{jt}^{w} + \gamma_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\mu_{jt}^{m}} + \varepsilon_{1jt} \qquad (4.5)$$

$$s_{jt}^{w} = \beta_{2m}\hat{R}_{jt}^{m} + \beta_{2w}\hat{R}_{jt}^{w} + \gamma_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\mu_{jt}^{w}} + \varepsilon_{2jt} \qquad (4.6)$$

### *4.4.3 Fixed Effects Estimations With Anticipation and Adaptation Effects*

While the previous estimations focus on the contemporaneous effects of own and partners retirement on wellbeing, a second part of this study measures the intertemporal effects of retirement. Following similar methodology by Clark and Georgellis (2013), retirement anticipation and adaptation effects for each partner's overall life satisfaction, financial satisfaction, and satisfaction with free time is modelled as a linear function of a set of independent variables:

$$\begin{aligned} s_{jt}^{m} = {} & \beta_{1m,T-4}R_{jt,T-4}^{m} + \beta_{1m,T-3}R_{jt,T-3}^{m} + \beta_{1m,T-2}R_{jt,T-2}^{m} + \beta_{1m,T-1}R_{jt,T-1}^{m} + \\ & \beta_{1m,T}R_{jt,T}^{m} + \beta_{1m,T+1}R_{jt,T+1}^{m} + \beta_{1m,T+2}R_{jt,T+2}^{m} + \beta_{1m,T+3}R_{jt,T+3}^{m} + \beta_{1m,T+4}R_{jt,T+4}^{m} + \\ & \beta_{1m,T+5}R_{jt,T+5}^{m} + \beta_{1w,T-4}R_{jt,T-4}^{w} + \beta_{1w,T-3}R_{jt,T-3}^{w} + \beta_{1w,T-2}R_{jt,T-2}^{w} + \\ & \beta_{1w,T-1}R_{jt,T-1}^{w} + \beta_{1w,T}R_{jt,T}^{w} + \beta_{1w,T+1}R_{jt,T+1}^{w} + \beta_{1w,T+2}R_{jt,T+2}^{w} + \beta_{1w,T+3}R_{jt,T+3}^{w} + \\ & \beta_{1w,T+4}R_{jt,T+4}^{w} + \beta_{1w,T+5}R_{jt,T+5}^{w} + \gamma_{1\mathrm{m}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{m}}\boldsymbol{C_{jt}^{P}} + t_1 + \boldsymbol{\mu_{jt}^{m}} + \varepsilon_{1jt} \end{aligned} \qquad (4.7)$$

$$\begin{aligned} s_{jt}^{w} = {} & \beta_{2m,T-4}R_{jt,T-4}^{m} + \beta_{2m,T-3}R_{jt,T-3}^{m} + \beta_{2m,T-2}R_{jt,T-2}^{m} + \beta_{2m,T-1}R_{jt,T-1}^{m} + \\ & \beta_{2m,T}R_{jt,T}^{m} + \beta_{2m,T+1}R_{jt,T+1}^{m} + \beta_{2m,T+2}R_{jt,T+2}^{m} + \beta_{2m,T+3}R_{jt,T+3}^{m} + \beta_{2m,T+4}R_{jt,T+4}^{m} + \\ & \beta_{2m,T+5}R_{jt,T+5}^{m} + \beta_{2w,T-4}R_{jt,T-4}^{w} + \beta_{2w,T-3}R_{jt,T-3}^{w} + \beta_{2w,T-2}R_{jt,T-2}^{w} + \\ & \beta_{2w,T-1}R_{jt,T-1}^{w} + \beta_{2w,T}R_{jt,T}^{w} + \beta_{2w,T+1}R_{jt,T+1}^{w} + \beta_{2w,T+2}R_{jt,T+2}^{w} + \beta_{2w,T+3}R_{jt,T+3}^{w} + \\ & \beta_{2w,T+4}R_{jt,T+4}^{w} + \beta_{2w,T+5}R_{jt,T+5}^{w} + \gamma_{1\mathrm{w}}\boldsymbol{C_{jt}^{O}} + \gamma_{2\mathrm{w}}\boldsymbol{C_{jt}^{P}} + t_2 + \boldsymbol{\mu_{jt}^{w}} + \varepsilon_{2jt} \end{aligned} \qquad (4.8)$$

[23] This study uses the restricted HILDA dataset which contains information on each individual's date of birth and the exact survey interview date. This allows accurate identification as to whether an individual is eligible for the Australian Age Pension at the time of interview.

Broadly matching the transition periods used in previous studies, the year anticipation effects and five or more years adaptation effects are analysed (see for example, Clark et al., 2008; Clark & Georgellis, 2013). Retirement lead and lag dummy variables for the man and woman in the jth household are $R^{m}_{jt,T-4}$ to $R^{m}_{jt,T+5}$ and $R^{w}_{jt,T-4}$ to $R^{w}_{jt,T+5}$. These dummies capture anticipation and adaptation of one's own retirement and their partner's retirement. $R^{m}_{jt,T}$ to $R^{m}_{jt,T+5}$ and $R^{w}_{jt,T}$ to $R^{w}_{jt,T+5}$ represent adaptation for the man and woman in the jth household respectively, allowing a distinction to be made between individuals with different retirement durations (0–1 years, 1–2 years, and so on until 5 or more years). For example, if the man in the jth household has been retired for three years and the woman in the jth family has been retired for four years, then $R^{m}_{jt,T+3}$=1 and $R^{w}_{jt,T+4}$=1 while all other lead and lag variables will be equal to 0. Anticipation is measured in a similar way, whereby $R^{m}_{jt,T-4}$ to $R^{m}_{jt,T-1}$ and $R^{w}_{jt,T-4}$ to $R^{w}_{jt,T-1}$ represent anticipation into retirement for the man and woman in the jth household, respectively. With no anticipation effects, all the coefficients on the lead variables will be roughly the same. Moreover, with adaptation effects, the later lag coefficients will be insignificant – implying that individuals revert to their baseline levels of wellbeing. The omitted category for both anticipation and adaptation consists of individuals who are in the labour force with four or more years of retirement anticipation. Other variables in equations (4.7) and (4.8) are defined as in equations (4.1) and (4.2). As before, the models are estimated using the standard FE model.

The use of instrumental variable analysis for models with anticipation and adaptation effects as described by Clark and Georgellis (2013) appears to be quite rare given the difficulty in finding strong instruments. Nonetheless, Kesavayuth et al. (2020) introduced the idea of instrumenting retirement leads and lags with pension eligibility duration leads and lags. While this approach worked well for their British sample which included both men and women, such instruments were weak for Australian data used in this study which includes a more restricted sample to allow for an intra-household analysis.[24] As such, this study analyses anticipation and adaptation

[24] Using Australian data, despite not controlling for anticipation effects, Nguyen et al., (2020) exploited pension eligibility ages as instrumental variables for measuring the casual adaptation effects of retirement on wellbeing. However, they estimated each lag effect separately, then plotted the estimated coefficients in one graph. This led to misinterpreted

models using the standard FE model, imposing the assumption of strict exogeneity. Nonetheless, in an attempt to minimise issues of omitted variable bias induced by time variant heterogeneity, as before, we still include controls for local unemployment rates and each partner's health.

## 4.5 Results

For men and women, Table 4.4 and Table 4.5 respectively present results of the effects of own and partner's retirement on three domains of SWB including overall life satisfaction, financial satisfaction, and satisfaction with free time. As mentioned above, these domains are particularly relevant to retirement as changes in overall life satisfaction may arise from changes in distribution of financial resources induced by each partner's retirement. Nonetheless, retirement also has obvious implications on leisure (free time).

**Table 4.4**

*Fixed Effects Regression Results for Own and Partner's Retirement on Men's SWB*

| | Men | | |
|---|---|---|---|
| | (1) Life satisfaction | (2) Financial satisfaction | (3) Free time satisfaction |
| Retired | 0.069** | -0.060 | 1.050*** |
| | (0.035) | (0.049) | (0.063) |
| Partner retired | 0.069** | 0.100** | 0.095* |
| | (0.028) | (0.040) | (0.050) |
| Age | 0.171 | 0.327 | 0.208 |
| | (0.139) | (0.211) | (0.262) |
| Age²/100 | -0.087 | 0.158 | -0.016 |
| | (0.207) | (0.316) | (0.376) |
| Age³/1,000 | -0.006 | -0.028 | -0.050 |
| | (0.063) | (0.096) | (0.113) |
| Partner's age | -0.098*** | -0.083 | -0.317*** |
| | (0.031) | (0.065) | (0.066) |
| Partner's age²/100 | 0.144 | 0.200 | 0.110 |
| | (0.201) | (0.306) | (0.361) |
| Partner's age³/1,000 | -0.057 | -0.112 | -0.053 |
| | (0.067) | (0.105) | (0.121) |
| Health | 0.014*** | 0.005*** | 0.004*** |

adaptation results, as the omitted categories for each lag estimation were different. A detailed discussion on this issue has been made in Qari (2010) and Clark and Georgellis (2013).

| | | | |
|---|---|---|---|
| | (0.001) | (0.001) | (0.002) |
| Partner's health | 0.003*** | 0.004*** | 0.004** |
| | (0.001) | (0.001) | (0.002) |
| Education | -0.119*** | -0.073 | 0.149 |
| | (0.042) | (0.105) | (0.141) |
| Partner's education | -0.032 | 0.011 | -0.026 |
| | (0.040) | (0.057) | (0.068) |
| Equiv. household income | 0.046*** | 0.170*** | -0.009 |
| | (0.017) | (0.029) | (0.030) |
| Home owner (fully paid) | 0.136*** | 0.106** | 0.199*** |
| | (0.035) | (0.053) | (0.064) |
| Total number of children | 0.104 | 0.327 | 0.002 |
| | (0.075) | (0.211) | (0.122) |
| Local unemployment rate | 0.171 | 0.158 | 0.008 |
| | (0.139) | (0.316) | (0.025) |
| Year dummies | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes |
| N (observations) | 12,719 | 12,720 | 12,708 |
| Couples | 1,989 | 1,990 | 1,989 |

Note: The bracketed terms are robust standard errors (clustered by couples). The sample consists of men in mixed-sex couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1-18.
*p < .10. **p < .05. *** p < .01.

**Table 4.5**

*Fixed Effects Regression Results for Own and Partner's Retirement on Women's SWB*

| | Women | | |
|---|---|---|---|
| | (1) Life satisfaction | (2) Financial satisfaction | (3) Free time satisfaction |
| Retired | 0.089*** | 0.048 | 0.543*** |
| | (0.028) | (0.039) | (0.054) |
| Partner retired | 0.008 | 0.074 | 0.237*** |
| | (0.033) | (0.047) | (0.063) |
| Age | 0.307** | -0.071 | -0.556** |
| | (0.141) | (0.223) | (0.258) |
| Age²/100 | 0.061 | 0.011 | 0.449 |
| | (0.213) | (0.299) | (0.374) |
| Age³/1,000 | 0.008 | 0.026 | -0.238* |
| | (0.072) | (0.102) | (0.123) |
| Partner's age | -0.369*** | -0.041 | 0.030 |
| | (0.037) | (0.111) | (0.081) |
| Partner's age²/100 | 0.263 | -0.285 | -0.012 |
| | (0.221) | (0.314) | (0.399) |
| Partner's age³/1,000 | -0.138** | 0.056 | -0.020 |

| | | | |
|---|---|---|---|
| | (0.067) | (0.095) | (0.119) |
| Health | 0.013*** | 0.007*** | 0.007*** |
| | (0.001) | (0.001) | (0.002) |
| Partner's health | 0.005*** | 0.003*** | 0.008*** |
| | (0.001) | (0.001) | (0.002) |
| Education | 0.038 | -0.058 | 0.225*** |
| | (0.045) | (0.065) | (0.081) |
| Partner's education | 0.023 | -0.036 | -0.019 |
| | (0.049) | (0.086) | (0.134) |
| Equiv. household income | 0.041** | 0.199*** | 0.013 |
| | (0.017) | (0.028) | (0.035) |
| Home owner (fully paid) | 0.066* | 0.214*** | 0.157** |
| | (0.035) | (0.050) | (0.067) |
| Total number of children | -0.024 | -0.010 | 0.069 |
| | (0.071) | (0.091) | (0.160) |
| Local unemployment rate | -0.003 | -0.029 | 0.022 |
| | (0.015) | (0.020) | (0.025) |
| Year dummies | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes |
| N (observations) | 12,709 | 12,717 | 12,708 |
| Couples | 1,990 | 1,992 | 1,992 |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consisted of women in couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1-18.
*p < .10. **p < .05. *** p < .01.

Results in Column 1 of Table 4.4 demonstrate that for men within the sample, own and partner's retirement are associated with an equal increase in overall life satisfaction by 0.069 points on average and partner's retirement is equally as important as own retirement in determining overall life satisfaction. Interestingly, the results on financial satisfaction in Column 2 show that for men, their own retirement has no significant effect on overall life satisfaction. However, when their partner retires, men's financial satisfaction increases on average by 0.100 points. In relation to free time satisfaction, as seen in Column 3, men who retire report an increase in free time satisfaction of, on average, 1.050 points. At mean values, men with a retired partner report an increase in their own free time satisfaction by 0.095 points (although only significant at the 10% level), compared to when their partner was working. For men, increased life satisfaction arising from their own retirement seems to be driven by spill-over effects from the domain of free time satisfaction, while the increase in overall life satisfaction that surfaces from their partner's retirement seems to be driven by the increase in financial satisfaction arising from their partner's retirement.

Referring to Table 4.5, results in Column 1 demonstrate that women report on average an increase of 0.089 points in overall life satisfaction when they retire. Unlike the results for men, however, for women, the cross effects of their partners' retirement on their overall life satisfaction are not statistically significant. Results on models focusing on financial satisfaction in Column 3 demonstrate no significant changes in financial satisfaction when either the woman or her partner retires. For women, their own retirement increases free time satisfaction by 0.543 points on average. In addition, the cross effect of partner retirement feature highly significant changes in satisfaction with free time – on average, women report an increase of 0.237 points when their partner retires. For women, the increase in overall life satisfaction arising from retirement seems to be driven by the increase in free time.

The results present some gendered differences. For example, men's retirement does not influence women's overall life satisfaction, however, women's retirement leads to an increase in men's overall life satisfaction. The estimations also show that men's financial wellbeing has a positive relationship with women's retirement; though for women, their own financial wellbeing does not change upon her retirement. The effect of partner's retirement compared to own retirement on satisfaction with free time are larger for women (0.237/0.543) compared to those for men (0.095/1.050) within the sample. Women become much happier with their free time when their partner retires.

The results on the casual effects of own and partner's retirement on SWB from the FEIV models are presented in Table 4.6 and Table 4.7 respectively. The first-stage estimations in all models support the validity of our instruments; for both men and women in couple relationships the pension eligibility variable is highly significant. For example, with reference to Columns 1 and 2 in Table 4.6, for men and women, being above the pension eligibility age increases the probability of retirement by 0.086 points and 0.075 points respectively. Moreover, the Cragg-Donald F statistic in all our models for both men and women is above the critical value recommended by Stock and Yogo (2005) of 7.03 for equations with two endogenous variables and two instruments. The effect of partner's age pension eligibility is not a statistically significant source of variation in SWB for either men or women, and this could imply that retirement decisions are not coordinated within households.

**Table 4.6**

*Fixed Effects Instrumental Variable Regression Results for Own and Partner's Retirement on Men's SWB*

| | Men | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | Life satisfaction | | | Financial satisfaction | | | Free time satisfaction | | |
| | 1st Stage | | 2nd Stage | 1st Stage | | 2nd Stage | 1st Stage | | 2nd Stage |
| | Retirement | Partner retirement | | Retirement | Partner retirement | | Retirement | Partner retirement | |
| Retired | | | 0.539 | | | 1.131 | | | 2.687*** |
| | | | (0.549) | | | (0.958) | | | (0.936) |
| Partner retired | | | 1.049* | | | 2.682** | | | -0.866 |
| | | | (0.627) | | | (1.051) | | | (1.052) |
| Eligible for age pension | 0.086*** | 0.014 | | 0.085*** | 0.014 | | 0.086*** | 0.014 | |
| | (0.014) | (0.016) | | (0.014) | (0.016) | | (0.014) | (0.016) | |
| Partner eligible for age pension | 0.003 | 0.075*** | | 0.003 | 0.075*** | | 0.004 | 0.076*** | |
| | (0.014) | (0.016) | | (0.014) | (0.016) | | (0.014) | (0.016) | |
| Age | 0.065 | 0.021 | 0.130 | 0.065 | 0.020 | 0.223 | 0.063 | 0.021 | 0.142 |
| | (0.052) | (0.054) | (0.156) | (0.052) | (0.054) | (0.285) | (0.052) | (0.054) | (0.282) |
| $Age^2/100$ | 0.249*** | 0.189** | -0.562 | 0.249*** | 0.190** | -1.070* | 0.253*** | 0.192** | -0.619 |
| | (0.075) | (0.090) | (0.346) | (0.075) | (0.090) | (0.606) | (0.075) | (0.090) | (0.594) |
| $Age^3/1{,}000$ | -0.096*** | -0.074*** | 0.168 | -0.096*** | -0.074*** | 0.423** | -0.097*** | -0.075*** | 0.159 |
| | (0.023) | (0.028) | (0.116) | (0.023) | (0.028) | (0.204) | (0.023) | (0.028) | (0.199) |
| Partner's age | -0.033 | -0.006 | -0.067* | -0.033 | -0.006 | -0.002 | -0.033 | -0.005 | -0.275*** |
| | (0.024) | (0.017) | (0.040) | (0.024) | (0.017) | (0.120) | (0.024) | (0.017) | (0.093) |
| Partner's $age^2/100$ | 0.038 | 0.259*** | -0.327 | 0.037 | 0.259*** | -1.036* | 0.034 | 0.255*** | 0.459 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (0.070) | (0.081) | (0.347) | (0.070) | (0.081) | (0.576) | (0.070) | (0.081) | (0.589) |
| Partner's age³/1,000 | -0.025 | -0.112*** | 0.135 | -0.025 | -0.112*** | 0.392* | -0.024 | -0.111*** | -0.179 |
| | (0.023) | (0.027) | (0.128) | (0.023) | (0.027) | (0.214) | (0.023) | (0.027) | (0.219) |
| Health | -0.001*** | -0.000 | 0.014*** | -0.001*** | -0.000 | 0.006*** | -0.001*** | -0.000 | 0.006*** |
| | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.002) |
| Partner's health | 0.000 | 0.000 | 0.003*** | 0.000 | 0.000 | 0.003** | 0.000 | 0.000 | 0.003** |
| | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.002) |
| Education | 0.006 | -0.017 | -0.104** | 0.006 | -0.017 | -0.034 | 0.006 | -0.017 | 0.120 |
| | (0.020) | (0.018) | (0.050) | (0.020) | (0.018) | (0.115) | (0.020) | (0.018) | (0.137) |
| Partner's education | -0.016 | 0.029** | -0.052 | -0.016 | 0.029** | -0.044 | -0.016 | 0.029** | 0.029 |
| | (0.013) | (0.011) | (0.047) | (0.013) | (0.011) | (0.078) | (0.013) | (0.011) | (0.084) |
| Equiv. household income | -0.069*** | -0.045*** | 0.123*** | -0.069*** | -0.045*** | 0.370*** | -0.069*** | -0.045*** | 0.061 |
| | (0.007) | (0.007) | (0.043) | (0.007) | (0.007) | (0.078) | (0.006) | (0.007) | (0.074) |
| Home owner (fully paid) | 0.027** | 0.036*** | 0.088* | 0.027** | 0.036*** | -0.020 | 0.027** | 0.036*** | 0.188** |
| | (0.013) | (0.014) | (0.045) | (0.013) | (0.014) | (0.078) | (0.013) | (0.014) | (0.077) |
| Total number of children | 0.065*** | 0.036* | 0.038 | 0.065*** | 0.036* | 0.061 | 0.065*** | 0.036* | -0.069 |
| | (0.019) | (0.021) | (0.089) | (0.019) | (0.021) | (0.136) | (0.019) | (0.021) | (0.141) |
| Local unemployment rate | -0.004 | -0.002 | 0.026* | -0.004 | -0.002 | -0.010 | -0.004 | -0.002 | 0.011 |
| | (0.005) | (0.005) | (0.015) | (0.005) | (0.005) | (0.026) | (0.005) | (0.005) | (0.026) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effect | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cragg-Donald Wald F statistic | 13.37 | | — | 13.38 | | — | 13.52 | | — |
| N | 12,719 | | | 12,720 | | | 12,708 | | |
| Couples | 1,989 | | | 1,990 | | | 1,989 | | |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men in mixed-sex couple relationships, between the ages of 55–75 years old, who were interviewed in the HILDA survey, waves 1–18.
*p < .10. **p < .05. *** p < .01.

**Table 4.7**

*Fixed Effects Instrumental Variable Regression Results for Own and Partner's Retirement on Women's SWB*

| | Women | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | Life satisfaction | | | Financial satisfaction | | | Free time satisfaction | | |
| | 1st Stage | | 2nd Stage | 1st Stage | | 2nd Stage | 1st Stage | | 2nd Stage |
| | Retirement | Partner retirement | | Retirement | Partner retirement | | Retirement | Partner retirement | |
| Retired | | | 1.009* | | | 2.0513** | | | 2.171* |
| | | | (0.598) | | | (0.983) | | | (1.117) |
| Partner retired | | | -0.248 | | | 1.381 | | | 1.087 |
| | | | (0.541) | | | (0.885) | | | (0.971) |
| Eligible for age pension | 0.075*** | 0.005 | | 0.075*** | 0.005 | | 0.074*** | 0.005 | |
| | (0.016) | (0.014) | | (0.016) | (0.014) | | (0.016) | (0.014) | |
| Partner eligible for age pension | 0.012 | 0.084*** | | 0.012 | 0.085*** | | 0.013 | 0.085*** | |
| | (0.016) | (0.014) | | (0.016) | (0.014) | | (0.016) | (0.014) | |
| Age | -0.035 | 0.037 | 0.357** | -0.034 | 0.037 | -0.043 | -0.034 | 0.038 | -0.527* |
| | (0.052) | (0.051) | (0.155) | (0.052) | (0.051) | (0.275) | (0.052) | (0.051) | (0.292) |
| $Age^2/100$ | 0.268*** | 0.036 | -0.352 | 0.268*** | 0.035 | -0.992* | 0.268*** | 0.034 | -0.351 |
| | (0.081) | (0.071) | (0.346) | (0.081) | (0.071) | (0.549) | (0.082) | (0.071) | (0.625) |
| $Age^3/1{,}000$ | -0.115*** | -0.024 | 0.169 | -0.115*** | -0.024 | 0.435** | -0.115*** | -0.024 | 0.087 |
| | (0.027) | (0.023) | (0.128) | (0.027) | (0.023) | (0.204) | (0.027) | (0.023) | (0.230) |
| Partner's age | 0.050*** | 0.002 | -0.415*** | 0.050*** | 0.002 | -0.107 | 0.050*** | 0.002 | -0.027 |
| | (0.015) | (0.023) | (0.050) | (0.015) | (0.023) | (0.134) | (0.015) | (0.023) | (0.101) |
| Partner's $age^2/100$ | 0.186** | 0.252*** | 0.179 | 0.188** | 0.251*** | -1.420** | 0.185** | 0.249*** | -0.824 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (0.090) | (0.075) | (0.353) | (0.090) | (0.075) | (0.563) | (0.090) | (0.075) | (0.629) |
| Partner's age³/1,000 | -0.073*** | -0.097*** | -0.103 | -0.074*** | -0.096*** | 0.471** | -0.073*** | -0.095*** | 0.278 |
| | (0.028) | (0.023) | (0.118) | (0.028) | (0.023) | (0.188) | (0.028) | (0.023) | (0.211) |
| Health | 0.000 | 0.000 | 0.013*** | 0.000 | 0.000 | 0.006*** | 0.000 | 0.000 | 0.007*** |
| | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.002) |
| Partner's health | -0.000 | -0.001*** | 0.005*** | -0.000 | -0.001*** | 0.005*** | -0.000 | -0.001*** | 0.009*** |
| | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.002) |
| Education | 0.033*** | -0.027** | -0.000 | 0.033*** | -0.027** | -0.089 | 0.033*** | -0.027** | 0.193** |
| | (0.012) | (0.013) | (0.055) | (0.012) | (0.013) | (0.089) | (0.012) | (0.013) | (0.094) |
| Partner's education | -0.016 | 0.006 | 0.041 | -0.016 | 0.006 | -0.008 | -0.016 | 0.006 | 0.005 |
| | (0.018) | (0.020) | (0.051) | (0.018) | (0.020) | (0.093) | (0.018) | (0.020) | (0.134) |
| Equiv. household income | -0.044*** | -0.069*** | 0.064 | -0.044*** | -0.069*** | 0.380*** | -0.044*** | -0.069*** | 0.145* |
| | (0.007) | (0.007) | (0.042) | (0.007) | (0.006) | (0.072) | (0.007) | (0.006) | (0.078) |
| Home owner (fully paid) | 0.036*** | 0.028** | 0.040 | 0.036*** | 0.028** | 0.103 | 0.035** | 0.027** | 0.075 |
| | (0.014) | (0.013) | (0.043) | (0.014) | (0.013) | (0.074) | (0.014) | (0.013) | (0.081) |
| Total number of children | -0.007 | 0.004 | -0.015 | -0.007 | 0.004 | 0.007 | -0.008 | 0.004 | 0.085 |
| | (0.026) | (0.020) | (0.076) | (0.026) | (0.020) | (0.115) | (0.026) | (0.020) | (0.163) |
| Local unemployment rate | -0.002 | -0.004 | -0.002 | -0.002 | -0.004 | -0.019 | -0.002 | -0.004 | 0.029 |
| | (0.005) | (0.005) | (0.016) | (0.005) | (0.005) | (0.024) | (0.005) | (0.005) | (0.027) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cragg-Donald Wald F statistic | 13.38 | | — | 13.14 | | — | 13.12 | | — |
| N (observations) | 12,709 | | | 12,717 | | | 12,708 | | |
| Couples | 1,990 | | | 1,992 | | | 1,992 | | |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of women in mixed-sex couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1-18.
*p < .10. **p < .05. *** p < .01.

Comparing results across the FE and FEIV estimation strategies reveals qualitatively similar results on SWB outcomes, although there are some exceptions. Across all models, the FEIV estimations exhibit larger standard errors, which is typical of LATE estimations. Referring to Column 3 in Table 4.6 for example, for men, the cross effects of their partner retiring upon reaching the pension eligibility age is larger compared to the FE model (although less statistically significant). However, the effect of men's own retirement on overall life satisfaction is no longer statistically significant in the FEIV model. The FEIV results are useful in helping untangle the relationship between men's financial satisfaction and their partner's retirement evident in the FE estimates. These show a positive correlation between men's financial satisfaction and their partner's retirement. One possible explanation for this pattern is that women whose partner is in a strong financial situation are more likely to retire. However, this chain of causation is not supported in the FEIV results, which address the possibility of reverse causation and yet provide similar results to the FE estimates.

It is important to note that FEIV estimates may differ from the standard FE estimates given that FEIV estimates capture LATE effects of retirement for individuals who are compliers of the treatment effect. As mentioned previously, the treated group in this case includes individuals who revised their retirement based upon reaching the age pension eligibility age. Marbach and Hangartner (2020) explained that it is important to acknowledge the fact that compliers and non-compliers may have different characteristics and therefore LATE estimations provide inferences about a specific subpopulation. One would assume that individuals who delay their formal exit from the labour market because they are not eligible for pension may hold lower accumulated financial positions. Using the kappa-weighted scheme suggested by Abadie (2003), the mean characteristics for compliers are estimated and compared to the population averages. These comparisons are presented in Appendix Table 4.10. For both men and women, compliers in fact appeared to have significantly lower levels of household income and a lower percentage of home ownership compared to the full sample average. Moreover, these differences need to be taken into account in appraising the external validity when making inferences about the LATE estimations.

The final set of results presented in this study address the questions about the adaptation and anticipation effects of retirement. Table 4.8 and Table 4.9 present the estimated intertemporal effects of retirement on overall life satisfaction, financial

satisfaction, and free time satisfaction for men and women respectively. For each domain of satisfaction, models including only adaptation effects are presented, followed by results for models including both anticipation and adaptation effects. The purpose of this is to assess whether the exclusion of anticipation effects over or under-estimate the effects of adaptation of own and partner's retirement on SWB. Anticipation effects are captured by the coefficients on a set of lead variable (T-4 through T-1), while adaptation effects are captured by the coefficients on a set of lag variables (T through T+5 or more). Results from these models are also presented graphically in Figure 4.2.[25]

[25] The graphs for life satisfaction and financial satisfaction have different vertical axis scales to those of free time satisfaction for easier visual interpretation of patterns of change in wellbeing over time.

**Table 4.8**

*Fixed Effects Regression Results for Own and Partner's Retirement Anticipation and Adaptation Effects on Men's SWB*

| | Men | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Life satisfaction | | Financial satisfaction | | Free time satisfaction | |
| Retirement (leads and lags) | | | | | | |
| T-4 | | 0.077* | | -0.066 | | -0.161 |
| | | (0.046) | | (0.077) | | (0.100) |
| T-3 | | 0.020 | | -0.025 | | -0.178* |
| | | (0.048) | | (0.075) | | (0.091) |
| T-2 | | -0.018 | | 0.005 | | -0.261*** |
| | | (0.049) | | (0.071) | | (0.098) |
| T-1 | | -0.034 | | -0.049 | | -0.230** |
| | | (0.048) | | (0.072) | | (0.095) |
| T | 0.023 | 0.021 | -0.143** | -0.161** | 0.862*** | 0.721*** |
| | (0.042) | (0.048) | (0.061) | (0.072) | (0.073) | (0.082) |
| T+1 | -0.013 | -0.020 | 0.018 | -0.003 | 0.710*** | 0.560*** |
| | (0.047) | (0.053) | (0.067) | (0.077) | (0.079) | (0.088) |
| T+2 | -0.042 | -0.049 | 0.016 | -0.004 | 0.330*** | 0.176 |
| | (0.056) | (0.063) | (0.078) | (0.087) | (0.103) | (0.110) |
| T+3 | 0.027 | 0.020 | 0.014 | -0.006 | 0.502*** | 0.347*** |
| | (0.064) | (0.069) | (0.083) | (0.092) | (0.105) | (0.112) |
| T+4 | 0.049 | 0.042 | -0.048 | -0.061 | 0.495*** | 0.419*** |
| | (0.059) | (0.059) | (0.084) | (0.085) | (0.100) | (0.101) |
| T+5 or more | -0.056 | -0.059 | 0.015 | 0.005 | -0.071 | -0.156* |
| | (0.048) | (0.051) | (0.070) | (0.075) | (0.083) | (0.087) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Partner's retirement (leads and lags) | | | | | | |
| T-4 | | -0.065 | | 0.007 | | -0.211* |
| | | (0.053) | | (0.080) | | (0.108) |
| T-3 | | -0.051 | | 0.009 | | -0.444*** |
| | | (0.052) | | (0.087) | | (0.111) |
| T-2 | | -0.201*** | | -0.204*** | | -0.307*** |
| | | (0.053) | | (0.074) | | (0.096) |
| T-1 | | -0.072 | | -0.026 | | -0.162* |
| | | (0.048) | | (0.070) | | (0.091) |
| T | 0.018 | -0.030 | 0.075 | 0.045 | 0.121* | 0.011 |
| | (0.037) | (0.043) | (0.051) | (0.060) | (0.064) | (0.073) |
| T+1 | 0.118*** | 0.071 | 0.091 | 0.062 | 0.032 | -0.074 |
| | (0.039) | (0.044) | (0.057) | (0.065) | (0.072) | (0.081) |
| T+2 | 0.116** | 0.068 | 0.045 | 0.017 | 0.091 | -0.013 |
| | (0.047) | (0.052) | (0.063) | (0.070) | (0.085) | (0.092) |
| T+3 | 0.099* | 0.050 | 0.026 | -0.003 | -0.020 | -0.121 |
| | (0.055) | (0.060) | (0.076) | (0.082) | (0.098) | (0.104) |
| T+4 | 0.130** | 0.107* | 0.145** | 0.131* | 0.134 | 0.082 |
| | (0.055) | (0.055) | (0.073) | (0.075) | (0.104) | (0.105) |
| T+5 or more | 0.031 | -0.001 | 0.024 | 0.003 | -0.123 | -0.187** |
| | (0.046) | (0.048) | (0.069) | (0.072) | (0.084) | (0.087) |
| N (observations) | | 12,719 | | 12,720 | | 12,708 |
| Couples | | 1,989 | | 1,990 | | 1,989 |

*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of men in mixed-sex couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1 -18. Controls include own and partner's age polynomials, own and partner's health (SF-36), own and partner's education (years), equivalised monthly household income, total number of children, unemployment rates by region, year dummies, and individual fixed effects.
*p < .10. **p < .05. *** p < .01.

**Table 4.9**

*Fixed Effects Regression Results for Own and Partner's Retirement Anticipation and Adaptation Effects on Women's SWB*

| | Women | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Life satisfaction | | Financial satisfaction | | Free time satisfaction | |
| Retirement (leads and lags) | | | | | | |
| T-4 | | -0.016 | | 0.004 | | -0.375*** |
| | | (0.053) | | (0.078) | | (0.116) |
| T-3 | | -0.031 | | -0.016 | | -0.359*** |
| | | (0.055) | | (0.074) | | (0.103) |
| T-2 | | -0.010 | | -0.087 | | -0.253*** |
| | | (0.052) | | (0.072) | | (0.097) |
| T-1 | | -0.047 | | -0.058 | | -0.161* |
| | | (0.049) | | (0.064) | | (0.090) |
| T | 0.076** | 0.057 | 0.002 | -0.027 | 0.516*** | 0.371*** |
| | (0.038) | (0.045) | (0.052) | (0.061) | (0.070) | (0.081) |
| T+1 | 0.116*** | 0.096* | 0.024 | -0.008 | 0.496*** | 0.351*** |
| | (0.043) | (0.050) | (0.058) | (0.066) | (0.074) | (0.084) |
| T+2 | 0.057 | 0.035 | -0.000 | -0.034 | 0.499*** | 0.356*** |
| | (0.046) | (0.052) | (0.062) | (0.070) | (0.084) | (0.092) |
| T+3 | 0.037 | 0.016 | -0.005 | -0.038 | 0.517*** | 0.374*** |
| | (0.053) | (0.058) | (0.077) | (0.084) | (0.094) | (0.102) |
| T+4 | 0.047 | 0.037 | 0.069 | 0.053 | 0.457*** | 0.384*** |
| | (0.056) | (0.057) | (0.073) | (0.074) | (0.095) | (0.097) |
| T+5 or more | -0.032 | -0.045 | 0.025 | 0.003 | -0.043 | -0.128 |
| | (0.044) | (0.047) | (0.064) | (0.068) | (0.083) | (0.085) |

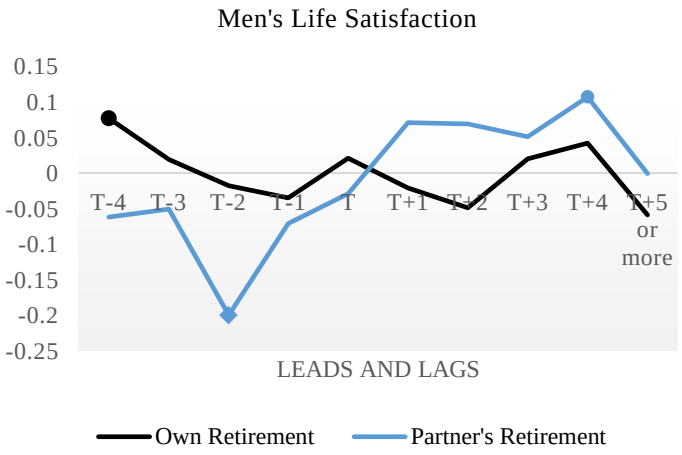
| | | | | | | |
|---|---|---|---|---|---|---|
| Partner's retirement (leads and lags) | | | | | | |
| T-4 | | 0.114** | | -0.059 | | -0.107 |
| | | (0.057) | | (0.092) | | (0.118) |
| T-3 | | 0.008 | | -0.112 | | -0.006 |
| | | (0.058) | | (0.082) | | (0.105) |
| T-2 | | -0.063 | | -0.124 | | 0.018 |
| | | (0.056) | | (0.076) | | (0.107) |
| T-1 | | 0.033 | | -0.029 | | 0.011 |
| | | (0.054) | | (0.075) | | (0.102) |
| T | -0.047 | -0.038 | -0.012 | -0.048 | 0.014 | 0.022 |
| | (0.043) | (0.050) | (0.059) | (0.068) | (0.077) | (0.091) |
| T+1 | -0.051 | -0.042 | -0.050 | -0.086 | 0.090 | 0.096 |
| | (0.049) | (0.056) | (0.063) | (0.072) | (0.081) | (0.093) |
| T+2 | -0.058 | -0.050 | -0.007 | -0.042 | -0.043 | -0.038 |
| | (0.050) | (0.056) | (0.075) | (0.082) | (0.099) | (0.108) |
| T+3 | -0.008 | 0.001 | -0.069 | -0.103 | -0.054 | -0.043 |
| | (0.063) | (0.068) | (0.087) | (0.093) | (0.108) | (0.117) |
| T+4 | -0.042 | -0.039 | 0.085 | 0.066 | 0.059 | 0.058 |
| | (0.063) | (0.064) | (0.081) | (0.082) | (0.113) | (0.115) |
| T+5 or more | -0.043 | -0.039 | -0.172*** | -0.189*** | -0.086 | -0.074 |
| | (0.044) | (0.047) | (0.065) | (0.069) | (0.085) | (0.089) |
| N (observations) | 12,709 | | 12,717 | | 12,708 | |
| Couples | 1,990 | | 1,992 | | 1,992 | |

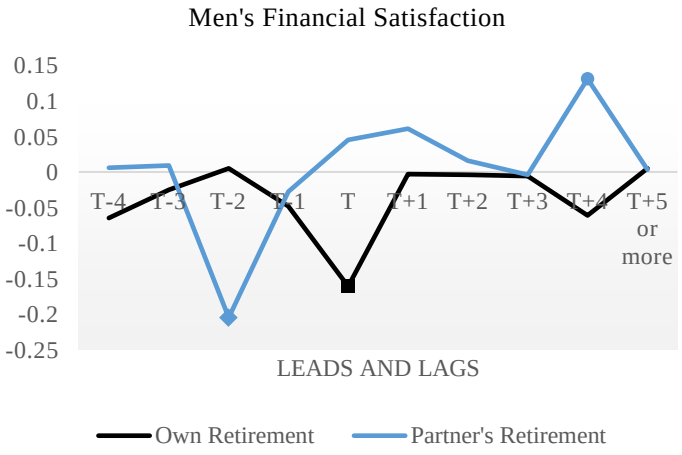
*Note*. The bracketed terms are robust standard errors (clustered by couples). The sample consists of women in mixed-sex couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1-18. Controls include own and partner's age polynomials, own and partner's health (SF-36), own and partner's education (years), equivalised monthly household income, total number of children, unemployment rates by region, year dummies, and individual fixed effects.

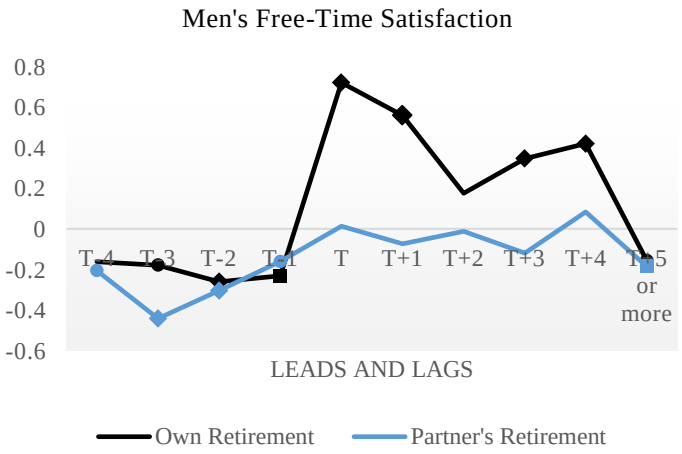
*p < .10. **p < .05. *** p < .01.

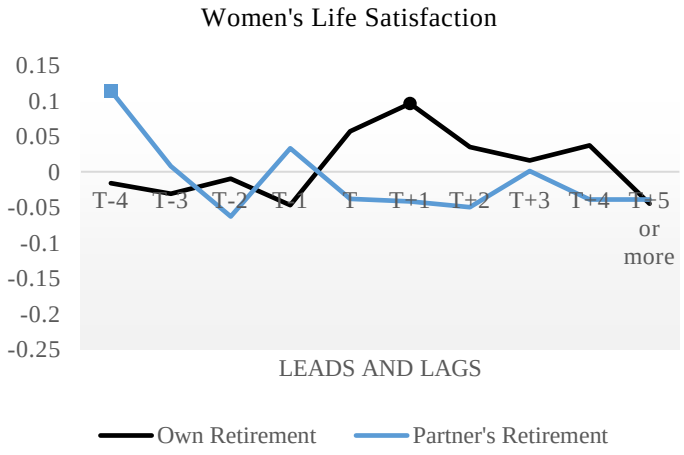
**Figure 4. 1**

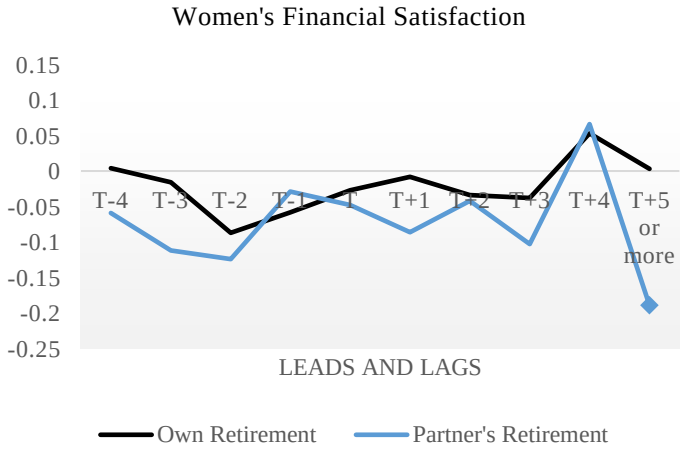
*Dynamic Effects of Own and Partner's Retirement by SWB Domain*

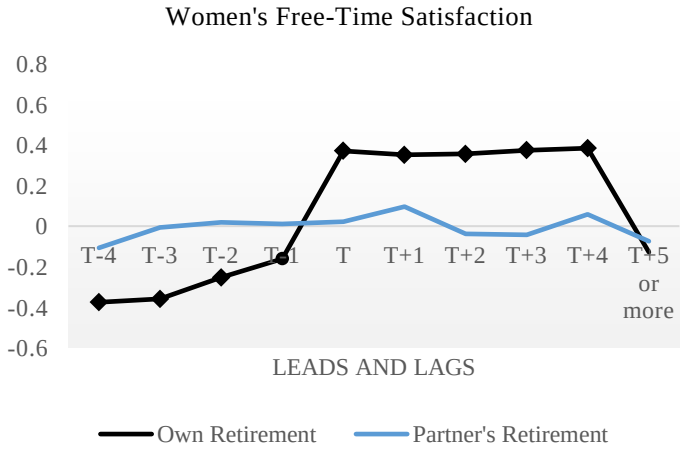





*Note*. ♦, ■, and ● denote significance at the 1%, 5% and 10% levels, respectively

With reference to Table 4.8, the estimates in Column 2 suggest that for men, there is a marginally significant retirement anticipation effect of 0.077 points four

years prior to retirement. In the year of retirement, there is a positive jump in overall life satisfaction. However, the coefficient signs turn mostly negative in the years following retirement – these effects nonetheless are not statistically significant suggesting complete adaptation of the effects of retirement on overall life satisfaction. For men, the cross effects of their partners retirement include negative anticipation effects of 0.200 points two years prior to retirement; this effect becomes less negative in the year prior to partner's retirement; cross partner's retirement adaptation effects are mostly positive and larger in magnitude than own retirement adaptation effects, though only statistically significant four years following partner's retirement.

Referring to Column 4 in Table 4.8, for men, the anticipation effects of retirement on financial satisfaction are mostly negative. In the year of retirement, at mean values, financial satisfaction reduces by 0.161 points. Following retirement, the lag effects become less negative and are not significant. This pattern implies that men completely adapt to lowered financial satisfaction within a year of retiring. When analysing at the cross effect of partner's retirement for men, negative anticipation effects arise two years prior to their partner's retirement. Upon their partner's retirement, the adaptation effects are mostly positive, with a significant jump in financial satisfaction of 0.131 points four years after their partner's retirement.

In terms of the effects of retirement on satisfaction with free time, the results in Column 6 of Table 4.8 demonstrate that for men, satisfaction with free time becomes less negative a year prior to retirement. Upon retirement, a large significant increase in satisfaction with free time occur, and the positive effect continues until four years after retirement. In the long term however, this effect dissipates –men who are retired five years or more report a drop in satisfaction with free time of 0.157 points. For men, cross-partner retirement effects are quite similar to their own retirement effects, although the magnitudes of lead and lag coefficients are generally smaller. Three years leading up to the partner's retirement, satisfaction with free time for men becomes less negative. Upon partner's retirement, satisfaction with free time scores becomes positive although insignificant. Moreover, the effect of partner's retirement on men's free time satisfaction in the long run revert to being significantly negative. Note that when comparing the long-term effects for men on satisfaction with free time due to their own retirement and their partner's retirement, the results determining retirement adaptation are very different when compared to models with and without anticipation effects (Columns 5 and 6).

Turning to the results for women, estimations in Column 2 of Table 4.9 demonstrate an apparent jump in overall life satisfaction arising upon own retirement. The positive effects of retirement are experienced especially the year following retirement though, with women quickly adapt to their retirement reverting to baseline levels of SWB. Four years prior to their partner's retirement, women report positive anticipation effects of 0.114, however in the years closer to the lead up to partner's retirement, overall satisfaction fluctuates. Typically, for women partner's retirement cross effects are not significant. In other words, for women, their partner's retirement hardly impacts their overall life satisfaction.

Referring to Column 4 of Table 4.9, anticipation effects of women's own retirement on financial satisfaction are negative three years prior to retirement. This negative pattern continues with some fluctuations up until four years after retirement, although all coefficients are insignificant. When analysing the cross effects of partner's retirement on women's financial satisfaction, all lead and lag variables are also insignificant, with the exception of a highly significant negative effect of 0.189 points five or more years following their partner's retirement. A gendered pattern is prevalent here as results for both men and women demonstrate some negative effects of men's retirement on financial satisfaction. However, men completely adapt to baseline levels of financial satisfaction a year after they retire with their long-term effects of retirement turning positive. Yet for women, the negative effects of men's retirement appear to be long term.

Referring to the results for women in Column 6, there are sizable anticipation effects of retirement on satisfaction with free time. Upon retirement, women report higher levels of satisfaction with free time. In the lead up to retirement, satisfaction with free time becomes less negative, then turn positive in the year of retirement. These effects continue with no dissipation, however in the long run women retired for five years or more completely adapt back to baseline levels of satisfaction with free time. The cross effects of partner's retirement on free time satisfaction are hardly as pronounced compared to the results for men. Although a slight increase in satisfaction scores seems to be prevalent for women in the year following partner's retirement, these patterns in the results are insignificant.

## 4.6 Discussion

The results present some interesting patterns regarding the intra-household distribution of wellbeing in relation to own and partner's retirement for Australian men and women in mixed-sex couples. Relating to the broad domain of overall life satisfaction for men, in FE models which do not account for anticipation and adaptation, the results demonstrate positive associations with own and partner's retirement. For women, own retirement increases overall life satisfaction; though partner's retirement has no effect on women's overall life satisfaction. Nonetheless, when accounting for anticipation and adaptation, for both men and women the long-term effects of own and partner's retirement are insignificant. This is in line with the idea of the hedonic treadmill model as both men and women quickly revert back to their baseline levels of overall life satisfaction. Fortunately, there is no evidence implying that own or partner's retirement may lead to maladjustment or lower overall life satisfaction (Kim & Moen, 2001). These results are consistent with the "continuity theory" proposed by Atchley (1976). That is, while entering retirement may cause one to lose their identity as a career-oriented individual perhaps, individuals adjust and adapt to changes brought about by aging, thus changing their focus to pursue other activities that are meaningful in the retirement stage of their life.

The outcomes on the FE models for financial satisfaction demonstrate that without accounting for anticipation and adaptation effects, for men, own retirement does not lead to significant changes in financial satisfaction; however, partner's retirement appears to increase financial satisfaction. In similar models for women, own and partner's retirement has no impact on financial satisfaction. When incorporating anticipation and adaptation effects, men completely adapt to baseline levels of financial satisfaction following their own and their partner's retirement. Nevertheless, financial outcomes for women differ in that some of the long-term effects of partner's retirement are statistically significant and negative. As mentioned before, in the estimations equivalised household income is held constant, therefore this effect does not relate to changes in income. Thus, it may be picking up a change in the allocation of financial resources within households in retirement, to the detriment of women.

The issue of the allocation of financial resources within retired households is important. Women, on average, have a greater need to preserve financial resources in old age than their partners because they will typically outlive their partner due to

greater longevity and an age gap that "favours" men in most relationships (Browning, 2000; Lundberg & Ward-Batts, 2000). If women lack bargaining power within their households due to lower lifetime labour earnings or wealth (associated with career interruptions arising from parenthood), their preferences and expected lifespan might not be reflected in the decisions made about the use of household finances (Lundberg, 2000). The results provide some evidence that these patterns might be playing out for Australian women.

More generally, the results from the financial satisfaction models show that it is wrong to assume that household financial resources are pooled such that retirement has equivalent effects on both partners. We do not find symmetrical cross-partner effects of retirement on financial satisfaction. Rather, the changes in financial satisfaction appear to depend on who is retiring and their gender. This should caution policy makers against assuming that resources provided to households – for example, through taxation benefits to men's superannuation savings – will be shared with their partners.

Gendered patterns can also be seen in the effects of retirement on free time satisfaction. In FE models that do not account for anticipation and adaptation effects, there are positive associations between own and partner's retirement and free time satisfaction for both men and women. When incorporating anticipation and adaptation effects, women on average exhibit large significant increases in free time satisfaction in the years following retirement. This is likely to reflect the relief from the "double day," however, this is not a long-term effect as eventually women adapt to baseline levels of free time satisfaction. For men, the initial years following own retirement led to higher free time satisfaction, while the long-term effects of own and partners retirement are significant and negative. These results can possibly be explained by findings in previous studies which suggested that upon retirement couples tend to re-negotiate the division of household labour, with men increasing household labour and women reducing their domestic duties (Szinovacz, 2000; Leopold & Skopek, 2015).

These results also demonstrate the importance in estimating the effects of retirement on wellbeing, such that the model specifications account for anticipation and adaptation. This is especially important given that retirement is generally a predictable event, and therefore individuals anticipate own and partner's retirement causing changes to wellbeing in the years prior to the event. Moreover, it is

demonstrated that the adaptation effects of retirement are often overestimated when failing to account for anticipation effects.

Hitherto, the focus has been on the results from the FE estimations as they are more nationally representative compared to the FEIV estimations which identify a local average treatment effect (LATE), and thus focus on a narrow group of individuals who retire due to becoming eligible for the age pension. The FE estimations come at a price though, as they do not necessarily capture the causal effects of retirement (although the extensive list of controls potentially minimise this issue). This is acknowledged as a potential limitation of the study; however, that being said, the FE estimations still provide important descriptive inferences regarding wellbeing and retirement.

Nonetheless, some interesting insights can be made from the FEIV models. From a policy perspective, while many economies now promote policy reforms with the aim of reducing social security payments by prolonging labour force participation, the FEIV results show that such reforms come at a cost. For men and women who make retirement decisions based upon being eligible for the pension, raising pension eligibility ages is likely to be associated with delayed wellbeing. This is particularly pronounced with respect to women's retirement effects, not only on their own financial wellbeing but also their partners.

## 4.7 Conclusion

This study has provided evidence on the intra-household effects of own retirement and partner's retirement on wellbeing. There are some gendered differences in retirement wellbeing. In the long run, own and partner's retirement has negative implications on men's free time satisfaction, while partner's retirement has negative implications on women's financial satisfaction. Nonetheless, both men and women completely adapt to changes in overall life satisfaction associated with own and partner's retirement. The findings reinforce the importance of analysing not only the impact of one's own retirement on wellbeing but also spill-over effects of partner's retirement, as failing to do so often leads to an underestimation of the overall retirement effect.

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## 4.9 Appendix

### Table 4.10

*Characteristics of Compliers*

| | | | | | |
|---|---|---|---|---|---|
| Men | | | | | |
| | | Proportion | | Mean | |
| | | Equiv. household income (AUD) | Home owner (fully paid) | Education (years) | Health (SF-36) |
| Whole sample | 1 | 5,021.484 | 0.750 | 12.007 | 63.472 |
| | | (41.026) | (0.038) | (0.026) | (0.188) |
| Complier | 0.502 | 4,945.751*** | 0.715*** | 12.116*** | 64.280*** |
| | (0.078) | (97.323) | (0.008) | (0.062) | (0.374) |
| Women | | | | | |
| | | Proportion | | Mean | |
| | | Equiv. household income (AUD) | Home owner (fully paid) | Education (years) | Health (SF-36) |
| Whole sample | 1 | 5,019.805 | 0.750 | 12.007 | 66.812 |
| | | (35.485) | (0.004) | (0.026) | (0.179) |
| Complier | 0.45778 | 4308.706*** | 0.681*** | 12.116*** | 67.823 |
| | (0.008) | (80.906) | (0.008) | (0.060) | (0.405) |

*Note*. The bracketed terms are bootstrapped standard errors. The sample consists of men and women in mixed-sex couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1-18.
*p < .10. **p < .05. *** p < .01.

**Table 4.11**

*Leads and Lags Person-Year Observations*

| Leads and lags | Men | Women |
|---|---|---|
| T-4 | 349 | 280 |
| T-3 | 425 | 342 |
| T-2 | 490 | 405 |
| T-1 | 603 | 562 |
| T | 656 | 878 |
| T+1 | 561 | 784 |
| T+2 | 407 | 591 |
| T+3 | 324 | 433 |
| T+4 | 255 | 324 |
| T+5 or more | 2535 | 2037 |

*Note*. The sample consists of men and women in mixed-sex couple relationships, between the ages of 55-75 years old, who were interviewed in the HILDA survey, waves 1-18.

# 5. Conclusion

## 5.1 Findings and Policy Implications

This thesis aimed to assess the intra-household distribution of wellbeing in Australian mixed-sex couple households at key stages of the life course: when the household is engaged in paid work, around parenthood, and when the partners retire. Insights were achieved by undertaking analyses using quantitative methodologies which applied fixed effects estimation strategies using data from the Household, Income and Labour Dynamics in Australia (HILDA) survey. The panel design of the HILDA data and fixed effects methods allowed for a close targeting of the intra-household wellbeing effects at key life stages. The strong gender patterns identified in the results add to the evidence base that points to the continued influence of gender norms, often to the detriment of women's wellbeing.

Following the mythology proposed by De Henau and Himmelweit (2013), the first essay, "Employment and the Distribution of Intra-Household Wellbeing", addressed questions on how each partner's contribution towards household resources, as measured through employment status, affected their own and their partner's level of financial wellbeing. The results showed, first, that for both men and women, paid contributions from full-time employment are most influential in the determination of own subjective financial wellbeing. The results also showed that the person's own level of paid work contribution is more important to financial wellbeing than their partner's contribution. However, for women, the gap in the wellbeing effect of changes in her own versus her partner's employment status is relatively small.

The results showing how the distribution of subjective financial wellbeing depends on who makes the paid contributions are important given the unequal distribution of paid work within many Australian households, where women take on the bulk of unpaid work and have a relatively low rate of full-time employment. The lack of full-time work would reduce women's ability to influence the allocation of financial resources within their households. This leaves women more vulnerable not only in the short term but also in the long term, as less than full-time employment is often associated with the loss of career options, access to training, health insurance, and superannuation benefits (Roeters & Craig, 2014). Therefore, even if household

income remains constant, contributions from less than full-time employment may be perceived as less likely to sustain financial wellbeing.

The results also demonstrated that despite the substantial changes in women's workforce participation that have been underway over recent decades, there is still evidence of the persistence in gender norms that legitimise and value male breadwinner household forms. This makes it important to have policies that shift the value of the paid contributions that women make through part-time work. Protective policies in which employees do not have to sacrifice job quality or entitlements for fewer hours would be beneficial. For example, in Sweden and Germany, employees have the right to adjust their working hours so that they can adapt to household situations and commitments over the life course, without the loss of their workplace entitlements and significant income (Anxo et al., 2006). However, within the Australian context employees currently do not have a legal entitlement to reduce their working hours in their existing jobs, and this results in many women needing to downgrade to lower skill and lower benefit jobs to secure part-time work (Austen, 2017). Poorer access to household resources and lower wellbeing is a likely outcome.

The second essay, "Parenthood and the Distribution of Intra-Household Wellbeing", provided insights on how the wellbeing effects of parenthood are distributed within Australian mixed-sex couple households. Parenthood is, for many, a source of wellbeing but it also associated with significant time, financial, and emotional demands. The question of how these positive and negative impacts are shared between partners is an important one, especially in the policy context of falling birth rates. The findings of this study include an overall negative association between parenthood and life satisfaction, financial satisfaction, and partner satisfaction. However, the distribution of these effects is not always equal within households. For example, for couples with more than one child, the negative implications on life satisfaction were more pronounced for the woman compared to the man. For both parents, maintaining paid work hours reduced the negative financial impacts of having children. However, maintaining paid work hours lowered overall satisfaction for mothers (but not fathers), perhaps because juggling work and care duties tends to be a difficult task – and this burden typically falls on women.

The second essay also examined the anticipation and adaptation effects of the birth of a child on all the three domains of subjective wellbeing (SWB). Both men and women within the sample experienced some positive anticipation effects on life

satisfaction and partner satisfaction in the years leading to the birth of a child. There are no significant anticipation effects demonstrated for men's financial satisfaction; though in the year prior to the birth of a child women report on average higher levels of financial satisfaction, suggesting that a secure financial position is more of a prerequisite for women to have a child than is the case for men. In all three domains of SWB, the positive effects of having a child are not long lasting. Therefore, even while accounting for couple interdependencies, aside from a positive "honeymoon effect" brought about by a newborn, having children generally has negative associations with SWB and these effects increase in magnitude with the number of children within the household.

These results demonstrate inaccuracies in the notion that resource burdens of child-raising are equally shared – at least for mixed-sex Australian couples with more than one child. They also establish that it is mothers in particular that experience financial vulnerabilities and time conflicts. These patterns expose the continued influence of traditional gender and social norms where women are expected to take on most of the caring responsibilities. From a policy perspective, the design of the Child Care Subsidy and its interaction with other income support payments and the personal income tax system provide women with disincentives to increase their hours of work (see for example, Wood et al., 2020). Therefore, policy reforms which remove tax and benefit disincentives to mothers' workforce participation are required to achieve meaningful intra-household gender equity. In addition, affordable, accessible, and high-quality childcare provisions within Australia would be useful in bridging the full-time participation gap. Such arrangements would reduce time conflicts without compromising the financial positions of women and they would help increase their bargaining position both within the household and in the labour market.

The third essay, "Retirement and the Distribution of Intra-Household Wellbeing", measured the links between retirement and changes in each partner's overall life satisfaction, financial satisfaction, and satisfaction with free time. The bargaining power of older couples in retirement is likely to be predisposed by wealth accumulation and previous labour participation which would often be influenced by a lifetime sequence of negotiations throughout the couples' partnership. Within models which focus on the contemporaneous effects of retirement, there are positive associations between overall life satisfaction and own and partner's retirement, although for women, the cross-effects of partner's retirement are insignificant on

overall life satisfaction. Own retirement is not associated with significant changes in either the man's or the woman's financial satisfaction. However, for men, their partner's retirement appears to increase financial satisfaction. Additionally, there are positive associations between own and partner's retirement and free time satisfaction for both men and women.

For further accuracy in measuring retirement outcomes, and since most often retirement is a planned event, the analysis also included models which focused on the intertemporal effects of retirement, accounting for anticipation and adaptation effects. In the long term, own and partner's retirement has negative implications on men's free time satisfaction, while partner's retirement has negative implications on women's financial satisfaction. In accordance with the "hedonic treadmill" model, men and women on average completely adapt to changes in overall life satisfaction associated with own and partner's retirement.

As at other key stages of the life course, the results captured the financial vulnerability of women in retirement. Women have a greater need to preserve financial resources in old age than their partners because they will typically outlive their partner due to greater longevity and the age gap in most marriages. Due to lower lifetime earnings, many women will lack bargaining power within their household and, thus, their preferences and expected life-span might not be reflected in the decisions made about the use of household finances. The results from the current study point towards a lack of income pooling among Australian retirees. They call into question the effects of policies which heavily subsidise men's superannuation savings on the assumption that these will be shared within the household. The results suggest that these policies may actually exuberate the unequal distribution of household resources, resulting in important gender inequalities in wellbeing in retirement.

## 5.2 Thesis contribution

The findings within this thesis contribute toward the growing literature on the intra-household distribution of wellbeing. Furthermore, due to the increasing interest in measures of wellbeing from policy makers, fully understanding the relationship between gender and intra-household wellbeing has never been more relevant. The findings within the three essays add to the emerging literature that challenges the key

assumptions about the family as a unitary whole. More specifically, each essay offers important theoretical and methodological contributions:

Essay One:

- There are currently no studies within the Australian context which have exploited data on the different pattern of change in subjective financial wellbeing in response to changing employment roles to understand intra-household inequality.
- The findings provide external validity to the methodology proposed by De Henau and Himmelweit (2013) within a different country context and time period.
- The findings demonstrate that employment (and not just income) is an important factor in determining the distribution of wellbeing within Australian mixed-sex couple households.
- Individuals get more value/subjective financial wellbeing from their own paid work contributions than their partner's contributions. This is especially true for men. The result is not consistent with income pooling but, rather, paid work would seem to generate an entitlement to claim a proportionate share of household resources. From a theoretical perspective, the findings are in line with Sen's (1990) assessment, that other, non-paid contributions are perceived not to be as valuable in this regard.
- The results contribute towards the literature on the appropriate modelling of ordered dependent variables such as SWB, showing that very similar outcomes are reached with linear and non-linear fixed effects models.

Essay Two:

- This is one of the first studies within the Australian context to analyse parenthood and SWB from an intra-household perspective.
- The study combines insights on parental wellbeing from two different methodologies, analysing both the average effects of children, and the anticipation and adaptation effects of having a newborn.
- The gender patterns in the results suggest that the financial vulnerability and time pressures of parenthood are more strongly experienced by women than men.

- The findings show evidence against an assumption that the costs and benefits of parenthood are pooled and equally shared within households.
- The findings contribute to the literature on the adaptation and anticipation effects of parenthood, showing that SWB improves, on average, before parenthood, and that individuals' SWB typically reverts to a baseline level following parenthood. These findings add precision to measurement of the effects of parenthood on wellbeing, pointing to key selection effects and highlighting the importance of adaptation.

Essay Three:

- This is one of the first Australian studies to analyse the effect of one's own and one's partner's retirement on SWB
- The study measured both the contemporaneous and intertemporal effects of retirement. Prior studies have found a positive relationship between retirement and wellbeing. However, this study demonstrates that gains from retirement are often short lived.
- The findings demonstrate that, even at this relatively late life-stage and amongst couples whose relationships have 'stood the test of time', the effects of changes in employment on SWB are not equally distributed – with women (but not men) demonstrating a negative association with financial satisfaction and retirement in the long-run.
- The methodologies contribute to the growing literature which uses pension reforms as an instrumental variable for retirement within the Australian context.

## 5.3 Avenues for Future Research

There is great potential to extend the analysis of intra-household issues using the approach developed in this thesis. For example, if and when enhanced longitudinal data on time use becomes available, it will be possible to more closely assess the impacts of (different types) of unpaid labour on the intra-household distribution of financial wellbeing.

There are also opportunities to extend the current analysis to other dimensions of SWB. For instance, the findings in the second essay demonstrate that working

mothers are likely to be experiencing time conflict, therefore it would be insightful to analyse the changes in free time satisfaction associated with parenthood, and how these changes might differ for mothers and fathers.

Ideally, the essays can also be extended to include controls which capture gender attitudes. However, data on such measures are not included in all waves of the HILDA survey, therefore the analysis would have to be limited to certain years, or alternatively a different dataset could be explored. Furthermore, institutional changes and activism can support a shift towards societies with more egalitarian gender principles. When longer series of household panel data are available, it would be interesting to see if there has been any change in intra-household wellbeing inequalities over time.

The first essay provided some cross-country comparisons on the effects of partners' employment on SWB for Australian and British couples. Similarly, using other datasets, all essays could be extended to include further international comparisons across countries with different welfare regimes.

## 5.4 References


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