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Intergenerational economic mobility in contemporary Australia: Is Australia still the land of the "fair go"?

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Abstract

Intergenerational economic mobility goes to the heart of our understanding of fairness in society. It captures the way in which life chances are shaped by background, opportunity and effort. The degree of intergenerational economic mobility indicates the nature and characteristics of social and economic processes, suggests directions for public policies, and has important implications for social cohesion and economic efficiency. While Australia has historically been identified as a highly egalitarian society (the land of the 'fair go'), there are growing concerns that this may no longer be the case. This thesis constitutes the first study that systematically examines the degree of intergenerational economic mobility in contemporary Australia. It contributes to the literature by laying out a conceptual framework that maps the relationship between intergenerational economic mobility and social mobility, outlining the key measures of intergenerational economic mobility, and providing new empirical evidence of the effect of family background on adult children's economic outcomes and behaviours.

I focus on three measures of intergenerational economic mobility: income mobility, wealth transfers, and the effect of family background on adult children's financial practices. First, I use father-son earnings elasticities to measure intergenerational income mobility. Second, I study the effect of family background and life events of children on the probability and amount of wealth transfers from parents to children. Third, I explore the intergenerational and intragenerational determinants of adult children's bank account choices (an important aspect of their financial practices). All analyses are undertaken using the Household, Income and Labour Dynamics in Australia Survey. This is the largest and longest running household panel survey in Australia, and is largely representative of the contemporary Australian population. These data are modelled using innovative, state-of-the-art statistical techniques for the analysis of panel data.

In my first empirical chapter, I find that the father-son earnings elasticity in Australia between 2001 and 2013 ranges from 0.11 to 0.30 (with the preferred estimates lying between 0.24 and 0.28). Such elasticity was found to increase over the observation window. Elasticity estimates vary depending on the level of occupational (dis)aggregation and earnings measure used: they are highest when two-digit level occupations and hourly earnings are used, and lowest when four-digit level occupations and annual earnings are used. A statistically significant correlation between earnings elasticity and Gini coefficients

supports the argument that economic mobility is inversely associated with economic inequality.

Results from my second empirical chapter reveal that parental characteristics are strongly associated with the probability of adult children receiving wealth transfers from their parents. Individuals who at age 14 had parents who were employed, had not had a long-term unemployment spell, had degree-level education, worked in high-level occupations, or never separated/divorced, were more likely to receive parental wealth transfers, and to receive greater dollar amounts. The predicted probabilities and amounts of parental wealth transfers are consistently higher for adult children from middle/high socioeconomic backgrounds than for adult children from low socioeconomic backgrounds, and this pattern of advantage persists over their adult life courses. In addition, there are differences by socioeconomic background in wealth transfer patterns at children's major life events.

In my third and final empirical chapter I find evidence of substantial intra-generational and intergenerational impacts on partnered children's financial practices. Within-couple bank account choices are contingent on economic factors (e.g. personal income), life-course factors (e.g. the presence of children), and socio-cultural factors (e.g. gender-role attitudes). Importantly, family background plays a role in influencing individuals' bank account choices: high maternal education is an important precursor of daughters' separate bank account ownership, and higher parental socioeconomic status is related to couple members' separate banking behaviours.

These findings have significant implications. In many respects, contemporary Australia may not be considered as an egalitarian society. Intergenerational income immobility is moderate, but is growing mirroring current dynamics of economic inequality. In addition, there remains a persistent gap in parental wealth transfers by socioeconomic status over children's life courses. This may constitute an important driver of the intergenerational transmission of (dis)advantage, and calls for further research on its flow-on consequences on life domains such as children's cognitive and non-cognitive skills, socioeconomic attainment, health and wellbeing. Furthermore, my findings suggest that current trends of increased female educational attainment may result in increased financial autonomy of adult women in future Australian generations.

Altogether, my thesis highlights that scholarship on intergenerational economic mobility must move beyond simple analyses of the extent of intergenerational (im)mobility, paying more attention to the mechanisms which produce and reproduce it. Gaining this knowledge is essential to devising ways of creating fairer societies in a rapidly changing macro-level environment characterised by higher education expansion, the internationalisation of labour markets, global economic uncertainty, and a progressive redefinition of gender roles. Younger generations will face more economic opportunities than older generations, but will do so in the face of increased economic inequalities.

Declaration by author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

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Publications during candidature

Journal articles

Huang, Y., Perales, F., & Western, M. (2016). A land of the "fair go"? Intergenerational earnings elasticity in Australia. *Australian Journal of Social Issues, 51*(3): 363-383.

Working papers

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Huang, Y., Perales, F., & Western, M. (2015). Intergenerational earnings elasticity revisited: How does Australia fare in income mobility? (Working Paper no. 14). Institute for Social Science Research, The University of Queensland.

Conference papers

Huang, Y., & Western, M. (2017). Does longer social network site use cause more psychological distress? Paper presented at The 112th Annual Meeting of the American Sociological Association, Montréal, Canada.

Huang, Y., Perales, F., & Western, M. (2017). Intergenerational *inter vivos* transfers by family background and over children's life course. Paper presented at International Sociological Association RC28 Conference "Increasing mobility and reducing inequality"*,* Columbia University, The United States.

Huang, Y. (2016). Towards togetherness: Change in financial organisation within couples with transitions towards marriage and parenthood. In M. Chou (ed.), *Proceedings of The Australian Sociological Association Conference* (pp. 121-128). Melbourne: The Australian Catholic University.

Huang, Y., Perales, F., & Western, M. (2016). On whose account? Financial democracy within heterosexual couples in Australia. Paper presented at Longitudinal Data Conference 2016, Australian Government Department of Social Services, Canberra, Australia.

Huang, Y., Perales, F., & Western, M. (2016). On whose account? Financial democracy within heterosexual couples in Australia. Paper presented at International Sociological Association RC28 Conference "Economic inequalities, deprivation, and poverty", University of Bern, Switzerland.

Huang, Y., Perales, F., & Western, M. (2016). A land of the "fair go"? Intergenerational earnings elasticity in Australia. Paper presented at International Sociological Association RC28 Conference "Intergenerational transfer, human capital, and inequality", National University of Singapore, Republic of Singapore.

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Yangtao Huang	Statistical analysis (100%) Wrote the paper (100%)
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Mark Western	Edited the paper (50%)

Contributions by others to the thesis

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List of Abbreviations used in the thesis

2SLS—two-stage least squares

ABS—Australian Bureau of Statistics

AIHW—Australian Institute of Health and Welfare

ANZSCO—Australian and New Zealand Standard Classification of Occupations

AUSEI06—Australian Socioeconomic Index 2006

CPI—Consumer Price Index

HILDA—Household, Income and Labour Dynamics in Australia

IHS—inverse hyperbolic sine

IV—instrumental variable

NATSEM—National Centre for Social and Economic Modelling

OECD—Organisation for Economic Co-operation and Development

OLS—ordinary least squares

OR—odds ratio

SES—socioeconomic status

SIMEX—simulation extrapolation

TS2SLS—two-sample two-stage least squares

UK—the United Kingdom

US—the United States

WPI—Wage Price Index

1 Introduction

This thesis constitutes the first study that systematically examines the degree of intergenerational economic mobility in contemporary Australia. Studying intergenerational economic mobility is important, because it is fundamental to our understanding of fairness in society. Intergenerational economic mobility captures the way in which life chances are shaped by background, opportunity and effort. Its level indicates the nature and characteristics of social and economic processes, suggests directions for public policies, and has important implications for social cohesion and economic efficiency.

In this thesis, I aim to address the following research questions. (i) What is intergenerational economic mobility, and how do we measure intergenerational economic mobility? (ii) What are the patterns and dynamics of intergenerational income mobility in contemporary Australia? (iii) What are the predictors of the likelihood and magnitude of parental wealth transfers in contemporary Australia, and how do parental wealth transfers differ by parental socioeconomic status over children's life course? (iv) How does family background impact on adult children's economic behaviours in contemporary Australia?

To motivate the conceptual discussions and empirical analyses on intergenerational economic mobility in chapters 2 to 5, this chapter provides requisite contextual information on (i) the history of social mobility in Australia, and (ii) normative judgements and conventional measures of intergenerational economic mobility. This chapter also overviews the conceptual framework proposed, data and methods used, contributions and structure of the thesis.

1.1 The land of the "fair go": A brief history of social mobility in Australia

1.1.1 Social mobility in colonial Australia

Australia has long prided itself as being the land of the "fair go": a classless, meritocratic society with equality of opportunity for everyone regardless of their gender, age, race and ethnicity (Connell & Irving, 1992; Saunders, 2004; Thompson, 1994). Its early settlement by British convicts provided a unique historical context in which everyone had a "fair go" and hard work, rather than family background, led to success[1] (Leigh,

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[1] Inequality in economic resources among British settlers was lower than at any other point in Australian history (Leigh, 2013).

2007). Family background, in fact, played little role in determining individuals' lives in colonial Australia (1788-1901). Georgiana McCrae, daughter of the Duke of Gordon, led a frugal life in Melbourne after moving to Australia, a life in stark contrast to her privileged life as a member of the upper class back in England (Niall, 1994). In contrast, Caroline Chisholm, the wife of a British soldier, worked hard to house, educate and employ immigrant women, becoming recognised as a leading social reformer and remembered across Australian generations (Walker, 2011). Born to a Scottish poet and lyricist, Walter Hume accrued power and prestige in colonial Queensland through personal merits (ambition, courage, hard work, energy and perseverance), capital gain (ownership of land and property) and attainment of networks with people in power (Augustus Gregory, the Surveyor General and Commissioner for Lands, and William Tully, the Under-Secretary for Public Land) (Davies, 2009).

More generally, colonial Australia is considered to be 'classless' due to (i) the absence of an aristocracy and land gentry, and (ii) the absence of class deference, which was a prominent part of European class practice and experience. This can be exemplified by the widely quoted "Jack thought himself as good as his master" (Connell & Irving, 1992: 12). Relatively high standards of living for significant parts of the working class, reasonably high demand of labour, early achievement of political democracy and autonomy, and the success of labour organisations are important contributors to the formation of a classless colonial society and to the widespread belief in classlessness (Connell & Irving, 1992; Wells, 1989). The simple and fluid social structure also provided tremendous opportunities for 'ordinary' people like Caroline Chisholm and Walter Hume to experience upward social mobility in colonial Australia (Davies, 2009).[2]

Colonial Australia also pioneered a series of social and political reforms that promoted equality of opportunity and symbolised democracy in the workplace. As described in Whiteford (2013: 10): "Australian colonies in the 19th Century included the first jurisdictions to introduce the eight hour day (1856), among the first where women won the vote (1894), the first Labour Party government in the world (1899), and among the first to use the secret ballot (1856)". Such strong union movement with progressive social policies earned Australia the reputation of being "the working man's paradise" (Lane, 1892): a land

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[2] For example, the population of Queensland before 1870s was small. The social structure had squatters at the top due to their legislative, judicial and media controls, a small middle class, and the majority of rural and railway workers at the bottom. The growing middle class after 1870s increased their influence in legislative, judicial and media institutions (Davies, 2009).

free of social hierarchies and a country that offers jobs and decent lives to everybody regardless of their social origins.

1.1.2 Social mobility in post-colonial Australia

Labour movement continued to shape the social fabric in post-colonial Australia, with its statutory wage regulation system and universal social security provision identifying Australia a unique model of "wage-earners' welfare state" (Castles, 1985). While this welfare state model was predicated on white male full-time employment in the labour market, it effectively offered a viable social safety net for the working class and delivered strong egalitarian outcomes for the first 80 years after colonisation (Castles, 1985).

However, post-colonial Australia also saw changes in the formation of social hierarchies and signs of variations of economic mobility, characterised by race-based immigration legislations, inequality of property ownership, falls and growth of income and wealth inequality, and a rapidly rising class of elites who dominated the country (O'Lincoln, 1996; Murray, 2006).

First, a set of "White Australia" policies that aimed to restrict immigrant intake based on the origin country of the applicants and deport non-white immigrants already in Australia was passed after the Federation of Australia, with the *Immigration Restriction Act 1901* and the *Pacific Island Labourers Act 1901* being the most representative legislations (London, 1970; Willard, 1978). The *Migration Act 1966* dismantled the White Australia policies and legalised equality of immigration, and the *Racial Discrimination Act 1975* officially brought the White Australia policies to an end (Tavan, 2005). These "White Australia" policies from the early 1900s to the mid 1970s undermined the cultural legacy of egalitarianism established during colonial Australia and excluded non-European, non-British immigrants from equal chance of living and working in Australia.

Second, land holdings became more concentrated after the Federation of Australia. Figure 1-1 shows that the Gini coefficient for the concentration of land holdings increased from 0.73 in 1910 to 0.81 in 1971. Similarly, the Theil index increased from 0.49 to 0.61 over the same time period (Frankema, 2006). These metrics suggest a high level of inequality in land ownership and a trend towards a more unequal distribution of land holdings in post-colonial Australia.
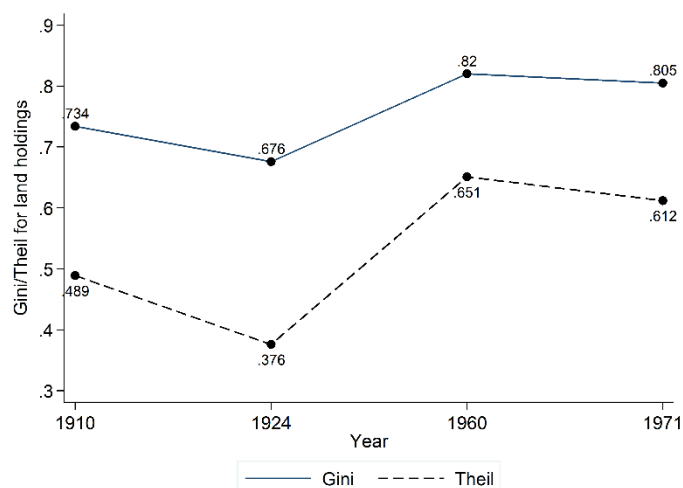
Figure 1-1 Gini coefficient and Theil index for the concentration of land holdings after the Federation of Australia

Notes: Figure reproduced by the author.

Source: Frankema, 2006, Table A.1.

Third, post-colonial Australia also saw changes in the distributions of income and wealth. Leigh (2013) used historical data and compiled the long-run trends of income and wealth shares of top earners in Australia since 1910 (Figures 1-2 and 1-3). These figures show that, from the 1910s to the late 1970s, the income share for the top 1% dropped from 12% to 5%, and their wealth share dropped from 34% to 7%. From the 1980s to 2010, their income and wealth shares rose to 9% and 11%, respectively, back to the respective levels in the 1940s (Leigh, 2013; Perez-Arce & Mishra, 2015). These increases in the income and wealth shares of top earners indicate growing income and wealth inequality in Australian society.
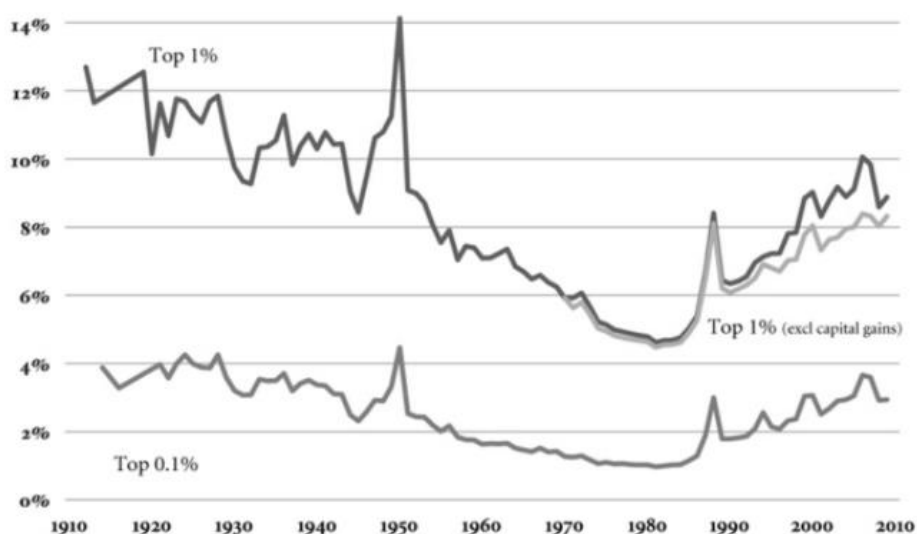
Figure 1-2 Share of income received by top earners in post-colonial Australia, 1910-2010

Notes: Figure reproduced as a screenshot.

Source: Leigh, 2013, Figure 4.
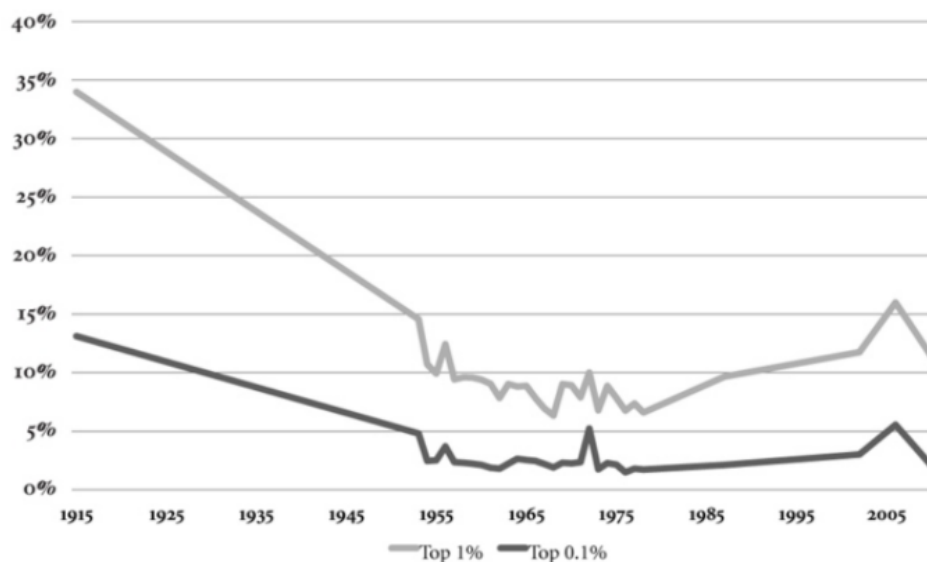
Figure 1-3 Share of wealth by top earners in post-colonial Australia, 1915-2010

Notes: Figure reproduced as a screenshot.

Source: Leigh, 2013, Figure 6.

Finally, capitalists in post-colonial Australia became the "ruling class" based on their ownership of productive resources, and exerted power and control over politics, businesses and mass media (Connell, 1977; O'Lincoln, 1996; Kuhn, 2004; Murray, 2006; Piketty, 2014; Western & Western, 1988). The main form of ruling-class organisation in Australia is company (Connell, 1977). The top 10% owned 86% of company shares in the Australian stock exchange market, 62% of rental properties, 60% of cash deposits and 50% of business assets in 2003 (Murray, 2006). The directors of the top twenty Australian companies in the Australian stock exchange held an average of 2.2 directorships on the boards of other corporations in 2004 (Pietsch, 2004). Capitalists also have strong influence in politics, set the policy agenda, and build political consensus and awareness of common interests within the ruling class (Pietsch, 2004). For example, Frank Lowy, Chairman of Westfield Corporation, sat on the board of the Reserve Bank of Australia, chaired the board of the Australian Soccer Association, and advised the then Prime Minister John Howard on foreign relations (Mellish, 2004; Pietsch, 2004).

Altogether, race-based immigration legislations, concentration in land ownership, growing income and wealth inequality in recent decades, and the ruling class of capitalists

raise concerns that the egalitarian tradition in Australia is under threat and that the "fair go" may have "fair gone".

A number of other commentators have also drawn attention to a wider range of social indicators which suggest that contemporary Australia is becoming less open to intergenerational mobility and that economic and social inequality is becoming more entrenched. Using annual panel data from the Survey of Employment and Unemployment Patterns stretching from 1995 to 1997, Abello and Harding (2006) found that 28% of Australian children experienced financial disadvantage in at least one of these three years, and 12% of all Australian children lived in households suffering persistent financial disadvantage. Using the FaCS Transgenerational Dataset (1996-1999) that contains selected information from Family Allowance and income support records of 85% of Australian young people born between January and March 1980, Pech and McCoull (2000) found that young Australians from welfare-recipient families are 5 times more likely to become welfare recipients themselves than their peers from high income families. These results suggest a great degree of intergenerational welfare dependence among low-income Australian families.

Moreover, rising cost of childcare, job casualisation, computerisation and automation, and the decline in housing affordability and in the stock of public housing are hitting households from low socioeconomic backgrounds the most.

First, the rate of formal childcare used by families with children between the age of 0 and 11 increased from 13.4% in 1996 to 23.7% in 2011, and the gross cost of childcare grew from an average of $30 per day in 2003 to an average of $75 per day in 2013 (NATSEM, 2014). Although the Commonwealth Government provides two forms of fee assistance: Child Care Benefit (means-tested, targeted at low income families) and Child Care Rebate (universal, providing a rebate of 50% of out-of-pocket costs) (Productivity Commission, 2016), the economic gain associated with returning to work is negligible for mothers from low income families with 1-2 children, and affordability remains a major issue for low socioeconomic families (The Senate Education and Employment References Committee, 2014; NATSEM, 2014).

Second, the proportion of wage and salary earners working on a casual basis increased from 21.5% in 1992 to 23.9% in 2013 (Kryger, 2015). It is estimated that 40% of jobs in Australia will be susceptible to computerisation and automation in the next 10 to 15 years, with jobs in hospitality, transport, retail and administration sectors being most at risk (Durrant-Whyte et al., 2015).

Third, the median house prices (all residential dwellings sold) increased by 263% from 1991 to 2011, whereas the median after-tax household income grew by 'just' 95% over the same time period, which indicates that income growth is far from catching up with the growth of housing prices (NATSEM, 2011). The share of the public housing stock over the national dwelling stock decreased steadily from 5.2% in 1996 to 4.1% in 2011 (Groenhart & Burke, 2014), and the number of new allocations to public housing declined by 35% from 31,000 in 2004 to 20,000 in 2009 (The Senate Economics References Committee, 2015). The decline in the supply of public housing was, however, accompanied by an increase in the demand: the number of applicants on the waiting list for public housing increased by 8% from 2009 (147,065) to 2013 (158,971) (AIHW, 2014).

Taken together, persistent financial disadvantage, transgenerational welfare dependence, rising cost of childcare, job casualisation and automation, and declines in housing affordability are likely leading contemporary Australia towards the immobile end of the international comparative range (Argy, 2006).[3]

1.1.3 "Fair go" for all?

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[3] Using an approach of group-level rare surname analysis proposed in Clark (2014), Clark et al. (2017) recently argued that status persistence in Australia was strong throughout 1870-2017, with an intergenerational correlation of 0.7-0.8 and no change over time, suggesting that Australian long-run social mobility rates are as low as those in the UK and US. Data in Clark et al. (2017) come from the electoral rolls and records of graduates from Melbourne and Sydney universities, tracing a set of elite rare surnames in 1900. However, Torche and Corvalan (2016) show that surname-level estimate of persistence is not comparable with individual-level estimate conventionally used by mobility researchers: "using surname-level income averages is an inappropriate strategy if the intent is to understand mobility of individuals" (Torche & Corvalan, 2016: 4). Additionally, "Clark's findings of high and stable intergenerational persistence is an artifact of his selection of what he calls elite … groups in the contexts he examines" (Torche & Corvalan, 2016: 4), because these elite groups are "historically shaped by widely diverging historical advantages" (Torche & Corvalan, 2016: 21). "[T]he level of surname-aggregate persistence depends on the groups being chosen for the analysis and … it can be higher, of similar magnitude, or lower (or even have different signs) than estimates of individual-level persistence traditionally used by the mobility literature" (Torche & Corvalan, 2016: 5). Therefore, caution needs to be exercised when comparing intergenerational correlation in Australia in Clark et al. (2017) with intergenerational earnings elasticities estimated using individual-level data in conventional economic literature.

While Australia has historically been considered as the land of the "fair go", and it has shown comparatively high levels of social mobility for Anglo-Celtic and European men, there have been systematic structural inequalities in society in relation to Aboriginality, gender and country of origin.

Indigenous children have been forcibly separated from their families and communities, and Indigenous people exploited for their labour, under constant surveillance, and subject to severe discrimination since the very first days of the European occupation of Australia (Human Rights and Equal Opportunity Commission, 1997). The forcible removal and the associated legislations effectively created the "Stolen Generations" and had profound impact on the Indigenous families (Read, 2006).

Women in Australia had historically lower socioeconomic standing than men: married women were barred for employment in public sectors until 1966, women were not integrated in the military until the late 1970s, and a married woman's passport application had to be authorised by her husband until 1983 (Stilinovic, 2017). Today, women in Australia continue to earn less than men for the same jobs, engage in more low paid, casual and part-time work than men do, and be significantly underrepresented in leadership positions in government and industry (Human Rights and Equal Opportunity Commission, 2008). The Australian workforce is highly segregated by gender and female-dominated industries have been historically undervalued (Australian Human Rights Commission, 2014).

Immigrants from non-English speaking backgrounds consistently face racism and discrimination in Australia, dating back to the violence and hostility towards Asian gold miners in the 1850s and race-based White Australian policies over three quarters of the 20th century. Policies of racial assimilation "also found Southern and Eastern European immigrants subject to harassment and discrimination" (Chan, 1997: 16). Since the 1980s, Asian and Arab Australians were found to most likely experience harassment and violence, and Asian youths were "increasingly the targets of racist comments and discrimination in schools and workplaces" (Chan, 1997: 16). Modern day immigrants also experience multiple barriers to inclusion such as housing, employment and social participation (Ethnic Communities' Council of Victoria, 2009; Kosny et al., 2017; Taylor, 2004).

These literatures are not about social mobility *per se*, but distributional outcomes and generative power relations (i.e. socio-structural relations which generate systematic inequalities in life chances, life outcomes, the distribution of valued social rewards, and relations of power and control). Collectively, these structural inequalities faced by

Indigenous Australians, women and immigrants suggest that considerable policy effort may be needed to accomplish equality of opportunity for all.

1.2 Good or bad: Normative judgement of intergenerational economic immobility

In an economically immobile society parental socioeconomic statuses are strongly replicated by the socioeconomic status of their children (Blanden, 2009). In such a society, parental resources become an important determinant of children's status attainment (Erola, Jalonen & Lehti, 2016), and family background, rather than individual talents and merits, determines economic success. This gives rise to a process of status replication, whereby heredity becomes a prevailing pathway into power and prestige and poverty and adversity are largely inherited.

Intergenerational economic immobility is typically thought to have deleterious consequences for families and societies. At the societal level, economic immobility potentially erodes social cohesion and solidarity. Social cohesion refers to "the extent of connectedness and solidarity among groups in society" (Kawachi & Berkman, 2007: 174). It involves the absence of social conflict, the presence of social bonds, and high trust in civil society (Cumberland Lodge, 2017). There is more social cohesion if individuals trust that they are able to achieve social and economic success through their efforts and abilities (Cobb-Clark, 2010). Conversely, if socioeconomic success is attained predominantly through the reproduction of parental status, social conflict is more likely to occur. In addition, economic immobility likely leads to economic inefficiency. This is because talented individuals born to families with low socioeconomic background may not live up to their productive potential due to under-development of their skills and under-utilisation of their talents (Blanden, 2009; Cobb-Clark, 2010). As a consequence, there is efficiency loss in economically immobile societies.

It is important to note three *caveats* regarding the normative argument that economic immobility should be avoided. The first *caveat* is that a detailed conceptual analysis of equality of opportunity may itself not stand up to theoretical scrutiny[4] (Fishkin,

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[4] Equality of opportunity is a critical link between economic inequality and mobility. As Brunori et al. (2013: 17) pointed out, "if higher inequality makes intergenerational mobility more difficult, it is likely because opportunities for economic advancement are more unequally distributed among children. Conversely, the way lower mobility may contribute to the persistence of income inequality is through making opportunity sets very different among the children of the rich and the children of the poor." The intergenerational consequence of inequality of opportunity is immobility across

2013). We use different conceptual tools on different domains of equal opportunity: we talk about contests (such as college admissions or job recruitments) in terms of merit and discrimination, whereas we consider educational opportunities in different schools predominantly in developmental terms instead of meritocratic ones.[5] Therefore, discussions on different domains of equal opportunity—contests and educational opportunities in different schools—present inconsistent explanations of equality of opportunity—in meritocratic terms (for contests) vis-à-vis in developmental terms (for educational opportunities in different schools).

Breaking down the analysis of equal opportunity into specific domains narrows our focus and limits our ability to ask many broader questions: discussions on college admissions are, for example, narrowly focused on how admissions could provide equal opportunity, rather than why the openings are scarce in the first place, and how the competitions fit into the trajectories of the contestants' lives.

Focusing on each domain in isolation also ignores the dynamics of the interactions between outcomes and equal opportunities: our college admission decisions shape the qualifications and skills of college graduates, which continue to influence the outcomes of their competitions in the labour market. Previous developmental opportunities bring new opportunities. Viewing each domain of equal opportunity in isolation would therefore miss the inter-relationships between these domains. We therefore need to consider the longitudinal dependencies and the interdependency of life domains.

The second *caveat* is that a fully mobile society, characterised by a zero correlation between social origins (i.e. parents) and destinations (i.e. children), may not be achievable. Complete mobility refers to a society in which parental background has no effect on children's social and economic outcomes: children born within adverse family backgrounds can move just as easily up to the top as children born to affluent families moving down to the bottom. While this level of mobility sounds appealing, it is likely to be unachievable for two reasons. First, since part of the correlation between origins and

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generations: "a much higher rate of transmission of economic advantage at the very top" (Corak, 2013a: 80).

[5] For example, differences in early educational outcomes reflect the presence and accumulation of (dis)advantage due to inequalities in the socioeconomic statuses of schools and family background (Lee & Burkam, 2002), and such differences in early education are a key contributor of the greater divergence in children's achievements in higher education and labour market.

destinations comes about through assortative mating[6], the process of partner selection has to be randomised to achieve zero intergenerational correlation. However, spousal selection has found to be non-random (Bateson, 1983). Therefore, the correlation between origins and destinations cannot be reduced to zero. Second, even if we were able to reduce the intergenerational correlation to zero, it would imply complete upward *and* downward mobility. This is likely to be politically infeasible, because public policies are made to improve upward mobility and *reduce* downward mobility. Public policies aimed at improving social justice need to "grow the pie" across generations to promote intergenerational upward mobility for *all*. For example, mass expansion of compulsory education (an important way to "grow the pie") is likely to improve intergenerational upward mobility for all, because even in the most disadvantaged families, children will be better educated than their parents, and as a result, upward mobility takes place even among the population at the bottom of distribution by socioeconomic status.

The third *caveat* is that intergenerational immobility may come about because of social and economic inequality, which enables advantaged parents to confer advantages onto their offspring. Conversely, this situation reduces the chances of children from adverse background to move out of adversity. Inequality is often thought to have pernicious effects on the progress of society (see e.g. Wilkinson & Pickett, 2009), but some would argue that we need inequality to disproportionately reward people for effort and training and to ensure that socially valued scarce positions are filled by the brightest talents (Davis & Moore, 1945; Milner, 1987; Tumin, 1953). Proponents of this argument claim that some positions in society are functionally more important than others, and require special skills which only the most talented individuals with specialised training can have. To motivate these individuals to acquire the necessary skills and incentivise them to fill in these important positions, society needs to offer these talents "privileged and disproportionate access to the scarce and desired reward" (Tumin, 1953: 387). While there is abundant criticism of this perspective (see e.g. Bredemeier & Stephenson, 1962; De Maio, 2009), this "functional necessity" thesis of social stratification remains one of the most influential perspectives in sociology and has recently gained momentum (Hauhart, 2003).

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[6] Assortative mating refers to the process of partner selection through which individuals with similar social, economic and cultural characteristics mate and marry one another (Lam, 1988; Mare, 1991). Examples of these characteristics include education, ethnicity, religion, occupation and wealth.

In economics, similar arguments point towards the equity-efficiency trade off (Okun, 1975) that stimulated widespread and long-standing debates. It is argued that inequality is beneficial for the growth of the economy for two reasons. First, since investment is a key source of economic growth and comes primarily from the wealthy, a smaller share of income for the wealthy resulting from less inequality should lead to less investment. This would in turn reduce economic growth. Second, an equal distribution of income and a highly redistributive system through high income tax rates create fewer monetary incentives for hard work, reduce work effort and skill development, and induce welfare dependence. All of these would jeopardise economic efficiency and growth (Kenworthy, 2007). Other economists, however, argue that more inequality is related to weaker consumer demand, reduced worker motivation and workplace cooperation, reduced affordability of college education by the poor, and increased crime rates and government expenditure (Kenworthy, 2007). Consequently, more inequality ultimately leads to lower economic growth. Taken together, while there is no consensus on the equity-efficiency trade off, arguments that justify the presence of inequality need not be overlooked when suggesting that economic immobility should be avoided.

1.3 Conventional measures of intergenerational economic mobility and its recent development

Intergenerational economic mobility is conventionally measured using intergenerational associations of earnings and income (Behrman & Taubman, 1990). This can be done by examining the correlation of parents' and children's lifetime earnings/income, or by modelling adult children's earnings/income and taking into account their age and labour force characteristics, such as education and occupation. This modelling strategy involves the log of children's earnings/income as the outcome variable and the log of parental earnings/income as the key predictor of interest. The coefficient of the log of parental earnings/income is termed intergenerational earnings/income elasticity. It is a measure of the percentage change in children's expected earnings/income for a one-percent change in parents' earnings/income (Björklund & Jäntti, 2012). An associated measure, the earnings/income correlation, can be calculated by multiplying the elasticity by the ratio of the standard deviation of parents' earnings/income over the standard deviation of children's earnings/income. This correlation coefficient tells us how many standard deviations children's earnings/income would change for a one-standard-deviation change in parents' earnings/income (Björklund & Jäntti, 2012). Both the correlation and the

elasticity range from 0 to 1. The closer the correlation/elasticity to 1, the stronger the relationship between parents' and children's earnings/income, and the lower the mobility across generations. On the contrary, the closer the correlation/elasticity to 0, the weaker the relationship between parents' and children's earnings/income, and the higher the mobility across generations.

Broadly, in estimating intergenerational earnings/income elasticity it is important to consider (i) what parent-child dyad is used, (ii) what data are available, and (iii) at what age earnings/income are measured. First, earnings/income of different parent-child dyads may yield different elasticities, so the selection of parent-child dyad is important for the elasticity estimate to represent intergenerational mobility within families. In general, women's earnings/income are more volatile and less predictable over their life course than men's due to different career choices and progression (e.g. high rates of part-time employment) associated with certain life events (e.g. childbirth). Existing literature predominantly uses father-son dyads when estimating earnings/income elasticity. Second, early literature primarily uses cross-sectional data to estimate earnings/income elasticity (see e.g. Björklund & Jäntti, 1997; Solon, 1992; Zimmerman, 1992), which are susceptible to downward-biased elasticity estimates due to response errors and transitory fluctuations in earnings/income (Corak, 2006; D'Addio, 2007; Mazumder, 2001). Recent work on earnings/income elasticity improves upon these early studies by leveraging longitudinal surveys (see e.g. Hansen, 2010; Lee & Solon, 2009; Mazumder, 2005). Third, when data on lifetime earnings/income for both generations are not available (as is the case in many short-run longitudinal surveys), elasticities vary depending on the age at which earnings/income are measured (life-cycle bias). For instance, using young fathers' or young sons' earnings/income results in downward-biased elasticity estimates (D'Addio, 2007; Grawe, 2006; Piraino, 2007). This bias is small and not significant if current earnings/income (as proxies for lifetime earnings) are measured between the early 30s and the mid 40s (Böhlmark & Lindquist, 2006; Haider & Solon, 2006).

Recently, studies on intergenerational economic mobility also begin to examine the intergenerational association of parental and adult child wealth (Boserup, Kopczuk & Kreiner, 2013; Charles & Hurst, 2003; Pfeffer & Killewald, 2015). While the underlying principle is still to model parents' and children's wealth and obtain wealth elasticity estimates (i.e. the coefficient of the log of parental wealth on the log of children's wealth), unlike earnings which is one-dimensional, wealth has multiple components: income, assets, debts, and transfers from older generations (e.g. gifts, allowances, inheritance and/or bequests). The multi-dimensional nature of wealth poses significant challenges in

estimating wealth elasticity: it demands more data than do earnings, wealth data are more susceptible to measurement error than earnings data (as wealth data aggregate measurement error in each wealth component), and data quality (such as missing data and negative wealth) can be a major source of concern. As a result, there are much fewer studies on intergenerational correlations of wealth than on intergenerational correlations of earnings, and studies on wealth correlations use either administrative records that capture lifetime wealth of multiple generations (Boserup, Kopczuk & Kreiner, 2013) or long-run panel survey data with the capacity to track individuals over their entire life course (Charles & Hurst, 2003; Pfeffer & Killewald, 2015). In the absence of such administrative or long-run panel data, studies on wealth focus largely on the transfers made across generations.

1.4 Conceptualising and measuring intergenerational economic mobility: This thesis

In explaining the conception of economic mobility, Fields (2000) identified five different processes through which mobility can be understood and measured: (i) *time dependence*, (ii) *positional movement*, (iii) *share movement*, (iv) *symmetric income movement*, and (v) *directional income movement*.

(i) Time dependence is "a particular form of immobility" (Fields, 2000: 2). In its intra-generational context, time dependence concerns the extent to which one's current income is predicted by his/her past income. In its intergenerational context, time dependence concerns the extent to which offspring's income is predicted by parental income. Individual-level mobility at the societal level aggregates into a structural characteristic of the social system.

(ii) Positional movement is the movement of individual's income along the entire income distribution. It is most commonly in the form of quantiles and ranks. Under this concept, income movement becomes important only when changes in income cross the quantiles/ranks defined by the researchers. Within-quantile/rank income changes are not observed in positional movement.

(iii) Share movement compares individual's income movement with income movement of the rest of the population. Individuals are considered to have experienced downward mobility if their income increases by 50% but the income growth of the rest of the population is 100%, for example. Unlike positional movement, share movement captures the actual changes in individual's income, even when such changes are not substantial enough to cross quantiles. For instance, let us divide the income distribution of

the population into quartiles, assume that the income range of each quartile is: $25,000 and below (the bottom quartile), $25,001-50,000 (the 2nd quartile), $50,001-75,000 (the 3rd quartile), and $75,001 and above (the top quartile), and assume that an individual's income is $40,000 (hence in the 2nd quartile). If income increases by 50% for this individual ($60,000) but 100% for the rest of the population (e.g. $50,000 and below for the bottom quartile, etc.), this individual experienced downward mobility under the concept of share movement, but experienced no change under the concept of positional movement, because this individual's income stays in the 2nd quartile after the increase.

(iv) Symmetric income movement concerns the overall magnitude of income changes in society, but not the direction of the changes. For example, if certain social group experiences a $1,000 income gain but the rest of the population experiences a $1,000 income loss, the income movement is $2,000.

(v) Directional income movement, on the other hand, examines income gains and losses separately. Common measures of directional income movement include the fraction of upward or downward movers and the mean income gains and losses.

This thesis conceptual framework is based on Fields's (2000) first mobility concept, which deals with the association in parents' and offspring's economic status. It provides a conceptual framework of intergenerational *economic* mobility that not only encompasses intergenerational earnings mobility and wealth transfers, but also incorporates the impact of family background on economic behaviours of the adult children. Establishing the relationship between family background and various measures of the economic performance of the children is important, because these measures collectively better represent the multi-dimensionality of children's economic outcomes than it would using a single measure, and help to examine multiple channels (e.g. parental income, education, occupation, union history etc.) through which intergenerational transmission of (dis)advantage in contemporary Australia takes place. Economic behaviours may also represent likely channels via which economic outcomes are realised.

Using data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, I then provide empirical evidence to support the relationship between family background and the economic performance of the adult children, as outlined in the conceptual framework of intergenerational economic mobility. I use a number of state-of-the-art statistical techniques to take account of the longitudinal dependencies in the data, reduce biases associated with cross-sectional analysis and sample selection, and improve efficiency and precision of the estimation.

1.5 Thesis contributions

This thesis contributes to the existing literature on intergenerational economic mobility in several ways. Conceptually, it builds on three inter-related areas of research and develops a framework that attempts to link intergenerational *economic* mobility to the broader concept of *social* mobility and provide a more comprehensive and encompassing account of intergenerational economic mobility.

Additionally, it makes several important empirical contributions. First, the data I use have advantages over other existing Australian surveys that could be used to examine the issues under consideration. The HILDA Survey is the longest-running household panel survey in Australia (2001-2015). It tracks a large, nationally representative sample of 13,969 respondents from 7,682 households since wave one. It has high response rates, ranging from 86.8% in wave 2 to 97.0% in wave 15. It contains rich information on respondent's labour force characteristics, personal wealth, finances and wealth transfers, and detailed information on parental and sibling characteristics, background of families in which respondents grew up, and major life events of the respondents. Hence, the HILDA Survey represents one of the highest quality household panel surveys by international standards, and the data are particularly useful for my research purposes. Specifically, the HILDA Survey data enable me to obtain more reliable estimates and more current findings than ever before, and allow for longitudinal analyses that are not possible with cross-sectional datasets.

Second, I apply advanced statistical methods to the analysis of these panel data. Panel data have several advantages over cross-sectional and time series data in capturing complex human activities: they enable (i) more accurate statistical inference by improving the efficiency of estimates, (ii) modelling the dynamics of and changes in life events, (iii) addressing research questions and testing hypotheses that require sequential observations from the same individuals, and (iv) estimating more robust associations by controlling for the impact of omitted variables (Hsiao, 2014). The proliferation of panel studies, however, is just a recent phenomenon (Hsiao, 2007). This is largely due to the methodological constraints and the computational complexity in analysing panel data (Faes, Geys & Catalano, 2008). As the need and interest in using panel data grow, so do the methodological developments and the analytical tools (Hsiao, 2007). The existing literature on intergenerational economic mobility predominantly uses cross-sectional methods, even in the presence of panel data (see e.g. Mendolia & Siminski, 2015). In this thesis, I will not only use conventional analytical tools for panel data in the context of

intergenerational economic mobility (where they remain underutilised), but also push methodological boundaries in the process (e.g. by developing statistical methods suitable for panel data and sample selection). Applying statistical techniques that make full use of panel data will thus add methodological rigour to my research, improve accuracy and efficiency of my estimates, and contribute to moving the field of intergenerational economic mobility forwards in the methodological realm.

Third, this thesis constitutes the first Australian study that systematically examines the extent of economic mobility across generations. It is an encompassing analysis that moves beyond income mobility (as was done in Leigh, 2007 and Mendolia & Siminski, 2015), and incorporates wealth transfers and economic behaviours as important components of economic mobility. While mobility studies have a long tradition in Australia (e.g. Radford, 1962), most of these existing studies focus on occupational mobility (Hayes, 1990; Jones & Davis, 1986; Wanner & Hayes, 1996), class mobility (Western, 1994) and educational mobility (Barón & Cobb-Clark, 2010; Marks & McMillan, 2003; Tomaszewski, Western & Martinez, 2015). Intergenerational earnings mobility did not receive appropriate academic attention until 2007, when Leigh (2007) published the first Australian study on father-son earnings elasticities. Studies on earnings mobility continued to be dormant, and since then only three more studies were published (Fairbrother & Mahadevan, 2016; Huang, Perales & Western, 2016a; Mendolia & Siminski, 2015). Similarly, academic work on intergenerational wealth transfers is very limited in Australia (see Sappideen, 2008 and Barrett et al., 2015 for exceptions), and little research has investigated the impact of family background on adult children's economic behaviours in Australia. Knowledge gaps in these areas between Australia and other developed countries are widening. As a consequence, we know very little about the level of economic mobility across Australian generations. The lack of scientific evidence derived from robust data and analytical methods also prevents us from developing a better understanding of the underlying mechanisms producing the intergenerational transmission of (dis)advantage in Australia, and obstructs evidence-based policy in this realm. This thesis endeavours to address these research gaps, provide comparable analyses that enrich international comparisons, and inform public policies aimed at breaking the intergenerational cycle of disadvantage.

1.6 Thesis structure

This thesis is structured as follows. Chapter 2 contextualises intergenerational economic mobility in the broader concept of social mobility, develops a conceptual

framework of intergenerational economic mobility, and lays a foundation for the three empirical chapters that follow. In this chapter, I will lay out three important measures of intergenerational economic mobility: intergenerational income mobility, intergenerational wealth transfers, and the intergenerational impact of family background on adult children's economic behaviours. I will provide detailed analyses on each measure in Chapters 3 to 5.

Chapter 3 discusses the intergenerational associations of income, using data on labour income. It examines the patterns and dynamics of intergenerational income mobility in Australia, assessing the effects of using different levels of occupational (dis)aggregation, different earnings measures, and different compositions of sample on the magnitude of father-son earnings elasticities. I also test whether the positive association between economic inequality and immobility across countries (illustrated in the Great Gatsby Curve[7]) exist within Australia over time. While comparative analysis reveals the association between inequality and mobility, whether this association holds within countries over time remains unexplored. However, this is of theoretical interest and policy relevance, because (i) the inequality-mobility association can become conclusive if it is supported by both cross-country comparisons and within-country comparisons over time; and (ii) if the positive relationship between economic inequality and immobility holds in Australia over time, intergenerational economic mobility can be improved by deriving public policies aimed at reducing economic inequality. Chapter 3 will discuss these issues in more detail.

Chapter 4 discusses intergenerational wealth transfers. It examines the patterns and determinants of the likelihood and magnitude of parental wealth transfers in Australia, focusing on the role that family background plays in influencing the probability and amount of parental wealth transfers, how such transfers differ over children's life courses and at

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[7] The Great Gatsby Curve is a graphical representation of the positive relationship between economic inequality and immobility. It is a scatter plot of 22 countries with income mobility (measured by intergenerational earnings elasticity) on the Y axis and income inequality (measured by Gini coefficient for after-tax income) on the X axis: higher values on both axes indicate higher inequality (immobility). These points cluster around an upward sloping line, suggesting that countries with high income inequality tend to have low income mobility across generations (Krueger, 2012; Corak, 2013; The White House, 2012). In other words, children born to poor families are more likely to stay poor as adults in countries with higher inequality. Using the Great Gatsby Curve, Krueger (2012: 4) predicted that the intergenerational transmission of income disadvantage in the United States will "rise by a quarter for the next generation as a result of the rise in inequality that the U.S. has seen in the last 25 years."

children's major life events by parental socioeconomic status. By examining parental wealth transfers from the perspective of family background, I will document the disparities in parental monetary transfers across advantaged and adverse family backgrounds, and provide relevant implications for research and practice.

Chapter 5 discusses the impact of family background on adult children's economic behaviours. It examines trends in and predictors of adult children's bank account choices in the context of intimate relationships, taking into consideration that joint ownership of bank accounts (mainly with a partner) is a financial strategy related to the characteristics of both adult children and their partners. I therefore assess how intra- and inter-generational economic, life-course, and socio-cultural factors jointly determine couples' bank account choices, using relevant information from both couple members.

Chapter 6 returns to the conceptual framework of intergenerational economic mobility I developed in Chapter 2, summarises the key findings from the empirical chapters, and concludes.

Chapter 2 Concepts of intergenerational economic mobility and a review of the existing literature

2.1 Chapter introduction

This chapter proposes a conceptual framework of intergenerational economic mobility, built on different conceptualisations in economics and sociology. Section 2.2 outlines the different economic and sociological perspectives that have been used to conceptualise intergenerational economic mobility. Built on these discussions, section 2.3.1 presents the proposed conceptual framework that (i) maps the relationship between social mobility and intergenerational economic mobility, and (ii) outlines the components and measures of intergenerational economic mobility. Section 2.3.2 explains and interprets intergenerational economic mobility from the perspective of the associations between social origins and destinations, which relate various family background factors to children's economic outcomes. Section 2.3.3 outlines the contributions of the proposed framework in broader terms and scopes. Section 2.4 summarises the conceptual framework proposed.

2.2 Conceptualising intergenerational economic mobility in economics and sociology

Economists conceptualise economic mobility in a number of ways (Fields, 2000). First, mobility can be thought to have a time dimension: individuals' past status influences their current status. In the intergenerational context, parental status influences the status of their children. Second, mobility can be viewed as changes in individuals' status along the entire income distribution (e.g. ranks and quantiles). The third type of mobility is changes in individuals' shares of total income compared with changes in others' shares of total income. For example, if income of a certain group of individuals rises by 50% while income of the rest population grows by 100%, this group is thought to have experienced downward mobility, even though their income growth is positive. Finally, mobility can also be viewed in dollar terms, where movement of economic statuses is measured in either the size of dollars or directions (i.e. economic gains and losses) at an aggregate level. For instance, we can measure income mobility within a population by comparing total income in the base year (the first year of a time period for which comparison is made) with total income in the final year (of the same time period). We can either use the absolute values of the income changes (non-directional), or separate the analysis by the direction of the

change, such as the shares of upward and downward movers or the values of upward and downward movement.

These different ways economists conceptualise mobility can also be extended to sociology to pick up on different types of questions: how much mobility is there in society (either positional movement at one time point or movement over time)? How strong is the association between social origin and destination? What do patterns of intergenerational movement look like? How do destination statuses depend on origin characteristics? These questions shape mobility research in economics and sociology, and can be applied to various dimensions of mobility, such as class mobility, occupational mobility, earnings/income mobility, and educational mobility. A typology of approaches to mobility studies could therefore be derived by cross-classifying these mobility questions and these mobility dimensions, which could then be used to situate different research traditions in sociology and economics.

In economics, directions in mobility research over the past three decades have been mainly restricted to the analysis of mobility in what pertains to earnings/income (Blanden, Haveman, Smeeding, & Wilson, 2014; Torche, 2015). Solon's (1992) and Zimmerman's (1992) influential work on father-son earnings elasticity constitute seminal studies within this paradigm. In sociology, researchers have mainly drawn on empirical studies of class and occupational mobility as well as on status attainment models. Class mobility and occupational mobility are concerned with examining how much mobility there is and documenting patterns of movement from categorical origins to categorical destinations (for class mobility, see e.g. Erikson, Goldthorpe & Portocarero, 1979; Ganzeboom, Luijkx & Treiman, 1989.; for occupational mobility, see e.g. Duncan, 1979; Hout, 1984; Sobel, Hout & Duncan, 1985). Status attainment models focus on examining socioeconomic attainment over the lifecycle as the outcome of processes occurring in the family of origin, intermediate education and early occupation (Blau & Duncan, 1967), with additional attention paid to psychological factors (ability, motivation, aspirations and plans) and peer as well as neighbourhood effects in the Wisconsin model of status attainment (Sewell, Haller & Ohlendorf, 1970). These path-breaking studies provide important guidance for the conceptualisation of intergenerational economic mobility in this thesis.[8]

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[8] Discussing the different ways economists and sociologists conceptualise intergenerational mobility is very relevant to the framework proposed in this chapter. This is because these two different conceptualisations provide important ground work and the proposed framework in section 2.2 is essentially built on both conceptualisations. The sociological conceptualisation focuses on class, occupations and education, while the economic conceptualisation focuses on income. These

2.3 Intergenerational economic mobility: A conceptual framework

2.3.1 Intergenerational economic mobility and social mobility

Intergenerational economic mobility is the extent of persistence in economic outcomes across generations: the degree to which the next generation can move up (or down) the economic ladder compared to their parental generation. It is one type of mobility that has two important dimensions: the intergenerational dimension and the economic dimension. The non-economic dimensions of intergenerational mobility include intergenerational class, occupational and educational mobility. These non-economic dimensions reflect the sociological conceptualisation of intergenerational mobility. Conceptually, intergenerational economic mobility falls under the broad concept of social mobility. It is therefore critical to understand intergenerational economic mobility by situating it in the context of social mobility.

Social mobility is the movement of individuals or families along the stratified social positions (Rytina, 2011). It consists of intra-generational and intergenerational mobility (D'Addio, 2007). Intra-generational mobility, also known as career mobility, is the extent to which individuals over their life course move from one socioeconomic status to another. Drivers of intra-generational mobility include attending higher education (i.e. pursuing a university degree), job training, promotion, etc. Intergenerational mobility, on the other hand, is the extent to which adult children's socioeconomic outcomes are determined by their family background. It reflects the ease with which children born to adverse family background can move up and children born to rich parents can move down. It shows the degree of 'fluidity' in society. Drivers of intergenerational mobility include taxation of gifts and inheritance, expansion of education, universal access to public goods and services, equal opportunities through labour market legislations, etc.

different conceptualisations form the fundamental components of intergenerational mobility. The missing pieces in these conventional conceptualisations in sociology and economics are wealth transfers and economic behaviours, and together with income, they collectively represent the economic dimension of intergenerational mobility (as opposed to the non-economic dimensions of intergenerational mobility: class, occupations and education). My contribution in this framework is therefore to (i) consolidate the economic and sociological conceptualisations, and (ii) put together these missing pieces to provide a more granular concept of intergenerational economic mobility than what it conventionally is, i.e. economic mobility equals income mobility.

Intergenerational mobility can be categorised into occupational mobility, class mobility, educational mobility and economic mobility. As outlined before, sociologists traditionally examine intergenerational mobility by occupational status and social class, understood as the processes through which the destination class and occupation is determined by the origin class and occupation. In contrast, economists typically focus on income and earnings (D'Addio, 2007; Torche, 2015). Intergenerational economic mobility, however, needs not only encompass income and/or earnings mobility; wealth transfers from older generations, most notably parents, are a significant contributor to adult children's wealth accumulation (Kotlikoff, 1987) and liquidity constraint alleviation (Cox, 1990). That is, parents transfer money onto their children as a means of improving their financial circumstances. For example, parents transfer money to their offspring to confront the often high tuition fees of universities. In the absence of such transfers, many young adults would be unable to fund their university education due to a lack of personal financial resources. In addition, consumer socialisation theory indicates that children acquire consumer skills, knowledge and attitudes through interacting with various socialisation agents (Ali et al., 2012; Moschis, 1987; Ward, 1974). In particular, parents and family exert strong influence in shaping children's financial attitudes and behaviours (Lyons, Scherpf, & Neelakantan, 2007; Lyons, Scherpf, & Roberts, 2006; Moschis, 1987; Shim et al., 2009; Shim et al., 2010), which in turn affect their financial wellbeing in their adult life. Parental socioeconomic status has also been found to directly influence adult children's financial satisfaction and wellbeing (Shim et al., 2009; Shim et al., 2010). To the extent that monetary transfers (received from parents) and economic behaviours constitute important components/channels of adult children's economic outcomes, discussions on the effect of family background on income, transfers and finance of the adult children would contribute to a better understanding of the multi-dimensionality of intergenerational economic mobility.

In this thesis, I build on these arguments and propose a conceptual framework of intergenerational economic mobility which has the aforementioned three components: income mobility, wealth transfers, and economic behaviours, attitudes and wellbeing of the offspring. This framework is illustrated in Figure 2-1. It further explains how each component of intergenerational economic mobility is measured.

2.3.1.1 Intergenerational income mobility

Intergenerational income mobility is measured using earnings elasticity. It shows the percentage change in children's expected earnings associated with a one-percentage increase in parents' earnings (Björklund & Jäntti, 2012). For example, an earnings elasticity estimate of 0.5 indicates that, on average, children's earnings increase by 0.5% if parents' earnings increase by 1%. At the aggregate level, this elasticity suggests that children earn 25% more than the average in the population if their parents earn 50% above the average.[9] Hence, a larger earnings elasticity indicates lower income mobility. A number of factors may influence elasticity estimates: (i) whose earnings are modelled, (ii) the data and methods used, (iii) the age at which earnings are measured, and (iv) differences in the institutional context, e.g. country differences. I briefly discuss each of these factors.

Whose earnings are modelled. While existing literature predominantly modelled father-son earnings, the literature using other parent-child dyads is small but growing. It has been found, for example, that elasticity estimates are smaller using daughters' earnings than using sons' earnings (Chadwick & Solon, 2002; Pekkala & Lucas, 2007).

The data and methods used. Early literature primarily uses cross-sectional data and ordinary least squares (OLS) regression to estimate earnings elasticity (Behrman & Taubman, 1985). However, this technique is known to lead to downwardly biased estimates (Mazumder, 2001). Recent studies using longitudinal surveys have yielded larger elasticity estimates (Lee & Solon, 2009; Mazumder, 2005).

Age at which earnings are measured. Using young fathers' or young sons' earnings is found to result in downward-biased elasticity estimates (Grawe, 2006; Piraino, 2007), although such bias is not statistically significant if earnings are measured between the early 30s and the mid 40s (Haider & Solon, 2006).

Differences in the institutional context. Studies on changes in income mobility over time provide mixed findings across different countries. Some studies find a decline in income mobility in countries such as the US (Aaronson & Mazumder, 2008), the UK (Nicoletti & Ermisch, 2007), Norway (Hansen, 2010) and Finland (Pekkala & Lucas, 2007), whereas other studies find no significant changes over time in countries such as France (Lefranc & Trannoy, 2005).

Chapter 3 provides a detailed examination of the patterns and dynamics of intergenerational earnings elasticity in contemporary Australia.

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[9] If parents earn 50% above the average of the population, an earnings elasticity of 0.5 gives 50%×0.5=25% higher earnings of their children than the population average.

2.3.1.2 Intergenerational wealth transfers

Intergenerational wealth transfers comprise *inter vivos* transfers (i.e., gifts or allowances) and inheritance/bequest transfers. *Inter vivos* transfers are monetary transfers made when the donor (or sender) is alive, whereas inheritance/bequest transfers are transfers made (usually in the form of a legal will) when the donor deceases. While it is known that financial transfers can be generation-skipping (e.g. grandparents to grandchildren) and reciprocal (e.g. children to parents), in this thesis my main focus is the mainstream transfers from parents to children. This is because transfers in the direction from parents to children are more prevalent, of greater quantity, and more likely to take place over the receiver's life course than transfers in other directions (Hughes, Massenzio & Whitaker, 2012).

In Chapter 4, I will examine the effect of family background on the probability and amount of parental wealth transfers, and separate by parental socioeconomic statuses the analyses on how parental wealth transfers differ over children's life course and how patterns of parental wealth transfers differ at children's major life events. I argue that parental wealth transfers constitute an important component of intergenerational economic mobility for three reasons.

First, such transfers are an important driver of wealth inequality across generations (Heer, 2001). It has been found, for example, that parental wealth transfers account for half of the wealth of average young adults, but over 90% of the wealth of rich children (Boserup, Kopczuk & Kreiner, 2016).

Second, parental wealth transfers alleviate borrowing constraints and affect adult children's socioeconomic outcomes and wellbeing over the life course (Berry, 2008). Such transfers at certain points of children's life, such as tertiary education, marriage, childbirth and property purchase may have profound impact on children's life outcomes and wellbeing (Leopold & Schneider, 2011).

Third, linking family background to the study of parental wealth transfers provides a new way of considering such transfers as a means of status reproduction (Albertini & Radl, 2012).

Empirical evidence has consistently pointed towards a positive relationship between parental socioeconomic statuses and wealth transfers (Albertini & Kohli, 2013; Brandt & Deindl, 2013; Karagiannaki, 2011; Cooney & Uhlenberg, 1992; Hochguertel & Ohlsson, 2009; Tiefensee & Westermeier, 2016), but only a handful of studies looked at the life-

course patterns of parental wealth transfers (Cooney & Uhlenberg, 1992; Leopold & Schneider, 2011). Importantly, none of these studies considered differences in the life-course patterns of parental wealth transfers by parental socioeconomic statuses. My analyses will therefore offer important insights into the life-course differences in parental wealth transfers across high and low socioeconomic families, thereby underlining parental wealth transfers as a potential mechanism through which intergenerational economic (im)mobility takes place.

2.3.1.3 Economic behaviours, attitudes and wellbeing of the offspring

Adult children's economic behaviours, attitudes and wellbeing are measured by their strategies of organising finance, their autonomy in making financial decisions, their attitudes towards financial risks, and their current financial conditions as well as constraints.

There are considerable links between family background and adult children's financial performance (Fagereng, Mogstad & Rønning, 2015), and individual's economic behaviours, attitudes and wellbeing are highly inter-related. In this respect, this thesis will mainly explore how family background affects children's financial organisation in Chapter 5. In doing so, this thesis captures another important dimension of intergenerational economic mobility that has been overlooked in the literature. Financial organisation reflects one important aspect of adult children's economic behaviours, which has implications on their economic outcomes, such as consumption patterns, investment portfolios, economic independence and status attainment. Family financial socialisation theory suggests that individuals' financial perceptions and practices are reflective of parental social class and parental education (Cateora, 1963; Gudmunson & Danes, 2011; John, 1999; Wald, 1974). Highly educated parents are more likely to set up egalitarian family arrangements concerning finances and money management (Conger, Conger & Martin, 2010). Hence, it is possible that their adult children also do so through the impact of socialisation and role modelling.

In Chapter 5, I will use bank account ownership of the adult children to study the organisation of their finance, and place their financial strategy in the context of intimate relationships. This is because joint bank accounts are predominantly held with partners, the choice of such joint bank accounts is therefore reflective of the characteristics of both couple members. Failure to account for partner characteristics when predicting bank account choices may result in measurement error due to mismatches in partners' reports

and the erroneous identification of joint couple bank account strategies when joint accounts are actually held with individuals other than one's partner.

In predicting the bank account choices of couples, I will assess both the intra-generational (i.e. couple-level characteristics) and intergenerational (i.e. family background) factors. These factors include absolute and relative income (Heimdal & Houseknecht, 2003; Vogler & Pahl, 1993; Yodanis & Lauer, 2007), number of dependent children (Treas, 1993), relationship history and duration (Heimdal & Houseknecht, 2003; Lyngstad, Noack & Tufte, 2011), gender-role attitudes (Cheal, 1993; Kenney, 2006; Vogler, 1998; Vogler, Brockmann & Wiggins, 2006), and parental education and occupation (Volger & Pahl, 1993).
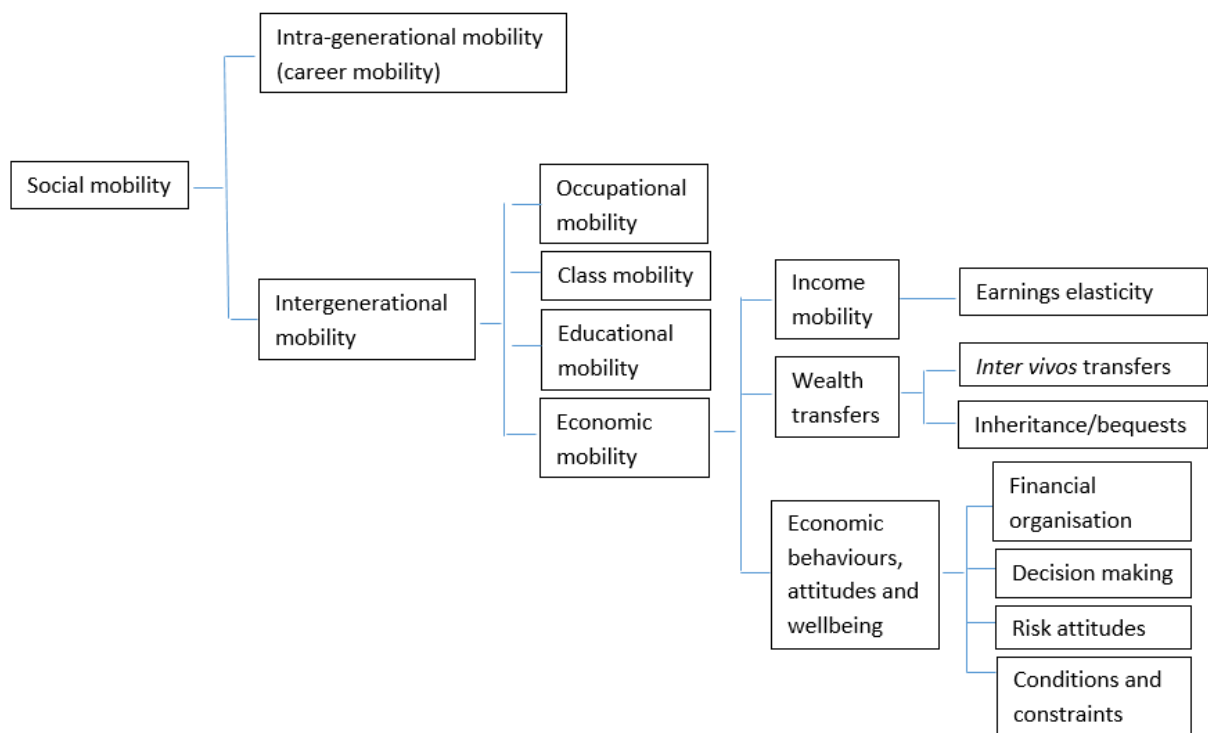
Figure 2-1 Intergenerational economic mobility—a conceptual framework

2.3.2 Pathways from origins to destinations

In Figure 2-1 I presented a concept map that outlines the framework of intergenerational economic mobility and its relationship with social mobility. However, the association between family background and economic mobility is unclear. Figure 2-2 is a Venn diagram showing the directions of the influences of various family background characteristics (origins) on the economic outcomes of adult children (destinations).

Existing evidence has pointed out the relationships between some parental background indicators and these economic outcomes. For instance, intergenerational

income mobility measures the effect of parental income on children's income, and the magnitude of parental wealth transfers is highly associated with parental education. While these parental labour force characteristics are important predictors, other parental background factors can also play a significant role in influencing adult children's economic outcomes, such as parental ethnicity, long-term unemployment history, union history, early decease of parents, even the type of parenthood (i.e., biological, adoptive, or step parents). This is because some of these factors are related to parent-child relationships and family bonds, and are thus likely to affect the development of children's cognitive and non-cognitive skills through day-to-day interactions and role modelling (World Bank, 2015). These in turn would affect children's academic achievements and labour market performance as they become adults. Parental economic and non-economic characteristics are also associated with the family environment in which children grow up: the language they speak, the books they read, and the activities they spend time on would shape children's mentality, personality and creativity, all of which are associated with their economic outcomes later in life. Furthermore, other familial factors beyond parental characteristics may also underlie the economic performance of adult children, such as the characteristics of siblings, whether they are the oldest amongst their siblings, the geographical location of the families in which they grew up, and so forth. Strong sibling effects, for example, have been found in the intergenerational transmission of income and wealth (see Black & Devereux, 2011). Therefore, we need a systematic examination of the collective effects of these family background indicators on adult children's economic outcomes.

It is important to note that while parental income and wealth are critical precursors of intergenerational economic mobility, most survey data are unable to capture lifetime income and wealth of the parents (hence represented by a dashed circle in Figure 2-2). Panel surveys have the advantage of tracking individuals over time, but only a handful of these surveys are long enough to observe income and wealth information for both the parental and children's generation. An example of these surveys is the *Panel Study of Income Dynamics* in the U.S., which began its first wave in 1968; data were collected annually before 1997 and biennially thereafter (Beaule et al., 2015). The longest-running panel survey in Australia, the *Household, Income and Labour Dynamics in Australia* (HILDA) *Survey*, however, was initiated in 2001 and has been conducted annually. To date, this panel survey has been running for 17 years with 15 years of available data. Since young participants enter the HILDA Survey when they reach 15 years of age, data from the HILDA Survey do not contain income and wealth information for two entire

Australian generations. For example, the youngest cohort who entered the panel in 2001 would be 30 years old in the latest year of available data.[10]

Administrative data are data which are collected continuously by government agencies for purposes other than research, such as taxation, education and health records. Like survey data, administrative data are another important data source for the study of intergenerational economic mobility,[11] because these data contain rich information on actual (rather than self-reported) income and wealth of the population across several generations (Grusky, Mitnik & Wimer, 2011). Examples of administrative data used for analyses of intergenerational mobility include Danish wealth records (see Boserup, Kopczuk & Kreiner, 2014), Norwegian administrative registers (see Fagereng, Mogstad & Rønning, 2015), and Swedish Inheritance Tax Register (see Elinder, Erixson & Ohlsson, 2012). Therefore, administrative data have the potential to link parents and offspring on a much larger scale than do survey data. Using data from federal income tax records in the US (1996-2012), for example, Chetty et al. (2014) identified parents for 95% of children born between 1980 and 1991 and obtained an analytical sample of 10 million children. This analytical dataset has complete records of household and individual income for both generations. In the Australian context, however, these data remain difficult to access, as

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[10] Like many international panel surveys, the HILDA Survey also experienced sample attrition as the panel continues to develop. For example, the wave-on-wave non-response rates in the HILDA Survey range from 13% in wave 2 to 3% in wave 15 (Summerfield et al., 2016). The attrition was higher in early waves of the HILDA Survey than in the *British Household Panel Study* (BHPS), but dropped below the BHPS attrition since wave 9 (Summerfield et al., 2016). Attrition bias in the HILDA Survey likely arises due to low re-interview rates among those who are young, migrants, Indigenous, single, unemployed, or working in low-skilled occupations (Summerfield et al., 2016). A top-up sample was added to the panel in wave 11 to improve sample representativeness (Watson, 2011). All the analyses in this thesis are conducted based on the full sample (the original sample and the top-up sample).

[11] Administrative data and survey data can be seen as complementary for the study of intergenerational economic mobility. Since administrative data cover actual income and wealth across multiple generations, estimates of inter- and multi-generational income and wealth correlations using such data can achieve high-level precision. Survey data, on the other hand, have the strength of containing richer information on individuals' socioeconomic and demographic circumstances, life-course events, and parent-child relationships and exchanges. Hence, using survey data one can better examine the underlying mechanisms of intergenerational economic mobility.

digitised records are only available since 2001 for many collections and legislation and regulation may prohibit data disclosure (Productivity Commission, 2013).

In the absence of long-running panel and administrative data, a common practice in studies of intergenerational income mobility is to use respondents' self-reported parental characteristics, such as parental age, education and occupation, to impute parental earnings/income (Bjorklund & Jantti, 1997; Piraino, 2007; Solon, 2002). Wealth, however, is more difficult to impute based on these characteristics, because (i) unlike earnings/income which is one-dimensional, wealth is multi-dimensional, which includes debts, public and private transfers, and assets other than earnings, such as properties, bonds, stocks, superannuation funds, credit cards, and other funds; and (ii) the functional form for imputing parental wealth is theoretically and empirically unclear. Imputing parental earnings/income based on parental labour force characteristics can be done by regressing the earnings/income on age and occupation/education using an older sample (pseudo parents), and by substituting the labour force characteristics of the actual parents in the same regression equation (Bjorklund & Jantti, 1997; Piraino, 2007). Therefore, the process of imputing parental earnings/income assumes a linear functional form between earnings/income and parental characteristics. In contrast, there have been no studies imputing parental wealth based on parental labour force characteristics.

In Chapter 3 of this thesis, I will derive statistical techniques to impute parental earnings before estimating intergenerational earnings elasticity. Drawing on the two-stage OLS regression method used in existing studies, I will develop a two-stage panel regression model with the imputation of fathers' earnings at stage one and the estimation of elasticities at stage two. While this model will leverage multiple observations in the panel data to arrive at imputed fathers' earnings that reduce bias due to transitory earnings fluctuations (Mazumder, 2005), the imputation will result in several limitations, such as assuming that parents with the same age and occupation have the same earnings (i.e. deterministic assignment of parental earnings). Given these methodological shortcomings, in Chapters 4 and 5, I will mainly use respondents' self-reported parental characteristics as proxies of parental socioeconomic status and family background.
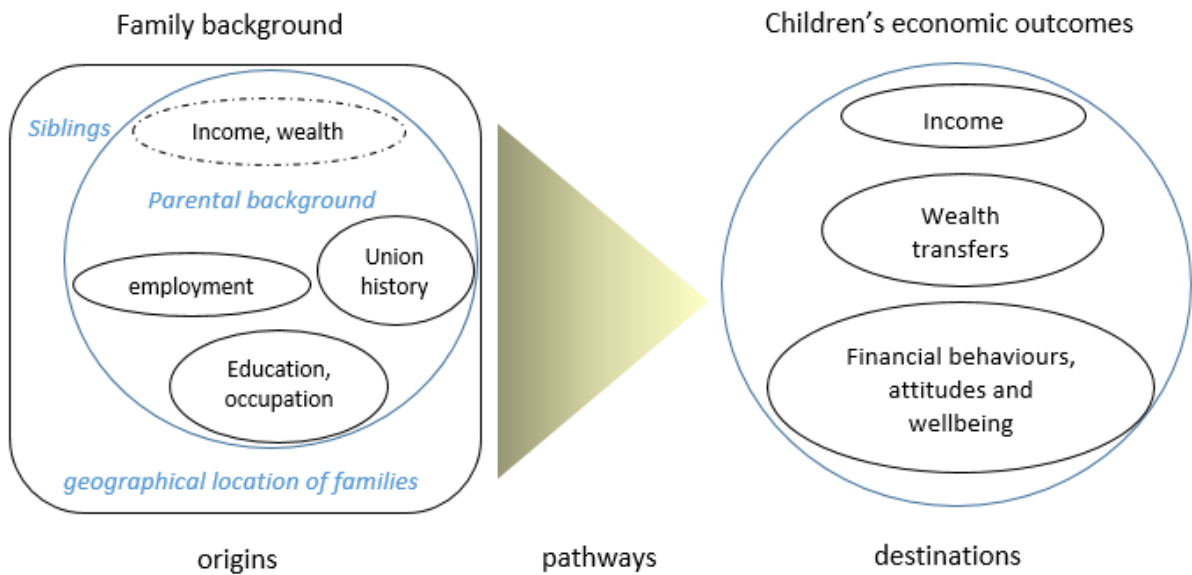
Figure 2-2 Pathways from origins to destinations: linking family background to children's economic outcomes

2.3.3 Contributions of this conceptual framework

In developing this conceptual framework, this thesis contributed to the topic of intergenerational economic mobility in the following ways. First, it provided a new conceptualisation of intergenerational economic mobility that was neither explicitly nor fully discussed in the literature. It mapped out the hierarchical relationship between social mobility, intergenerational mobility and intergenerational economic mobility, and clearly outlined the components of each type of mobility. This is important, because a number of the existing literature do not distinguish between these concepts, resulting in confusions when understanding the type of mobility. For example, in examining the association between intergenerational income mobility and intergenerational class/occupational mobility, Breen et al. (2016) used social mobility, intergenerational class mobility and intergenerational occupational mobility interchangeably; similarly, income mobility and economic mobility are used interchangeably, leading to inconsistencies in the mobility types they examine. Likewise, while Fields (2000) classified five types of mobility, these types were understood in the context of income mobility, which, as has been discussed throughout this chapter, is just one component of economic mobility.

Second, this conceptual framework combined research areas in economics and sociology, thereby providing a more comprehensive and granular picture of social mobility than ever before. It borrowed classic sociological work of intergenerational class and occupational mobility (Duncan, 1979; Erikson, Goldthorpe & Portocarero, 1979; Hout,

1984), and referenced the booming economic literature on intergenerational earnings and income mobility since the early 1990s (Blanden et al., 2014; Torche, 2015). It also incorporated intergenerational wealth transfers, a research area where sociological and economic interests align (for classic economic work on intergenerational wealth transfers, see Cox & Rank, 1992; Kotlikoff & Summers, 1980; for sociological work, see Albertini, Kohli & Vogel, 2007; Kohli, 1999).

Third, this conceptual framework linked the study of intergenerational economic mobility to the study of economic behaviours. Studying economic behaviours provides an important lens into economic mobility by examining the impact that family background has on grown-up children's economic and financial practices, which has implications on their economic outcomes. For example, risk-averse economic behaviours may reflect a traditional family environment (or a low socioeconomic status family) in which children grew up, which in turn affects adult children's consumption patterns and investment portfolios. Within-household financial arrangements may also reflect children's family background, which in turn has implications for women's economic independence and status attainment (Furnham, 1999; Gudmunson & Danes, 2011; Volger & Pahl, 1993). Therefore, the study of economic behaviours can provide additional insights into intergenerational economic mobility, and future research can examine intergenerational transmission of economic behaviours and mentalities as an additional aspect of economic mobility across generations.

Finally, this conceptual framework provided an important guidance for future mobility studies to expand and modify the conceptualisation of intergenerational economic mobility in different contexts. One direction to expand this framework is to include intergenerational wealth mobility. Similar to income, wealth is another critical indicator of individuals' economic status. Unlike income, however, the multi-dimensionality of wealth may provide additional information on the degree of persistence across generations than income does. It is likely, for example, that a society is mobile in income (through high-level income redistribution and low-level income inequality) but immobile in wealth (through well-preserved wealth heredity legislative and jurisdictional systems and zero inheritance tax). It is therefore important to examine wealth mobility in addition to income mobility. Using large-scale administrative records (such as Danish wealth records and Norwegian administrative registers) and long-running panel datasets (such as the *Panel Study of Income Dynamics*) that capture lifetime wealth of multiple generations, one could estimate the intergenerational wealth elasticity and correlations to measure the degree of wealth mobility (see Boserup, Kopczuk & Kreiner, 2013; Charles & Hurst, 2003).

2.4 Summary of the chapter

In summary, in this chapter I have proposed a conceptual framework of intergenerational economic mobility, situating intergenerational economic mobility in the broad area of social mobility. Social mobility can be categorised into within-generation (intra-generational) and between-generation (intergenerational) mobility. Intergenerational mobility constitutes occupational mobility, class mobility, educational mobility and economic mobility. Three important components are identified to measure intergenerational economic mobility: income mobility, wealth transfers, and the effect of family background on adult children's financial performance. Theoretically, wealth mobility is another critical measure of economic mobility, because lifetime wealth is one of the best proxies of economic resources (Boserup, Kopczuk & Kreiner, 2014). In practice, however, studies on intergenerational wealth mobility are largely constrained by the availability of wealth data that (i) capture all dimensions of wealth (including assets, debts, public and private transfers etc.), and (ii) capture life-time wealth of at least two generations. In the absence of administrative data and long-run panel data, in this thesis I will derive statistical techniques to impute parental earnings before estimating intergenerational earnings elasticity, and will examine parental wealth transfers as an important mechanism of intergenerational wealth transmission to assess intergenerational economic mobility.

Chapter 3 Intergenerational income mobility in contemporary Australia

3.1 Chapter introduction

This chapter presents empirical evidence of the patterns and dynamics of intergenerational income mobility (measured using intergenerational earnings elasticity) in contemporary Australia. It focuses on assessing the effects of different levels of occupational (dis)aggregation, earnings measures and sample compositions on father-son earnings elasticity estimates. It also establishes the trend in such elasticities over time. Section 3.2 discusses the institutional and historical context in Australia for the study to income mobility. Section 3.3 reviews the international and Australian body of literature on intergenerational earnings elasticity, identifies the research gaps, and presents my contributions in this chapter. Section 3.4 details the data and methods used, discusses known methodological limitations, and conducts sensitivity checks on the quality of the data and the chosen methods. Section 3.5 presents the findings and their interpretations. Section 3.6 concludes.

3.2 Background

Australia has historically been considered as the land of the "fair go" (Douglas et al., 2014; Leigh, 2007). Many Australians believe that a fair society may feature a certain amount of economic inequality, provided that there is equality of opportunity (Andrews & Leigh, 2009). Equal opportunity means that people's life chances rely more on individual effort and hard work than on circumstances over which they have no control, such as parental socioeconomic status and family background. When parental socioeconomic status has little influence over individuals' life outcomes, one would expect high levels of intergenerational mobility.[12] In reality, evidence from many Western countries indicates that this is not the norm: children from high income families are significantly more likely to become top earners than children from low income families (Corak, 2013a). Parents with higher socioeconomic resources invest more money on their children's human capital (e.g. on private schooling, after-school tuition, and computer equipment), are more likely to

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[12] It is also possible to observe low intergenerational mobility if there is no direct link between parents' and offspring's socioeconomic statuses but these are both correlated with other factors, such as cognitive or non-cognitive abilities.

adopt positive parenting practices, are better able to provide a safe and secure home environment that facilitates learning, and dispose of greater social networks upon which their children can draw, all of which lay solid foundations for their offspring's subsequent life chances (Beenstock, 2012).

The fact that parental earnings capacity is a strong predictor of adult children's economic performance has been found in an extensive body of literature, and substantial attention has been paid to how intergenerational correlations in earnings are defined, estimated and compared. The most widely used indicator is the intergenerational earnings elasticity, a measure of the extent to which parental earnings determine their children's earnings (Fields, 2008). As an index of income mobility, the intergenerational earnings elasticity benchmarks adult children's earnings with their parents' earnings after controlling for demographic characteristics. Larger elasticities indicate less income mobility.

While a burgeoning literature has estimated intergenerational earnings elasticities in developed and developing countries and cross-national comparative studies have thrived in recent years, there is surprisingly little research on the patterns and dynamics of earnings elasticity in Australia. This gap needs to be addressed, as Australia's institutional and historical arrangements make it an important case study. First, for most of the 20th century Australia had an internationally distinctive set of labour market institutions built around a centralised pay setting driven by industrial tribunals that promoted both high real wages and substantial uniformity of pay and working conditions across occupations and industries (Castles, 1985). These institutions began to be unwound by successive governments in the 1980s, but they laid a path-dependent foundation for earnings equality and income mobility that makes Australia a noteworthy case. Second, it has been argued that the Australian state was founded on particular ideals of egalitarianism (Lambert, 2000). Australia has often been characterised as a country with public attitudes leaning towards egalitarianism, a flat social structure without pronounced symbolic or behavioural class distinctions, and strong antidiscrimination legislation (Thompson, 1994). Third, existing cross-national evidence shows that intergenerational mobility is inversely associated with economic inequality (OECD, 2011). Countries with higher mobility (i.e. lower earnings elasticity) usually exhibit less economic inequality (as measured by the Gini index). Nevertheless, plotted on the Great Gatsby Curve (Corak, 2013b), which locates countries according to economic inequality and mobility, Australia stands as a distinctive case with both a high level of mobility and a moderate level of inequality.

Using panel data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, I examine father-son earnings elasticities in contemporary Australia.

Since fathers' earnings are not observable in the HILDA Survey, I apply a two-stage panel regression model which first computes fathers' earnings based on sons' reports of fathers' occupations, and then estimates the earnings elasticity. I add to the existing literature by (i) introducing and applying a two-stage panel regression model to estimate intergenerational earnings elasticities, (ii) establishing trends in earnings elasticity in Australia over time, (iii) examining how using different levels of occupational (dis)aggregation and earnings measures affects elasticity estimates, and (iv) using more recent data than previous Australian studies. Key findings show that the father-son earnings elasticity in Australia between 2001 and 2013 ranges from 0.11 to 0.30, and has increased over the observation window. My preferred elasticity estimates lie between 0.24 and 0.28. Elasticity estimates vary depending on the level of occupational (dis)aggregation and earnings measure used: they are highest when two-digit level occupations and hourly earnings are used, and lowest when four-digit level occupations and annual earnings are used. I read these findings as indicating that (i) Australia has a moderately high level of income mobility by international standards, (ii) over the past decade there was a slight decline in intergenerational income mobility, and (iii) elasticity estimates are very sensitive to the choice of data and methods. This point has two important implications: (i) analyses of earnings elasticity should pay careful attention to the extent to which their results are robust to alternative analytic choices, and (ii) cross-temporal and cross-national comparative analyses should recognise that differences in the analytic approach across comparison units may contribute to observed similarities or differences.

3.3 Intergenerational earnings elasticity in comparative context

3.3.1 International comparisons on elasticity estimates

Quantitative research on the intergenerational correlation of life outcomes can be traced back to the 1920s (Sorokin, 1927), with work on occupational mobility beginning in the 1950s (Glass, 1954) and work on socio-economic status in the 1960s (Blau & Duncan, 1967). In the last three decades, research on the intergenerational correlation of earnings has taken off (Blanden et al., 2014; Torche, 2015). Earnings elasticity is now accepted as the dominant indicator of the intergenerational association of earnings, and has been estimated on different parent-children dyads (especially father-son dyads) across a wealth of studies. It is calculated by modelling the log of children's earnings on the log of parental

earnings, and it measures the percentage change in children's expected earnings for a one-percent change in parents' earnings (Björklund & Jäntti, 2012).

International comparisons provide almost unanimous evidence that father-son intergenerational earnings elasticity is highest in developed countries such as the US, UK, Italy and developing countries like Brazil, China and South Africa, and lowest in the Nordic countries (Blanden, 2013; Causa & Johansson, 2010; Corak, 2006; D'Addio, 2007; Gong, Leigh & Meng, 2012; Grawe, 2004; Jäntti et al., 2006; Mocetti, 2007; Ng, 2007; Piraino, 2007; Solon, 2002). Most countries have earnings elasticities that fall within the Nordic-US spectrum, such as France (Lefranc & Trannoy, 2005), Germany (Couch & Dunn, 1997), Canada (Corak, 2013a), Australia (Leigh, 2007), Japan (Lefranc, Ojima & Yoshida, 2008; Ueda, 2009) and South Korea (Ueda, 2013). I present a summary of up-to-date measures of income mobility in OECD countries since the late 1980s in Table A3-1 in the Appendices.

3.3.2 Comparisons on income measures and estimation methods of elasticity

The measure of income used to estimate earnings elasticity differs across studies, primarily due to data availability, but labour income (i.e. earnings from employment) is one of the most widely used (Björklund & Jäntti, 2012), because earnings represent the major source of income for most people and the biggest source of economic growth for most households (Greenville, Pobke & Rogers, 2013).

Correspondingly, a variety of estimation methods have been employed to accommodate the properties of the available data. Most early studies use cross-sectional data to estimate earnings elasticity (Behrman & Taubman, 1985), and estimation typically takes place via ordinary least squares (OLS) regression. However, using OLS and short-run earnings to proxy lifetime earnings has been found to result in downward bias in elasticity estimates (Solon, 1989; Solon, 1992). Top-coding earnings for high-income earners to de-identify respondents is a common practice in large-scale surveys, but this practice leads to a right-censored earnings distribution, which violates the assumption of normally distributed errors in the OLS regression.

These limitations of OLS motivated the development and applications of other methods, including instrumental variable regression (Björklund & Jäntti, 1997; Solon, 1992; Zimmerman, 1992), quantile regression (Bratberg, Nilsen & Vaage, 2007), tobit regression (Mazumder, 2005), two-sample two-stage least squares (TS2SLS) models (Gong, Leigh & Meng, 2012; Mocetti, 2007; Nicoletti & Ermisch, 2007; Piraino, 2007), simulation

extrapolation (Ueda, 2013) and non-parametric analyses (Bhattacharya & Mazumder, 2011; Corak & Heisz, 1999; Ueda, 2013). Collectively, these methods not only provide more accurate elasticity estimates by better accommodating and modelling the data (e.g. tobit regression takes into account the censoring issue of earnings, and non-parametric methods do not impose as many stringent statistical assumptions as parametric methods do), but also provide additional insights into the differences in elasticity estimates across the earnings distribution (e.g. quantile regression gives elasticity estimates that vary across sons' earnings distribution).

3.3.3 Comparisons on earnings of different parent-child dyads

Daughters' permanent earnings (i.e. lifetime earnings) are less predictable than sons', because women's employment circumstances remain more heterogeneous than men's, with high rates of part-time work and long and recurrent periods of economic inactivity (Steiber & Haas, 2012). Father-daughter earnings elasticities are complicated by occupational sex segregation, while mother-daughter elasticities are further complicated by mother's discontinuous employment histories. As a result, most attention in the literature has been devoted to father-son earnings elasticities. However, with good-quality data and careful sample selection, it is argued that father-daughter elasticities can be robustly estimated (see Bratberg, Nilsen & Vaage, 2007; Chadwick & Solon, 2002; Couch & Dunn, 1997; Grawe, 2004; Hansen, 2010; Hertz, 2007; Lee & Solon, 2009; Lefranc & Trannoy, 2005; Mazumder, 2005; Pekkala & Lucas, 2007). Comparisons by ethnicity (Bhattacharya & Mazumder, 2011; Hertz, 2006; Kearney, 2006; Mazumder, 2014) and migrant status (Dustmann, 2008; Hammarstedt & Palme, 2012; Leigh, 2007; Vogel, 2006) have also been undertaken.

3.3.4 Earnings elasticity in Australia and the current study

Compared to other OECD countries, research on intergenerational earnings elasticity in Australia is scarce, and the available evidence is "limited and inconclusive" (Argy, 2006: 14). The first study of earnings elasticity in Australia was conducted by Leigh (2007), who estimated father-son single-year elasticities using hourly wages and four different survey datasets: the *Social Stratification in Australia* survey (1965), the *Social Mobility in Australia Project* (1973) the *National Social Science Survey* (1987-1988), and the HILDA Survey (2001-2004). He found that intergenerational earnings elasticity in

Australia ranges between 0.2 and 0.3 (compared to 0.4 to 0.6 in the United States), with no significant changes taking place between 1965 and 2004.

While Leigh's has been the most influential Australian study to date, it is not without limitations. First, its conclusions are based on analyses of different datasets with different income measures and occupational classifications: the 1965 survey uses annual income measured in 6 bands and 89 occupations; the 1973 survey uses weekly income measured in 16 bands and 214 occupations; the 1987 survey contains annual income in dollars and 78 occupations; whereas the 2004 survey contains weekly earnings in dollars and 241 occupations. As I will demonstrate, the variability in the income and occupation measures Leigh used is likely to have affected his comparisons. Second, the analyses rely on cross-sectional methods that capture earnings elasticities in a point-in-time fashion, which obscures underlying dynamics. As Corak, Curtis and Phipps (2011: 75) point out, the study of intergenerational earnings elasticity "ideally requires data from a longitudinal study of a large, nationally representative sample of individuals and families". Finally, the most recent data Leigh used are now over ten years old. Therefore, work that extends Leigh's analyses by leveraging recent longitudinal data and panel regression models is warranted.

A more recent study by Mendolia and Siminski (2015) makes use of Australian data from the HILDA Survey (2001-2012) and US data from the *Panel Study of Income Dynamics* (2001, 2003, 2005, 2007). Using a sample of individuals aged 25-54 and four-digit level occupations as predictors in pooled OLS models, the authors report the intergenerational earnings elasticity in Australia to be 0.35. This work contributes to the study of earnings elasticity within Australia by adjusting the standard errors of the elasticity estimates to sampling variation using US data as a benchmark.

I add to the existing literature on earnings elasticity in Australia in the following ways. First, I propose and apply a two-stage panel regression model to estimate earnings elasticities in the absence of observed parental earnings. Second, I undertake a comparison of earnings elasticities estimated using different analytic approaches to determine how sensitive these are to the choice of data and methods. I consider both differences in the degree of precision with which occupation data is measured (one-digit, two-digit, three-digit and four-digit occupations), and different earnings measures (hourly, weekly and annual earnings). Third, I examine changing patterns in earnings elasticity by considering linear and curvilinear trends over time.

3.4 Data and methods

3.4.1 Data

I use 13 waves (2001-2013) of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey is a nationally representative panel survey initiated in 2001 with 13,969 respondents from 7,682 households. Data were collected primarily via face-to-face interviews and self-complete questionnaires with in-scope respondents aged 15 years and over residing in private dwellings (Watson & Wooden, 2002). Since then, interviews with participants have been conducted annually. New participants are recruited if they begin sharing residence with an existing survey member, or if they belong to sample households and turn 15 years of age. The HILDA Survey has relatively high wave-on-wave response rates ranging from 86.8% to 96.4% (Summerfield et al., 2015).

The HILDA Survey collects detailed information on respondents' labour force participation, with a multiplicity of earnings measures readily available to the researcher. These include weekly as well as annual wages from different sources. Here, I will use three earnings measures: hourly earnings from the main job; weekly earnings from the main job; and annual earnings from all jobs. Weekly and annual earnings are directly reported by respondents, whereas hourly earnings are calculated by dividing weekly earnings by usual weekly hours of work. I use versions of these measures which are pre-tax (i.e. gross), top-coded (for confidentiality reasons by the HILDA Survey), and for which missing values have not been imputed. I adjust all earnings measures for inflation using annual Consumer Price Index rates, taking year 2013 as the base year.[13] My preferred elasticity estimates are those which use hourly earnings as the income measure, because I use occupation data to impute fathers' earnings (see Section 3.4.2) and occupations are a better proxy for hourly earnings than other earnings measures (Leigh, 2007). For example, Leigh (2007) decomposed variation in annual work hours and in hourly wages into within- and between-occupation components. He found a higher degree of within-occupation variation for annual work hours than for hourly wages. Since more within-

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[13] Another possible way to adjust for inflation is to use the wage price index (WPI). The advantage of this measure over CPI is that it accounts for changes in wages paid by employers that arise from market factors, while CPI accounts for changes in the purchasing power of earnings (ABS, 2012). However, the WPI can be used to adjust for *hourly* but not *weekly* or *annual* earnings, as the latter depend on the number of hours individuals work (ABS, 2012). I have replicated my analyses adjusting hourly earnings using the WPI instead of the CPI, and elasticity estimates remain very similar. These estimates can be found in Table A3-2 in the Appendices.

occupation variation is related to less precision in using occupation to proxy earnings, Leigh (2007) concluded that occupations are a better proxy for hourly wages than for annual earnings (which are the product of both hourly wages and annual work hours).

The person questionnaire within the HILDA Survey contains modules on "family background" and "history and status of parents". The former is administered annually whereas the latter is administered in waves eight and 12. These modules contain rich retrospective information on the employment circumstances of the respondent's father when the respondent was 14 years old, including employment status and occupational titles at different levels of (dis)aggregation. Occupational data are coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). The 2006 ANZSCO is structured into five hierarchical levels: major groups (one-digit level, n=8), sub-major groups (two-digit level, n=43), minor groups (three-digit level, n=97), occupational units (four-digit level, n=358), and individual occupations (n=998) (ABS, 2006). In its general release, the HILDA Survey contains information on one- and two-digit level occupations, whereas in its unconfidentialized release, occupations are disaggregated up to the four-digit level.

Fathers' earnings in the HILDA Survey are not directly observed, and so they need to be imputed. Fathers' ages should be included when imputing their earnings, as doing so increases the precision of the imputation as well as the variation in the resulting measure (so that this gets closer to the true variation). Some studies consider all fathers to have the same age (e.g. 40 years). This is problematic because it is likely to result in underestimated earnings for older fathers and overestimated earnings for younger fathers. It is therefore important to account for fathers' actual ages when respondents were age 14 when imputing fathers' earnings and estimating earnings elasticities. Fortunately, information on father's age when the respondent was 14 can be derived from responses to questions in the HILDA Survey asking respondents about their fathers' year of birth and current age (if alive). These questions, however, were only included in waves eight and 12. Since respondents in the HILDA Survey are at least 15 years of age, their fathers' age when they were 14 constitutes time-constant information. As a result, such information can be extrapolated to other survey waves.

3.4.2 Methodological approach

Becker and Tomes (1979, 1986) introduced the theoretical model by which the intergenerational earnings elasticity is estimated:

$$\ln Y_i^c = \alpha + \beta \ln Y_i^p + \varepsilon_i \tag{3.1}$$

where Y_i^c and Y_i^p denote adult children's and fathers' lifetime earnings, respectively, and β reflects the extent of intergenerational earnings persistence. This model follows what Fields (2000) called "time difference" type of mobility: this type of mobility has a time dimension. Viewed in the intergenerational context, it explains the effect of parental economic status (i.e. earnings in equation 3.1) on the economic status of children. In practice, lifetime earnings for both generations cannot be captured in most longitudinal surveys, and so most studies use a measure of short-run earnings as a proxy (Lee & Solon, 2009). However, caution should be exerted when using such a proxy due to measurement error from two sources. First, the number of time periods used to calculate measures of short-run earnings influences the precision of the results. The longer the time span, the more accurate the measure should be. Particularly, measures based on a single time point yield downward-biased elasticities due to response errors and transitory fluctuations (Corak, 2006; D'Addio, 2007; Mazumder, 2001). Second, elasticities vary depending on the age at which earnings are measured (life-cycle bias). For instance, using young fathers' or young sons' earnings results in downward-biased elasticity estimates (D'Addio, 2007; Grawe, 2006; Piraino, 2007).

The longitudinal data analysis in this study helps mitigate the first type of measurement error. I propose a two-stage panel regression model with the computation of fathers' earnings at stage one and the estimation of elasticities at stage two. Since fathers' earnings when their sons were age 14 are a time-constant construct, in stage one I impute a single value for these for each respondent using a between effects model. The imputation leverages information on the over-time averages in sons' earnings, ages and occupations. Using multiple observations to arrive at an imputed measure of fathers' earnings reduces bias due to transitory earnings fluctuations (Mazumder, 2005). The model that I fit is outlined below:

$$\overline{\ln Y_i^s} = \alpha + \boldsymbol{\theta}' \overline{\boldsymbol{X}_i^s} + \delta_1 \bar{A}_i^s + \delta_2 \bar{A}_i^{s^2} + u_i + \bar{e}_i \tag{3.2}$$

where $\boldsymbol{\theta}' = (\theta_1, \dots, \theta_N)$, and $\boldsymbol{X_i^{s}}' = (x_i^{(1)}, \dots, x_i^{(N)})$. Y_i^s denotes the earnings of son i, $\boldsymbol{X_i}$ is a set of occupation dummies, each of which is denoted as $x_i^{(j)}$, $j = 1, \dots, N$; $\bar{A}_i^s$ represents the average of the ith son's ages, and N is the total number of occupation

categories, which depends on the level of aggregation used. α is the intercept, $\boldsymbol{\theta}'$ is a set of coefficients for sons' occupations, δ_1 is the coefficient for sons' ages, and δ_2 is the coefficient for sons' age squared. These coefficients are to be estimated. u_i represents the average of the individual-level error term (which is identical to the error term itself, because it is constant over time), and $\bar{e}_i$ represent the average of the observation-level error term. The coefficients obtained from model (3.2) (i.e. α, $\boldsymbol{\theta}'$, δ_1 and δ_2) are then used to compute fathers' earnings (denoted as $\ln Y_i^f$) by substituting sons' retrospective reports of fathers' occupations ($\boldsymbol{X_i^f}$) and ages (A_i^f) in the following equation:[14]

$$\ln Y_i^f = \alpha + \boldsymbol{\theta}'\boldsymbol{X_i^f} + \delta_1 A_i^f + \delta_2 A_i^{f^2} \tag{3.3}$$

The theoretical model of earnings elasticity in equation (3.1) can be improved by adding both sons' and fathers' ages as control variables (Piraino, 2007). I follow this updated method, centring ages of both generations at 40, and fitting a random effects model:

$$\ln Y_{it}^s = \tilde{\alpha} + \beta \ln Y_i^f + \lambda_1(A_{it}^s - 40) + \lambda_2(A_{it}^s - 40)^2 + \lambda_3(A_i^f - 40) + \lambda_4(A_i^f - 40)^2 +$$
$$\gamma t + \tilde{u}_i + \tilde{e}_{it} \tag{3.4}$$

The random effects model takes account of the longitudinal dependencies in the data (i.e. the repeated measures for the same individuals over time), whereas a cross-sectional (pooled OLS) regression model would not. The random effects estimator uses a weighted average of the within and between estimators, with weights given by the relative variances of the individual-specific errors, $\tilde{u}_i$, and the observation-specific idiosyncratic errors, $\tilde{e}_{it}$.

I then examine polynomial trends in elasticity by interacting fathers' logarithmic earnings with survey wave polynomials, and adding the interaction term in model (3.4). These are generalised to the function below:

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[14] This equation does not have error terms, because it is used to predict fathers' earnings, and there is no information on the variation of fathers' earnings. This prediction method is also used in Leigh (2007), Mendolia and Siminski (2015), Mocetti (2007) and Piraino (2007). Detailed discussions on the limitation of this method can be found in section 3.6.

$$\ln Y_{it}^s = \breve{\alpha} + f^{(n)}(t) \cdot \ln Y_{it}^f + \breve{\lambda}_1(A_{it}^s - 40) + \breve{\lambda}_2(A_{it}^s - 40)^2 + \breve{\lambda}_3\big(A_{it}^f - 40\big) +$$

$$\breve{\lambda}_4\big(A_{it}^f - 40\big)^2 + g^{(n)}(t) + \breve{u}_i + \breve{e}_{it} \tag{3.5}$$

Where $f^{(n)}(t)$ and $g^{(n)}(t)$ are functions of wave t with power n, $n = 1, 2, 3$. To be specific, denote $\boldsymbol{\varphi'}^{(n)} := (\varphi_0, \dots, \varphi_n)$ as the coefficient vector for the interaction terms with power n, and $\boldsymbol{\omega'}^{(n)} := (\omega_1, \dots, \omega_n)$ as the coefficient vector for wave t with power n. $f^{(n)}(t)$ and $g^{(n)}(t)$ can then be written as

$$f^{(n)}(t) = \sum_{k=0}^{n} \varphi_k \cdot t^k = \boldsymbol{\varphi'}^{(n)}\boldsymbol{T}_f^{(n)} \tag{3.6}$$

$$g^{(n)}(t) = \sum_{l=1}^{n} w_l \cdot t^l = \boldsymbol{\omega'}^{(n)}\boldsymbol{T}_g^{(n)} \tag{3.7}$$

Where $\boldsymbol{T'}_f^{(n)} := (1, t, \dots, t^n)$ and $\boldsymbol{T'}_g^{(n)} := (t, \dots, t^n)$. In this way, I depict the linear, quadratic and cubic trends of earnings elasticity. I can then obtain the trends of elasticity by taking the partial derivative of $\ln Y_{it}^s$ with respect to $\ln Y_{it}^f$ at each wave. Model diagnostics then help decide which polynomial trend fits the data best.

It is worth noting that, in estimating the earnings elasticity, the age distributions of fathers and sons in my model ameliorate the issues associated with the life-cycle bias discussed previously. Such bias is small and not significant if current earnings (as proxies for lifetime earnings) are measured between the early 30s and the mid 40s (Böhlmark & Lindquist, 2006; Haider & Solon, 2006). In my models, age is centred at 40 and restricted to a certain range for estimation (Gong, Leigh & Meng, 2012; Lee & Solon, 2009). Both sons' and fathers' ages in my data exhibit normal distributions with the mean and median ages ranging from 42 to 45. This ensures reduced life-cycle bias in the estimation of the earnings elasticity.

3.4.3 Known methodological limitations

While my analytic approach improves on the earlier literature in several ways, I do not resolve all outstanding issues in the estimation of intergenerational earnings elasticities in the Australian context. Therefore, some data-driven shortcomings must be acknowledged. First, the absence of long-panel data so that both fathers' and sons' earnings can be observed for a large sample of individuals forces me to rely on imputed

rather than observed fathers' earnings. This issue has been faced by a number of international (e.g. Björklund & Jäntti, 1997; Nicoletti & Ermisch, 2007; Piraino, 2007) as well as Australian studies (Leigh, 2007; Mendolia & Siminski, 2015). Second, the lack of reliable and recurrent Australian surveys for older time periods with consistent occupation classifications and income measures forces me to use the HILDA Survey to impute fathers' earnings. Ideally, one would use a collation of older, external datasets that match the period in which fathers of different cohorts had 14-year-old children. This problem applies also to other Australian studies (see Leigh, 2007 and Mendolia & Siminski, 2015). Third, the imputation methods deployed in previous studies of intergenerational earnings elasticities yield deterministic rather than probabilistic fathers' earnings: all fathers with the same age-occupation profiles are expected to earn the same. This is also the case for other Australian (Leigh, 2007; Mendolia & Siminski, 2015) as well as international (Mocetti, 2007; Piraino, 2007) studies. I return to these issues and discuss them in more detail in Section 3.6.

3.4.4 Analytical sample and descriptive statistics

My HILDA Survey sample consists of male respondents (hereafter referred to as sons) who are employed with positive earnings, have non-missing data on the analytical variables, and took part in at least one survey wave. This yields an unbalanced panel that minimizes information loss. I correct implausible values of fathers' ages when their sons were 14 by excluding fathers whose ages were below 12 or above 70 when their sons were born. To minimize volatility associated with early or late career effects when computing fathers' earnings, I run the model depicted in equation (3.2) above using only sons in prime working ages (i.e. ages between 30 and 55). 94% of fathers' ages when sons were 14 in my model fall within this range. When estimating earnings elasticities at stage two, I exclude sons younger than 25 (they may combine work with education) or older than 64 (they may change their work patterns prior to retirement). Similarly, I exclude fathers outside the same age range when their sons were 14. For comparison purposes, I restrict both fathers' and sons' ages to prime working ages at stage two. Table 3-1 shows descriptive statistics for the main analytical variables.

Table 3-1 Descriptive statistics for main analytical variables

Variable	Sons			Fathers											
				1-digit			2-digit			3-digit			4-digit		
	mean	s.d.	Obs.	mean	s.d.	Obs.	mean	s.d.	Obs.	mean	s.d.	Obs.	mean	s.d.	Obs.
Log hourly earnings	3.41	0.52	30,175	3.36	0.20	30,175	3.29	0.31	30,175	3.29	0.35	30,175	3.29	0.49	30,175
Log weekly earnings	7.14	0.62	30,211	7.10	0.28	30,211	7.04	0.35	30,211	7.04	0.39	30,211	7.05	0.48	30,211
Log annual earnings	11.08	0.72	32,675	11.00	0.30	32,675	10.94	0.39	32,675	10.94	0.43	32,675	10.95	0.56	32,675
Age	42.44	10.32	30,175	44.63	6.14	30,175	44.63	6.14	30,175	44.63	6.14	30,175	44.63	6.14	30,175
Wave	7.56	3.79	30,175												

Notes: Sons' earnings adjusted for inflation using the Consumer Price Index. Father's predicted earnings differ based on the level of occupational (dis)aggregation used in stage one. Statistics for the age and wave variables are from analyses using hourly earnings and individuals aged 25-64.

Source: HILDA Survey, 2001-2013.

3.4.5 Sensitivity checks on imputed fathers' earnings & preferred model specifications

The estimation relies on the accuracy of the imputation strategy. While a systematic evaluation of this is obviously not possible without access to observed data, I undertook some sensitivity checks that helped ascertain the degree of confidence in my analytic approach. To do so, I leveraged information from a small subsample of HILDA Survey respondents for whom their fathers' characteristics were observed when they were age 14.

Young participants enter the HILDA Survey when they reach 15 years of age, and only co-residing fathers are included in the survey. Hence to identify this sample, I need to find out the father-son pairs that satisfy: (i) sons entered the survey no earlier than wave 2 (so that father's earnings when they were 14 can be observed in the survey) and no later than wave 13 (so that their own earnings can be observed in the survey); (ii) sons and fathers reside in the same household (so that fathers can be identified); (iii) sons reported earnings in their participation wave(s) to enable estimating the regression coefficients that are used to impute father's earnings; (iv) sons reported father's characteristics when they were 14 to enable the imputation of father's earnings; and (v) the identified fathers reported earnings in early waves when sons aged 14. The age profile of sons in the resulting sample is shown in Figure 3-1.
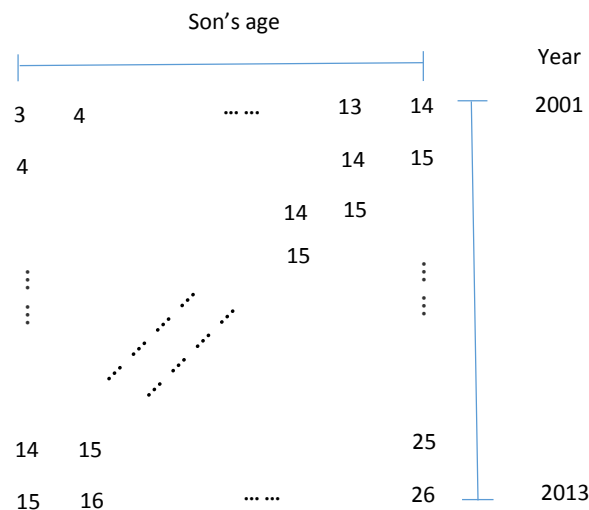
Figure 3-1 Age profile of sons in a sample with observed father's earnings when sons aged 14

For this subsample, I had information on both the fathers' observed earnings, age and occupation, and the sons' subsequent retrospective reports of these characteristics as

they became 15 years old and entered the panel. This subsample includes 595 sons and 496 fathers. While this is undoubtedly a selected subsample (it involves parents and children from younger generations who were observed to co-reside in the near past), I can use this to tease out the robustness of my imputation approach.

Using these father-son pairs I first compared the *son-reported* paternal ages and occupations when sons were age 14, with the *observed* paternal ages and occupations when sons were age 14. Results in Figure 3-2 show a high level of similarity between these. In addition, the Pearson and Spearman correlation coefficients between son-reported and observed father's age and occupation were very large and highly statistically significant (Table 3-2). Taken together, these results suggest that sons' reports do not distort the true distribution of the variables capturing fathers' characteristics.
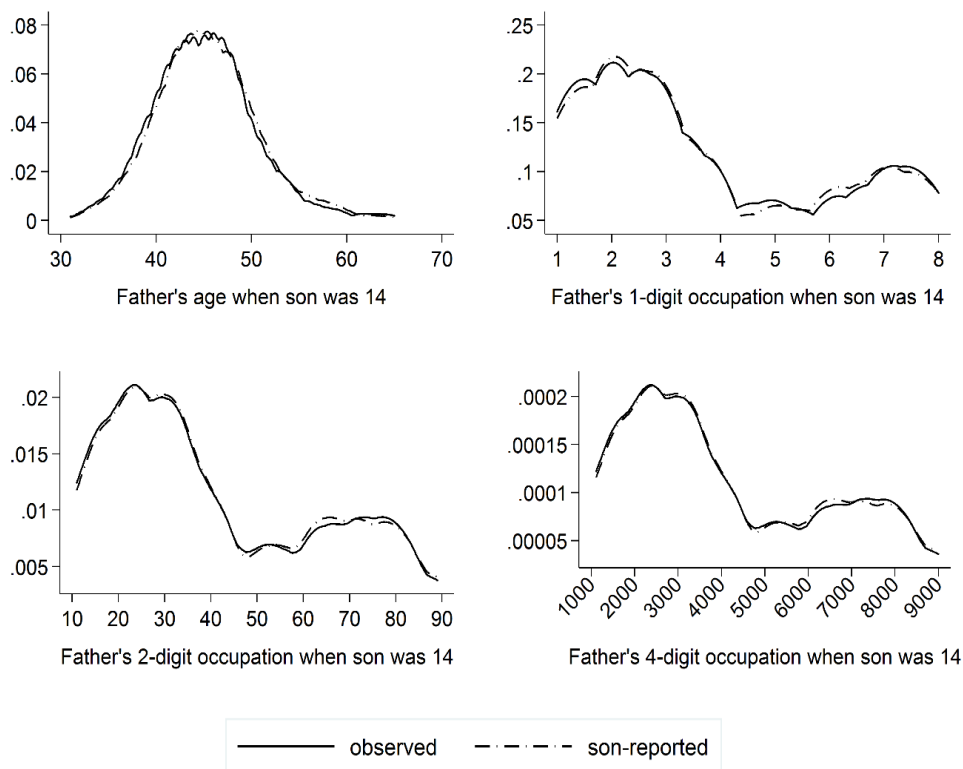
Figure 3-2 Observed and son-reported fathers' characteristics

Table 3-2 Correlation coefficients of observed and son's report of father's age and occupation

Observed vs imputed father's age[a]	Observed vs son's report of father's 1-digit occupation[b]	Observed vs son's report of father's 2-digit occupation[b]	Observed vs son's report of father's 4-digit occupation[b]
0.95	0.63	0.64	0.64

Notes: All coefficients are statistically significant at 0.1% level.

[a] Pearson correlation coefficient.

[b] Spearman rank correlation coefficient.

Second, I compared the observed and imputed fathers' earnings at each level of occupational (dis)aggregation by means of Pearson's correlation coefficients. Such correlations, displayed in Table 3-3, are moderately large and highly significant, which supports the validity of my imputation strategy. Hence, the results of my robustness checks are generally encouraging.

Table 3-3 Correlations between observed and imputed fathers' earnings, by level of occupational (dis)aggregation

	Pearson's *r*
1-digit occupations	0.29
2-digit occupations	0.43
3-digit occupations	0.47
4-digit occupations	0.39

Notes: All correlations are statistically significant at $p < 0.001$.
Source: HILDA Survey, 2001-2013.

Additionally, I perused this subsample of father-son pairs to settle on a preferred specification regarding the level of occupational (dis)aggregation. There is an inherent trade-off between occupational precision and small sample sizes when using different levels of occupational (dis)aggregation to estimate earnings elasticities. Using detailed occupations reduces the within-occupation wage heterogeneity that exists at more aggregated levels. However, using highly-disaggregated occupations with a dataset of the size of the HILDA Survey yields cell sizes that are too small for robust analysis. Therefore, elasticity estimates from occupational levels that are not too aggregated (one-digit level) or too disaggregated (four-digit level) are preferable (i.e. two- or three-digit occupations).

Results in Table 3-3 provide additional empirical evidence for this, as they indicate that the imputation of fathers' earnings is most precise when using 3-digit occupations (r=0.47), followed by two-digit (r=0.43), four-digit (r=0.39), and finally one-digit (r=0.29) occupations. Hence, I conclude that the models using 2-digit and 3-digit occupations should be my preferred models.

3.5 Results

3.5.1 Intergenerational earnings elasticity in Australia by level of occupational (dis)aggregation

Table 3-4 displays the estimated intergenerational earnings elasticities (equation 3.4) by the level of occupational (dis)aggregation and by different age restrictions. Full model output can be found in Table A3-3 in the Appendices. The father-son earnings elasticity in Australia between 2001 and 2013 ranges from 0.11 to 0.30.

The estimated elasticities are larger when using the two-digit level than when using the three- or four-digit levels. The results when using the one-digit level are more volatile. Lower elasticities associated with more detailed occupation categories would be expected if earnings vary by occupational categories and fathers' and sons' occupational categories are more likely to differ when occupations are disaggregated.

For each digit of occupational (dis)aggregation, the point estimates are higher when age is restricted to prime working age (30-55) than when using a broader age restriction (25-64), although these differences are small.

Table 3-4 Father-son hourly earnings elasticity in Australia, by level of occupational (dis)aggregation

Results	Level of occupational (dis)aggregation							
	One digit		Two digits		Three digits		Four digits	
	25-64	30-55	25-64	30-55	25-64	30-55	25-64	30-55
Elasticities	0.232	0.301	0.259	0.282	0.235	0.255	0.112	0.129
	(0.034)	(0.040)	(0.022)	(0.026)	(0.019)	(0.023)	(0.013)	(0.015)
R^2 (overall)	0.044	0.038	0.060	0.051	0.061	0.053	0.050	0.044
N (observations)	30,175	21,101	30,175	21,101	30,175	21,101	30,175	21,101
N (individuals)	4,960	3,603	4,960	3,603	4,960	3,603	4,960	3,603

Notes: Standard errors in parentheses. All elasticities are statistically significant at p<0.001.
Source: HILDA Survey, 2001-2013.

3.5.2 Trends in intergenerational earnings elasticity over time

The results obtained from my main model (i.e. equation 3.4) are overall mean elasticities across 13 years. In this section I extend my main model by incorporating the interaction terms of fathers' logarithmic earnings with survey year, namely models (3.5)-(3.7), to delineate trends in earnings elasticity over time. To simplify the analyses, I present trends using my preferred specification of 2-digit occupations.

I first include the product of fathers' earnings and year, assuming the trend is linear. The linear assumption is the simplest way to capture overall changes in elasticity. The changes can be derived from the marginal effects of fathers' earnings, namely, $f^{(n)}(t)$ in model (3.6). I then fit models including higher-order polynomials of the year variable and plot them together with the linear trends for comparison purposes. I also test the significance of the added polynomials in ascending order. The test results show that the linear and cubic trends are statistically significant, indicating that the cubic model better depicts how earnings elasticity is changing over time.[15] I plot the linear and cubic trends in Figure 3-3.

Both the linear and the cubic trends display a similar overall increase in father-son earnings elasticity between 2001 and 2013, suggesting that earnings persistence in Australia is strengthening over the past decade. This decline in income mobility is consistent with previous findings for the US (Aaronson & Mazumder, 2008), the UK (Nicoletti & Ermisch, 2007), Norway (Hansen, 2010) and Finland (Pekkala & Lucas, 2007).

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[15] I also considered using quartic trends, but the fourth-order survey year polynomials were not statistically significant.
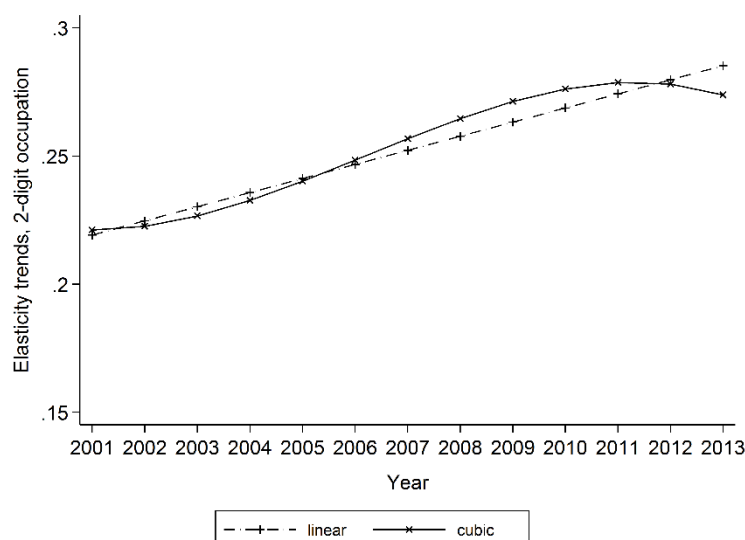
Figure 3-3 Linear and curvilinear trends of father-son earnings elasticity in Australia

Notes: Elasticities estimated using hourly earnings in the main job. All elasticities are statistically significant at the 0.1% level.

Source: HILDA Survey, 2001-2013.

While I have established that there is an upward trend in earnings elasticity in Australia, the reasons behind this trend remain unexplored. Although a detailed examination is beyond the scope of this chapter, one obvious candidate is the degree of earnings inequality (Corak, 2013a). As a preliminary test, I further examined the association between inequality and mobility in Australia using my elasticity estimates and Gini coefficients.[16] Figure 3-4 shows trends in earnings elasticity and Gini coefficients. The elasticities range from 0.22 to 0.28 between 2001 and 2012, whereas the Gini coefficients range from 0.3 to 0.34 over the same period. Both trends display a smooth "S" shape: the Gini coefficient reaches its local maximum in 2008, and declines afterwards; similarly, the elasticity moves downwardly after 2011.

I then assess the strength of this association, taking care of artefactual correlation resulting from mutual dependence on time by detrending the data. I apply both parametric and non-parametric methods to detrend the data. For the parametric method, I model the two time series separately using linear regressions, and peruse their respective residuals. Test statistics confirm normality and homoscedasticity in these residuals. The correlation

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[16] The Gini coefficients for 2001, 2003-2004, 2006, 2008, 2010 and 2012 come from ABS (2013), while those for 2002, 2005, 2007 and 2009 come from Whiteford (2013). These Gini coefficients were calculated using equivalised disposable household income from ABS Surveys of Income and Housing.

coefficient between the two residual variables is 0.87 and is statistically significant at the 1% level. For the non-parametric method, I take the first difference of each of the time series. Tests of autocorrelation show that these first differences are not autocorrelated. The correlation coefficient between the first differences of the earnings elasticity and those of the Gini coefficient is 0.71 and is statistically significant at the 5% level. My findings, therefore, provide evidence from Australia that economic inequality is positively associated with immobility.[17]
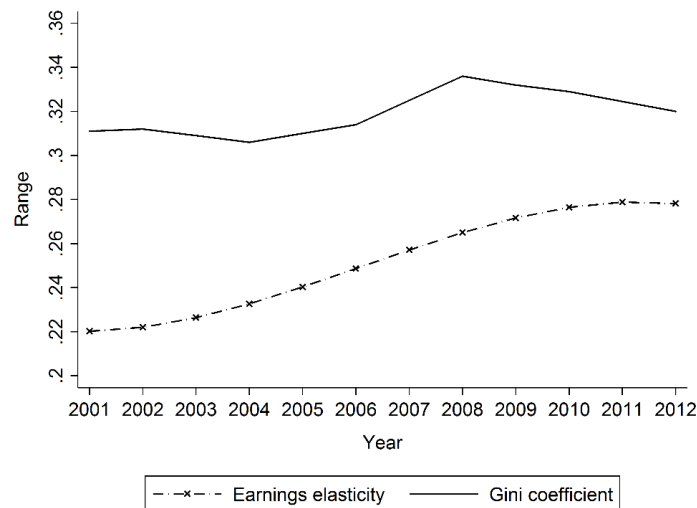
Figure 3-4 Trends of father-son earnings elasticity and Gini coefficient in Australia over time

Notes: Elasticities estimated using two-digit occupations and hourly earnings in the main job. All elasticities are statistically significant at the 0.1% level.

Source: HILDA Survey, 2001-2013; ABS (2013); Whiteford (2013).

3.5.3 Intergenerational earnings elasticity using different earnings measures

Elasticities may depend also on the reference period for the measure of earnings considered. I argue that, compared to hourly earnings, weekly and annual earnings should be weaker in estimating elasticities, as they are affected by individuals' work hours – which are positively correlated with the earnings rate. Since weekly and annual earnings are affected by working hours, these earnings measures should be more volatile and their use should yield lower elasticities. Drawing upon the rich information in the HILDA Survey, I test the effects on the elasticity estimates of using different earnings measures. Given the

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[17] Future research could move the analysis forward by assessing whether there is a lag between decreased mobility and increased economic inequality, and which direction the causal arrow goes.

large number of figures and comparison units, I undertake these analyses only for my two preferred specifications, i.e. the models using the two- and three-digit levels of occupational (dis)aggregation.

Evidence in Table 3-5 supports my prior argument: using weekly and annual earnings rather than hourly earnings noticeably reduces the estimated elasticities. Full model output can be found in Table A3-4 in the Appendices. Relative to using hourly earnings, using weekly earnings reduces elasticities for individuals aged 25-64 years at the two- and three-digit occupation levels by about 32% and 29%, respectively; while using annual earnings reduces such elasticities by 21% and 25%. The same pattern can be observed for elasticities estimated on the sample of fathers and sons in prime working ages (30-55 years). Results of *t* tests show that, at each level of occupational (dis)aggregation, elasticities using weekly and annual earnings are significantly different from elasticities using hourly earnings for the sample aged 25-64, whereas elasticities using different earnings measures are not statistically significant for the sample aged 30-55.[18] Hence, my results indicate that estimated elasticities depend on the earnings measure used.

Table 3-5 Father-son earnings elasticity using different earnings measures

Occupational (dis)aggregation	Earnings measures					
	Hourly earnings		Weekly earnings		Annual earnings	
	25-64	30-55	25-64	30-55	25-64	30-55
Two digits	0.259	0.282	0.175++	0.234	0.205+	0.235
	(0.022)	(0.026)	(0.025)	(0.029)	(0.025)	(0.029)
R² (overall)	*0.060*	*0.051*	*0.052*	*0.037*	*0.043*	*0.030*
N (observations)	*30,175*	*21,101*	*30,211*	*21,125*	*32,675*	*22,857*
N (individuals)	*4,960*	*3,603*	*4,962*	*3,604*	*5,017*	*3,674*
Three digits	0.235	0.255	0.166++	0.221	0.177++	0.207
	(0.019)	(0.023)	(0.022)	(0.025)	(0.023)	(0.026)
R² (overall)	*0.061*	*0.053*	*0.053*	*0.040*	*0.042*	*0.030*
N (observations)	*30,175*	*21,101*	*30,211*	*21,125*	*32,675*	*22,857*

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[18] I compare elasticities estimated using different outcome variables, i.e. earnings measures. Hence, a *caveat* of these *t* tests is that I cannot estimate a covariance term. If I assume this to be positive, then the standard error of the difference will be *sqrt ($se1^2$ + $se2^2$ – 2cov(se1,se2))*. The *t* statistic assuming independence is therefore biased towards zero.

| N (individuals) | 4,960 | 3,603 | 4,962 | 3,604 | 5,017 | 3,674 |

3.6 Discussion and conclusion

In this chapter I have (i) developed and applied a two-stage panel regression model for estimating earnings elasticities, (ii) established trends of earnings elasticity over time, (iii) gathered empirical evidence about how elasticities are affected by the choice of level of occupational (dis)aggregation and earnings measures, and (iv) provided up-to-date elasticity estimates for Australia.

I find that the intergenerational earnings persistence in contemporary Australia lies between 11% and 30%. My preferred estimates lie between 24% and 28% (using two- and three-digit occupations and hourly earnings). The elasticity increased slightly between 2001 and 2013, and this upward trend is accompanied by a moderate level of inequality. A statistically significant correlation between earnings elasticity and Gini coefficients supports the empirical argument in the existing literature that economic mobility is inversely associated with economic inequality. This suggests that changing patterns of elasticity in a specific country need to be carefully evaluated with the dynamics of inequality. Elasticity estimates vary depending on the level of occupational (dis)aggregation used: they are highest when using two-digit occupations and lowest when using four-digit occupations. My supplementary analyses suggest that, when occupation-based imputation of parental earnings is used, elasticity estimates using the two- and three-digit levels of occupational (dis)aggregation are preferable. Using different earnings measures also results in substantially different elasticity estimates: these are lowest when using annual earnings, and highest when using hourly earnings.

Altogether, my results indicate that (i) Australia has a moderate level of income mobility by international standards, (ii) over the past decade there was a slight decline in intergenerational income mobility, and (iii) cross-temporal and cross-national comparisons of earnings elasticities should be exercised with caution, as differences in the data and methods used across comparison units have the potential to substantially alter the results (D'Addio, 2007; Jerrim, Choi & Rodríguez, 2013; Solon, 2002).

While I made several important methodological contributions to the existing literature, particularly as it pertains to the Australian body of knowledge, this study does

not resolve other methodological shortcomings –many of which are driven by the lack of optimal data for the study of intergenerational earnings elasticity in Australia. These are obvious avenues for methodological refinement in subsequent Australian research in this field.

First, fathers' earnings are imputed using sons' retrospective information, rather than being directly observed. While the use of imputed parental earnings is commonplace when observed fathers' earnings are unavailable (Andrews & Leigh, 2009; Björklund & Jäntti, 1997; Leigh, 2007; Piraino, 2007), retrospective reports of parental characteristics are prone to measurement error and recall bias (Wooden & Watson, 2000). As a result, it has been argued that elasticity estimates obtained using this approach are likely to be downward-biased (Leigh, 2007; Mendolia & Siminski, 2015). In the sensitivity checks in section 3.4.5, however, I have quantified the degree of measurement error using paired fathers and sons in the survey, and found that (i) son-reported fathers' characteristics closely match fathers' actual characteristics, with large and statistically significant correlations; and (ii) the correlations between imputed and observed fathers' earnings by different levels of occupational disaggregation are moderately large and statistically significant. These findings suggest that the measurement error and recall bias are small in my dataset and that my imputation methodology is valid. More generally, the strategy used to adjust for the potentially downward bias in elasticity estimates involves calculating and applying an "adjustment ratio". This is a ratio of the magnitude of elasticities estimated using observed and imputed father data. This requires long-running panel data and has sometimes been done using the US Panel Study of Income Dynamics. Using this approach, Leigh (2007) obtained a ratio of 1.23 while Mendolia and Siminski (2015) obtained a ratio of 1.55. Applying Leigh's ratio to my estimates would move them to be in the range of 0.14 (1.23×0.11) to 0.37 (1.23×0.30), while using Mendolia and Siminski's would put my estimates in the 0.17 to 0.46 range. These corrections move my preferred estimates to be in the range of 0.30-0.34 (using Leigh's ratio) and 0.37-0.43 (using Mendolia and Siminki's ratio). Future studies may attempt to leverage new Australian data sources that enable researchers to observe parental as well as offspring earnings. Observing the earnings of both fathers and sons for a large and representative sample of Australians will be possible in the long term as more waves of the HILDA Survey become available. In the meantime, the progressive availability of long series of Commonwealth

Government administrative datasets for research purposes may open up new possibilities (Productivity Commission, 2013).[19]

Second, imputing fathers' earnings using data from sons assumes that the origin earnings regime is the same as the destination earnings regime. In other words, it requires the assumption that differences in earnings by age and across occupations have remained constant over time. This is a restrictive and unrealistic presumption, but one that needs to be confronted in the absence of suitable earnings data spanning a long period of time. Some researchers have used information from 'pseudo fathers' from older, external datasets to impute fathers' earnings (Bjorklund & Jantti, 1997; Piraino, 2007; Solon, 2002), but the requisite data are not readily available in the Australian case. Even if they were, important trade-offs and further assumptions would be required. The effects that imputing fathers' earnings using son's data may have on elasticity estimates are uncertain, and further research into this issue would be welcome in Australia as well as internationally.

Third, the methods commonly used to impute fathers' earnings in the literature on earnings elasticities rely on deterministic rather than stochastic models, i.e. fathers who reportedly work in the same occupations and have the same ages are assumed to have earned exactly the same when their children were 14 years of age. This problem is shared by the existing Australian (Leigh, 2007; Mendolia & Siminski, 2015) and international (Mocetti, 2007; Piraino, 2007) studies. It is likely that the deterministic nature of the imputation of fathers' earnings results in downward-biased standard errors on the elasticity estimates. In my case, this is unlikely to be highly problematic, as my elasticities are generally estimated with a very large degree of precision ($p < 0.001$). In any case, introducing uncertainty in the imputation of fathers' earnings in studies of intergenerational earnings elasticities is something that future studies in the field should consider.

Finally, my analyses are performed on unweighted data and this may have implications on the observed trends in the presence of panel attrition. Correcting for this would nevertheless cause significant selection bias, chiefly because the longitudinal

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[19] Chetty et al. (2017) recently showed that, in the absence of historical panel data for early birth cohorts (the population-level panel data for children born before 1980 are not available in US censuses and population surveys), the trends of absolute mobility (measured using the fraction of children earning more than their parents) can be estimated by combining the marginal income distribution of each cohort with the joint income distribution of the cohort and their parents, under the assumption that this joint income distribution is stable across all cohorts. Therefore, cross-sectional data for these early birth cohorts in the censuses can still be used to estimate the mobility patterns.

weights adjusting for attrition in the HILDA Survey can only be used with a strongly balanced panel. Restricting my analytical sample to respondents who participated in all 13 waves in the survey reduces the sample size from 30,175 to 18,174, and such restriction also drops 57% of individuals in my sample. Hence, using the longitudinal weights in estimation arguably introduces more selectivity than it corrects for. Respondents who attrited from the HILDA Survey are more likely to be immigrants, from an ethnic minority, unemployed, or working in low-skilled occupations (Summerfield et al., 2014), so these groups are underrepresented in my unweighted sample - and progressively more as time unfolds. Studies have found much less upward mobility among ethnic minorities (Bhattacharya & Mazumder, 2011; Hertz, 2006), and elasticities are larger for immigrants than for natives (Dustmann, 2005; Hammarstedt & Palme, 2012; Vogel, 2006). Correcting for the attrition of these groups would arguably increase earnings elasticities, also because they show limited work-life mobility. Therefore, I believe that my elasticity estimates constitute a lower bound, and that elasticity trends would have been steeper had we had zero attrition in my sample.

It is also important to note that I am only able to provide short-term snapshots of the changing patterns of father-son earnings elasticity with 13 waves of the HILDA Survey. This limitation could be addressed as the Survey continues to mature.

In sum, this chapter has provided up-to-date estimates of intergenerational earnings elasticity in Australia using different techniques and assumptions. In doing so, it has shown the range of elasticities consistent with different analytic approaches, and enabled more reliable estimates for Australia to be used in future cross-national and cross-temporal research. My work has also improved and updated our understanding of income mobility in a wealthy capitalist nation with a very unique configuration of social and economic institutions. Since Australia had an internationally distinctive history of relatively compressed wage distributions and relatively uniform working conditions by occupation and industry, we could have anticipated low elasticities if historical data on income for early birth cohorts were available. Parental background may not matter over much for these early birth cohorts because institutional conditions compressed their earnings variability. Using contemporary panel data, however, I find an increase in earnings elasticity over time. This trend suggests that Australia is becoming less different from the US and the UK because it is moving towards more economic immobility accompanied with more economic inequality. It remains to be examined whether this decline in economic mobility reflects the weakening of labour market institutions such as unionisation, centralised wage fixing and the predominance of state and federal awards, and the

emergence of more individualised and enterprise level forms of wage negotiation and bargaining, over the course of the progressive marketisation of the economy and labour market in contemporary Australia.

Chapter 4 Parental wealth transfers in contemporary Australia

4.1 Chapter introduction

This chapter examines the patterns and predictors of the likelihood and magnitude of parental wealth transfers in contemporary Australia. It focuses on how family background affects the probability and amount of parental wealth transfers over adult children's life courses as well as at adult children's major life events. Section 4.1 outlines the background of this empirical chapter, the importance of studying parental wealth transfers, research gaps in the existing literature, and the contributions and key findings of this chapter. Sections 4.2 and 4.3 offer an overview of the economic and sociological literature on parental wealth transfers. Section 4.4 provides details on the social and institutional context in Australia for the study of parental wealth transfers. Sections 4.5 and 4.6 detail the data and methods used. Section 4.7 presents the findings and their interpretations. Section 4.8 concludes.

4.1.1 Background

There are well-known correlations between the socioeconomic outcomes of parents and those of their offspring, giving rise to the intergenerational persistence of (dis)advantage. Different social science theories rest on the premise that, when given the chance, privileged parents strive to transfer their privilege onto their children. There are however long-running and ongoing debates as to when and how this process occurs, i.e. the mechanisms through which advantaged parents advantage their children.

The most prolific strand of the literature focuses on those life-course stages in which 'children' are underage. During childhood, high status parents spend comparatively more economic resources on material goods that stimulate children´s cognitive and socio-emotional development and keep children in good health (e.g. access to good schools, extracurricular activities or health care, see Crosnoe & Muller, 2014; Hao & Yeung, 2015; Nilsen et al., 2010). They also advantage their offspring by making use of their comparatively high non-material resources, such as their more advanced cultural and social capital (e.g. by exerting optimal parenting practices and socialising their children into hegemonic cultural values, see Park & Lau, 2016). Later in life, high status parents can also afford to enrol their children in top universities, support them through their studies, and use their more developed social networks to aid them in their search for a first job

(Hardaway & McLoyd, 2009). These advantages attained during childhood, adolescence and early adulthood line the children of high status parents for success in subsequent life-course stages, setting the stage for the intergenerational reproduction of socioeconomic status.

However, the mechanisms used by high status parents to transfer their advantage onto their children do not end when their offspring reach adulthood, with some operating when children have 'left the nest' and over the remainder of their life courses. While comparatively fewer studies have focused on this stage, there is evidence that parental wealth transfers are a means through which privileged parents facilitate their adult children´s status attainment process.

The topic of parental wealth transfers has been extensively studied by economists and sociologists. Early literature focuses on estimating the magnitude of wealth transfers (Gale & Scholz, 1994; Kotlikoff & Summers, 1980; Modigliani, 1988; Schoeni, 1997), and found that intended parental wealth transfers are the source of 20%-25% of aggregate national wealth. This body of literature was followed by an abundance of studies theorising and testing transfer motives (Cox & Rank, 1992; McGarry, 1999; Norton & Van Houtven, 2006; Laitner, 1992; Laitner, 2002; Laitner & Ohlsson, 2001; Page, 2003). While theorists have proposed a number of transfer motives, including altruistic motives (i.e. parents care particularly about the wellbeing of disadvantaged children), strategic exchange motives (i.e. parents exchange transfers for children's care and attention), and warm-glow motives (i.e. parents make transfers because they enjoy the action of giving), empirical evidence has so far provided mixed findings and different transfer motives have been found using different data and methods.

4.1.2 Why studying parental wealth transfers is important

Studying parental wealth transfers is important for a number of reasons. The first reason is related to the effect of public transfers (typically transfers made by government) on private transfers (i.e. parental transfers within families). Existing literature has no consensus on which direction this effect should go: early literature primarily argues for a crowd-out effect where generous welfare payments may reduce private transfers (Reil-Held, 2006). More recent literature argues for a complementary relationship between public and private transfers (Brandt & Deindl, 2013). That is, public and private transfers work together and share family responsibilities: the state provides social services and legal obligations, while the families provide private care and supplementary support (Brandt &

Deindl, 2013). It is therefore of theoretical interest to understand how private transfers interact with public transfers in providing intergenerational support.

The second reason why the study of parental transfers is important is that, parental wealth transfers are an important driver of wealth inequality across generations (Heer, 2001). It has been found, for example, that parental wealth transfers account for half of the wealth of average young adults, but over 90% of the wealth of rich children (Boserup, Kopczuk & Kreiner, 2016).

Additionally, parental wealth transfers not only affect the donor's (i.e. parents) life-time consumption and wealth transfer decisions (Laitner, 2008; McGarry, 1999), but also alleviate borrowing constraints and affect the receiver's (i.e. grown-up children) socioeconomic outcomes and wellbeing over the life course (Berry, 2008). Intended wealth transfers may reduce parental consumption over their lives, but such transfers at certain points of children's life, such as tertiary education, marriage, childbirth and property purchase may have profound impact on children's life outcomes and wellbeing (Leopold & Schneider, 2011).

4.1.3 Bridging research gaps in parental wealth transfers: This chapter

While wealth transfers can be generation-skipping (e.g., grandparents to grandchildren) and reciprocal (e.g., children to parents), the majority of transfers are made from parents to children (Hughes, Massenzio & Whitaker, 2012). Parental wealth transfers consist of *inter vivos* transfers (i.e. gifts and allowances transferred when parents are alive) and inheritances/bequests (i.e. monetary transfers upon the death of parents). Research to date has found heterogeneous motives of *inter vivos* transfers: gift giving is reflective of both the altruistic goal of assisting the most disadvantaged children (Berry, 2008; McGarry, 1999) and the strategic exchange of rewarding children who paid most attention (e.g. contact, informal care) to them in return (Norton & Van Houtven, 2006; Cox & Rank, 1992). Such heterogeneous motives result in differences in the probability, frequency and amount of transfers received by children (Arrondel & Masson, 2001). In contrast, inheritances/bequests are usually divided equally among children (McGarry, 1999; Norton & Van Houtven, 2006; Sappideen, 2008). My focus in this chapter is on parental *inter vivos* transfers (hereafter generalised as parental wealth transfers).

While most of the existing studies examined the effects of child characteristics (such as education, income, marital and employment status) on the probability and amount of giving/receiving parental wealth transfers, the effects of family background remain

understudied.[20] In the handful of wealth transfer studies that included family background, the latter was treated as a control variable and the focus was elsewhere. For example, Brandt and Deindl (2013) use parental education and parental marital status as controls to examine the effect of social policies on gift transfers. Kohli (1999) controlled for parental income, wealth and education to study the interactions between public (old-age pensions) and private (*inter vivos*) transfers. Villanueva, Demange and Hochguertel (2005) use parental income to assess the crowd-out effect of unemployment insurance payment on *inter vivos* transfers. Various parental characteristics are also controlled to assess the relationship between gift transfer patterns and welfare regimes in Europe (Albertini & Kohli, 2013; Albertini, Kohli & Vogel, 2007). Additionally, few of these studies examined the different patterns of parental wealth transfers by parental socioeconomic status (hereafter referred to as SES) over their adult children's life courses. Consequently, we know little about when and how adult children from different socioeconomic backgrounds and over their life courses receive monetary help from parents. This gap needs to be addressed, because (i) parental wealth transfers are an important means through which social and economic (dis)advantage is reproduced, and an important driver of wealth inequality across generations; and (ii) knowing the different patterns of parental wealth transfers over children's life course helps better understand the disparities in parental investment across advantaged versus disadvantaged families, which may have important policy implications. For example, if status transmission in advantaged families is associated with parental wealth transfers taking place early in children's life and at significant life events, then public policies need to derive interventions that target disadvantaged families by providing direct compensatory public transfers to these children when they are young and when they experience life-course transitions.

This chapter bridges this knowledge gap by systematically exploring how family background is associated with differences in parental wealth transfers. It surveys the economic and sociological literature on parental wealth transfers, identifies various family background variables as potential predictors, and examines the associations between these variables and the likelihood as well as magnitude of parental wealth transfers. I begin the data analysis by estimating the (main) effects of family background on the likelihood and magnitude of parental wealth transfers using the whole sample, then separate the analysis on the differences in the likelihood and magnitude of parental wealth

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[20] For a detailed review of the effect of family background on intergenerational correlation of earnings and education, see Black and Devereux (2011).

transfers by parental socioeconomic statuses. In doing so, I add to the parental wealth transfer literature both substantively and methodologically. Substantively, I advance the field by applying a life-course approach that enables me to provide novel evidence on how differences in parental wealth transfers by family background evolve over children's life courses and whether they are contingent on major life-course events. Methodologically, I contribute to the field by exploiting long-running panel data from an Australian national sample to follow a more sophisticated and fit-for-purpose analytic approach than previous studies, consisting of random-effect, Heckman selection models. This estimation technique simultaneously accounts for the inter-dependence of the probability and amount of parental wealth transfers, corrects for several sources of omitted-variable and selection bias, and capture the underlying dynamics of parental wealth transfers.

Key findings show an overall increase in the probability of receiving parental wealth transfers over time, while transfer amount remains stable. Advantaged family backgrounds (approximated by parental education level, employment status, unemployment history, occupational standing and family breakdown) are associated with increases in both the likelihood and the magnitude of parental wealth transfers to adult children. Differences are most pronounced in early adulthood, but remain over the children's life courses. Transfer patterns by family background are similar at the events of childbirth, marriage, being a full-time student, material deprivation, lack of financial prosperity and income poverty, while purchasing a property and financial worsening are related to increases in the likelihood and magnitude of parental wealth transfers for children born to middle/high family background only.

4.2 Family background, parental investments and wealth transfers

Parental investments take on a number of forms: investment in nutrition, cognitive and non-cognitive skill development, human capital investment (education), equipment to facilitate learning, social networks and social capital. Research has found that parental investments differ substantially, in both quantity and quality, by the SES of the families. High SES families provide children with better diet and nutrition (Nilsen et al., 2010), afford more extracurricular activities and after-school tuitions to develop children's skills and abilities (Hao & Yeung, 2015), are more likely to send children to better schools and to universities (Crosnoe & Muller, 2014), purchase better computer equipment (Escarce, 2003), and open up better career potentials and opportunities (Hardaway & McLoyd, 2009), than low SES families do.

Parental wealth transfers constitute an important form of parental investments, because these transfers provide direct financial means to alleviate liquidity constraints and improve financial conditions of the children (McGarry, 2016). Similar to other forms of parental investments, the probability and amount of parental transfers vary across different SES families. However, the relationship between parental SES, the probability and the amount of transfers is not clear-cut.

On one hand, parents of high SES are more likely to transfer and transfer more simply because they have the capacity to do so—they are financially better-off than parents of low SES (Fingerman et al., 2009; Smeeding, 2016). Faced with financial constraints, parents of low SES instead provide more practical, non-monetary help and support (e.g. allowing children to co-reside, taking care of grandchildren, etc. For details, see Berry, 2006).

On the other hand, parents of low SES have higher marginal utility of transferring wealth if wealth transfer is motivated by exchange, and children of low SES families have greater needs that motivate altruistic parents to provide more financial assistance (Albertini & Radl, 2012). In this respect, the probability and amount of wealth transfers are higher for parents of low SES than for parents of high SES.

A third perspective relates to the "status reproduction" thesis—high SES parents are more engaged in wealth transfers in order to facilitate the transmission of social and economic advantage and to prevent their children from downward mobility (Albertini & Radl, 2012).

Therefore, theories pertaining to the association between family background and parental wealth transfers provide limited and contradicting guidance regarding the direction of the effect of family background on the probability and the amount of wealth transfers.

Conversely, empirical evidence consistently points towards a positive relationship between parental SES and parental transfers. The higher level the parental income, wealth, education and occupation, the more likely parents make transfers and transfer more (Albertini & Kohli, 2013; Brandt & Deindl, 2013; Karagiannaki, 2011; Cooney & Uhlenberg, 1992; Jayakody, 1998; Hochguertel & Ohlsson, 2009; Tiefensee & Westermeier, 2016). As Lee and Aytac (1998: 428) put it, "For donors, sufficient resources always increase the probability and the amount of transfers". Parents in marriage are also found to transfer more than separated/divorced/widowed parents (Brandt & Deindl, 2013; Cooney & Uhlenberg, 1992).

4.3 A life-course approach to the study of parental wealth transfers

There have been extensive discussions on the life-cycle patterns of parental investments on children (Erola, Jalonen & Lehti, 2016; Kaplan & Lancaster, 2003) and the differences in these patterns by parental SES (Hango, 2005). Parents invest in education when children are young; provide financial assistance and social capital as children enter labour market; devote time, money and care for grandchildren; and transmit wealth (such as estate, bequests and inheritance) after they decease (Arrondel & Masson, 2001). On average, children born to higher SES families receive more parental investments (particularly financial investments) over their life course than children born to low SES (Hango, 2005).

While parental wealth transfers are an important form of parental investments, research into the life-course perspective of such transfers is surprisingly lacking. Cooney and Uhlenberg (1992) focus primarily on parental support over children's life course. They find a decline in the probability of receiving parental transfers as children age, with children aged 25-29 three times more likely to receive parental transfers than children aged 60-64. The effect of children's age on the probability of receiving parental transfers remains strong after controlling for children's life events such as enrolling in school, starting to work and getting married, but this effect is even stronger when parental life-course characteristics are included such as parental age, health, marital and decease status. Leopold and Schneider (2011) examine the transfer patterns upon children's life events. They find that large gifts are more likely to be transferred in the years of marriage and divorce, but not at childbirth, indicating that gift transfers respond to children's economic needs. Their findings resonate with Ploeg et al. (2004) that financial assistance from parents helps children go through important life events and difficult transitions such as forming families, beginning careers and union dissolution. Parental financial support made early in the family life cycle also significantly increases the social support children reciprocate over the course of their later life (Silverstein et al., 2002), suggesting that parental wealth transfers based on motives of strategic exchange yield long-run pay-off as children continue to mature while parents enter old age (Albertini & Radl, 2012; Henretta et al., 1997).

While these studies provide important insights into the life-course patterns of parental wealth transfers, they can be improved in several fronts. First, although Cooney and Uhlenberg (1992) noticed that the effect of children's age on the probability of receiving parental wealth transfers is non-linear, they were not able to test this by modelling higher-order age polynomials because their age variable is categorical. While it

is important to find that older children are less likely to receive parental wealth transfers, the gradient of the decline in the probability remains unclear, that is, whether the decline is sharper or slower in children's early versus late life.

Second, Leopold and Schneider (2011) mainly explored parental wealth transfers at children's three life events: marriage, childbirth and divorce. Since parental transfers are mostly monetary transfers, such financial assistance may also be associated with other money-related life circumstances of children, such as income poverty, material deprivation, and worsening financial situations.

Third, all these studies applied the life-course perspective to the *probability* of receiving parental wealth transfers, yet the *amount* of parental wealth transfers may as well follow a similar or different life-course trajectory. Importantly, none of these studies considered differences in the life-course patterns of parental wealth transfers by parental SES. If parental investments show divergent life-course profiles in low compared to high SES families, I would expect this to also apply to parental wealth transfers.

4.4 The Australian case: Institutional context and international experience

The majority of studies on parental wealth transfers exist in Europe and the US, and in-kind studies in Australia are very limited. Barrett et al. (2015) provided some evidence of the incidence and magnitude of gift transfers and inheritance, but their prime focus was on the effect of wealth transfers on home ownership. Sappideen (2008) provided some theoretical discussions about the nature and motives of intergenerational wealth transfers among Australian parents. She found unequal gift transfers and equal shares of bequests among Australian children. She showed that gift transfers involve extensive reciprocal exchange, with children living close to parents providing more assistance and receiving more gifts in return. However, her subject of interest was the baby boomer generation (born between 1946 and 1966; ABS, 2014), and no statistical analysis on the patterns, determinants and dynamics of intergenerational wealth transfers was involved. Neither of these studies looked at the effect of family background on wealth transfers. Cobb-Clark and Gørgens (2012) compared parental wealth transfers received by young adults (18 and 20 years old) from Australian families with and without a history of receiving government support. They found that young adults with a family history of government support receipt receive significantly lower amount of parental wealth transfers. Their work, however, only explored parental wealth transfers at children's young adulthood, rather than how wealth transfers evolve over children's life course. I argue, however, that studying parental wealth

transfers associated with family background and receivers' life course is particularly interesting in the Australian context.

Australia is among the few OECD countries that have no tax on gifts and inheritances.[21] Australia was ahead of most of these countries in abolishing wealth transfer taxes and repealed gift and inheritance taxes in the early 1980s as a result of three contributing factors: (i) the threshold of tax exemptions was not increased to account for inflation, (ii) the commonwealth and state duties yielded a duplicative system of wealth transfer taxes, and (iii) taxes were more easily avoided by the affluent than by the general public, putting the distributive purpose of such tax in question (Duff, 2005; Duff, 2016; Pedrick, 1981; Taxation Policy Elective Class, 1994).

In countries that tax gifts and inheritances, taxation is found to have a significant impact on transfer behaviours of parents. The change in parental transfer behaviours exhibits three patterns: first, parents make choices between gifts and inheritances depending on the respective tax rates. When the tax rate is higher for gifts than for inheritances, parents are less likely to give, and give smaller gifts, to children; conversely, when inheritance tax rate exceeds gift tax rate, gifts are more likely to follow (Joulfaian, 2005; Bernheim et al., 2004).

Second, when gifts and inheritances are taxed separately, parents have the incentive to avoid or minimise taxes by changing the timing of transfers: parents may strategically allocate the money into gifts and inheritances such that both portions are below or very close to the respective threshold of tax exemptions. In contrast, if gifts and inheritances are taxed jointly (i.e. the tax rate on inheritances applies to the total amount of inheritances and gifts transferred previously), the allocation of money and the timing of transfers do not reduce or eliminate taxes. Parents would hence make transfer decisions based on children's economic needs (altruistic motive) or their expected future benefits (exchange motive), rather than on the purpose of tax avoidance (see examples in Nordblom & Ohlsson, 2006).

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[21] Among the OECD countries, Australia, Austria, Canada, Estonia, Israel, Latvia, Mexico, New Zealand, Norway, Slovakia and Sweden have no taxes for gifts and inheritances. Chile, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, Poland, South Korea, Slovenia, Spain, Switzerland, Turkey, the United Kingdom and the United States tax both gifts and inheritances. In the Czech Republic, gifts and inheritances taxes were incorporated into the income tax since 2014. In Portugal, gift and inheritance taxes were abolished in 2004 and gifts and inheritances are subject to stamp tax instead (Cole, 2015; European Foundation Centre, 2014; EY, 2014; Ydstedt & Wollstad, 2014).

Third, when gift taxes apply only to the amount of individual transactions, parents would make each transaction at the borderline of the tax exemption threshold. In contrast, if taxes are based on the cumulative gifts transferred in the past (i.e. lifetime gifts, see Kopczuk, 2013), transferring large gifts would not be time dependent—that is, parents would not split large gifts into small pieces and make transfers multiple times.

Given these complex mechanisms through which parental transfer decisions (to avoid tax) and the design of taxation systems (to preclude actions of tax avoidance) interact, "no tax on transfers" over the past 40 years provides an internationally unique context to study the patterns of parental wealth transfers in contemporary Australia. The Australian context is unique because the taxation environment largely frees the donors from optimising the time and allocation of transfers to reduce tax payment, as what their peers have to do in tax-levying Europe and the US—Australian donors can simply transfer any amount at any time, and this may have implications on the effect of parental SES on the observed probability and amount of parental transfers Australian children receive.

4.5 Data

4.5.1 Dataset

The data I use in this chapter come from 15 waves of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. Detailed explanations on survey administration, data collection, sample follow-up and response rates can be found in section 3.4.1 in Chapter 3. This dataset is unique for my research purposes in this chapter, because it contains rich retrospective information on family background and on parental wealth transfers.

4.5.2 Sample selection

I restrict my sample to respondents aged between 18 and 40. This is because older respondents are less likely to have parents who are still alive, and are more likely to be gift givers (Albertini, Kohli & Vogel, 2007).[22] My final analytical sample consists of 87,854 observations nested within 16,723 individuals. Among them, 3,873 individuals (7,274

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[22] Sensitivity checks restricting the sample to respondents aged 18 to 50 produced similar results to those presented here.

observations, 8.3%) reported having received parental transfers over the survey window, among whom 3,795 individuals (7,059 observations, 97.0%) provided the amount of parental transfers received.

4.5.3 Dependent variables

Data on parental wealth transfers were collected via a two-part survey question. The first part of the question asks respondents whether they received money during the last financial year from any of the following sources: (i) superannuation/rollover, fund/annuity/life insurance/allocated pension fund; (ii) child support/maintenance; (iii) workers compensation/accident or sickness insurance/personal accident claims; (iv) redundancy and severance payments; (v) inheritance/bequests; (vi) *parents (if respondent lives with parents, say: include any money you may receive as pocket money or as a regular allowance)*; (vii) other persons not in this household; and (viii) other source [emphasis added]. The second part of the question asks the total amount across all the payments received from each nominated source. Parental wealth transfer data comes from responses related to the category from 'parents'.

I adjust the amount of parental wealth transfers for inflation to 2015 prices using the Consumer Price Index. Due to the severe right skewness of the variable's distribution, I apply a logarithmic transformation using the natural log.

These data on parental wealth transfers in the HILDA Survey have two important advantages over data collected in other surveys. First, the question on gift transfers clearly shows transfers from parents to children. This allows me to confidently model the effect of parental background on the transfers received by the children. Some surveys, such as the *Panel Study of Income Dynamics,* do not distinguish between the adult children and their families as receivers: parental transfers can be received by any family member (Jayakody, 1998). In this case, the relationship between the senders and receivers could be parents and children or parents-in-law and children, so using the characteristics of respondents' parents to model the transfers received may lead to error if the transfers were actually made by respondents' parent-in-law. Second, it enables me to model not only the likelihood of children receiving parental transfers, but also the amounts they receive, and to do so jointly. Joint models of the probability and amount of parental transfers not only leverages the advantage of using the full sample (as compared to a single model of transfers based only on a subsample of receivers), but also provide additional insights into

the transfer volumes (as compared to the single model of the probability of receiving transfers with the full sample).

4.5.4 Family socioeconomic background variables

My key independent variables capture different dimensions of family socioeconomic background. The HILDA Survey collects a wide range of retrospective parental background information, pertaining to when the respondents were 14 years of age. I peruse this to construct the following measures:

Parental union history. Using answers to a question asking *"Did your mother and father ever get divorced or separate?"*, I create a dichotomous variable indicating whether the respondent's parents ever got divorced or separated.

Parental employment status. The HILDA Survey collects information on paternal and maternal employment status via separate questions worded: *"Thinking back to when you were 14 years old, did your father(mother) work in a job, business or farm?"*. I combine this information to derive a categorical variable indicating the number of employed parents when the respondent was age 14 (0, 1 or 2).

Father's unemployment history. This is a dichotomous variable indicating whether or not the respondent's father was unemployed for a total of 6 months or more while the respondent was growing up. Unfortunately, there is no analogous question on the unemployment history of the mother in the HILDA Survey.

Parental education. The HILDA Survey also collects information on father's and mother's highest educational qualifications via three questions: (i) *"please tell me how much schooling your father(mother) completed? None; Primary school only; Some secondary school, but no more than Year 10; Year 11 or equivalent; Year 12 or equivalent; Don't know."* (ii) *"Did your father(mother) complete an educational qualification after leaving school? Please include any trade certificates, apprenticeships, diplomas, degrees or other educational qualifications"*, and (iii) *"From where was his(her) highest level qualification obtained? University; Teachers college/College of Advanced Education; Institute of Technology; Technical college/TAFE/College of Technical and Further Education; Employer; Other (please specify); Don't know"*. I first create two dummy variables indicating whether the father and mother had a university degree, and then combine these into a categorical variable capturing the number of parents with university degrees (0, 1 or 2).

Parental occupation. Respondents were asked to write down the title and the main tasks/duties of their father's and mother's occupations when respondents were 14 years of age. This information was then coded to the *2006 Australian and New Zealand Standard Classification of Occupations* (ANZSCO) in the HILDA Survey. I use the father's and mother's occupational codes to create two dummy variables indicating whether each parent worked in a managerial/professional occupation. I then combine these two dummy variables and create a categorical variable indicating the number of parents in managerial/professional occupations (0, 1 or 2).

Parental occupational status. Measures of paternal and maternal occupational status based on the *Australian Socioeconomic Index 2006* (McMillan, Beavis & Jones, 2009) are available in the HILDA Survey. Scores in this classification range from 0 (lowest status) to 100 (highest status). I create a continuous variable that captures the mean occupational status of the respondent's father and mother. If only one parent has an occupation, the score of this occupation is used to represent parental occupational status.

4.5.5 Children's major life events

To assess the patterns of parental wealth transfers at children's major life events by family background, I choose the following candidate events during which transfers likely differ. Existing studies on the effect of life events on parental transfers have used some of these events, including childbirth, marriage and university enrolment (Cooney & Uhlenberg, 1992; Leopold & Schneider, 2011), and have found that these life events are associated with increases in the probability of receiving parental transfers. Given the surge of property prices in Australia, however, it is increasingly difficult for young people to purchase a property without financial assistance from parents. Parental transfers therefore provide financial means that enable property purchases, more so for young adults from affluent families. Additionally, parental monetary transfers may also be associated with children's adverse financial circumstances such as lack of financial prosperity, worsening financial conditions, material deprivation and income poverty, simply because parental transfers are the quickest and most efficient way of relieving the financial pressure of adult children.

Childbirth. This is a dummy variable taking the value one if there is an increase in the total number of children the respondent ever had between years *t* and *t-1*, and the value zero otherwise.

Getting married. This is a dummy variable coded to one if the respondent's marital status changes to 'married' from some other status (never married, cohabiting, divorced, separated, widowed) between years t and $t-1$, and coded zero otherwise.

Buying a property. HILDA Survey respondents were asked whether they own the property they live in, rent it, or live there rent free. I create a dummy variable taking the value one if the respondent becomes a home owner between years t and $t-1$, and the value zero otherwise.

Being a full-time student. This is a dummy variable taking the value one if the respondent is engaged in full-time studies at the time of interview, and the value zero otherwise.

Lack of financial prosperity. HILDA Survey data on financial prosperity come from a survey question asking respondents: *"Given your current needs and financial responsibilities, would you say that you and your family are: (i) prosperous; (ii) very comfortable; (iii) reasonably comfortable; (iv) just getting along; (v) poor; or (vi) very poor"*. Using this information, I create a dummy variable taking the value one if the respondent considers his/her financial situation to be 'poor' or 'very poor', and the value zero otherwise.

Financial worsening. This is a dummy variable taking the value one if the respondent reports experiencing a major worsening in his/her financial situation over the past 12 months, and the value zero otherwise. This information comes from a HILDA Survey question asking *"Did any of these happen to you in the past 12 months—Major worsening in financial situation (e.g., went bankrupt)?"*.

Material deprivation. This is a dummy variable coded to one if respondents reported experiencing any of the following circumstances in the past year because of a shortage of money: (i) could not pay electricity, gas or telephone bills on time, (ii) could not pay the mortgage or rent on time, (iii) pawned or sold something, (iv) went without meals, (v) was unable to heat home, (vi) asked for financial help from friends or family, or (vii) asked for help from welfare/community organisations.

Income poverty. Respondents are considered to be income poor if their equivalised gross annual household income is below 60% of the sample median (McLachlan, Gilfillan & Gordon, 2013).

I also construct and use in my models lags of the dummy variables for the life events of childbirth, getting married and buying a property. These indicate whether the event was observed to occur between time $t-2$ and time $t-1$, and are used to capture parental wealth transfers made in anticipation of a foreseeable event.

4.5.6 Control variables

In assessing the effect of family background and life events on the probability and amount of parental wealth transfers, I control for a set of 'child' characteristics (i.e. characteristics of the respondents) that may act as cofounders. These include respondents' gender, age, marital status (partnered; divorced, separate or widowed; never partnered), employment status (employed; unemployed; not in the labour force), country of birth (Australia; main English-speaking country; other) [23], disability[24], OECD equivalised household income, expressed in AU$10,000s and adjusted for inflation to 2015 prices using annual Consumer Price Index rates[25], number of dependent children[26], number of siblings, number of co-residing parents (0, 1 or 2), and survey wave (1-15).

4.6 Methods

4.6.1 Random-effect Heckman selection model

To test my hypotheses, I use Heckman selection models estimated using panel data. This model is needed to jointly estimate the probability and the amount of transfers children receive over the observation window. In doing so, I make an important methodological contribution to the study of intergenerational wealth transfers. The majority of literature uses standard cross-sectional logit models to estimate the probability of receiving parental wealth transfers and linear regression models (e.g. OLS or tobit models) to estimate the transfer amount. Doing so results in two methodological issues.

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[23] The main English-speaking countries are the United Kingdom, Ireland, New Zealand, Canada, the United States and South Africa (ABS, 2011).

[24] Disability information comes from a question asking respondents: *"Do you have any long-term health condition, impairment or disability that restricts you in your everyday activities, and has lasted or is likely to last, for 6 months or more?"*.

[25] The equivalence scale here uses the square-root scale, which divides household income by the square root of household size (OECD, 2013).

[26] Dependent children are defined as persons under 15 years of age, or persons aged 15-24 who are *"engaged in full-time study, not employed full-time, living with one or both parents, not living with a partner, and who does not have a resident child of their own"* (Wilkins, 2015: 14).

The first issue relates to the use of cross-sectional data, as it assumes that the relationship between child characteristics and parental wealth transfers is contemporaneous. Nevertheless, it is of critical value to look at the pattern of parental wealth transfers receiving over time. This is because parental transfers can be time-sensitive: children who receive large amount of parental transfers in one year due to significant life events (such as getting married or buying a property) may not receive the same amount in another year; parents may give an equal chance of providing wealth transfers to all children, resulting in some sibling members receiving parental transfers in one year while other sibling members receiving parental transfers in another year. Given this, using cross-sectional data of parental transfers only captures transfer receiving at one time point, and masks the underlying dynamics of parental transfers.

The second issue relates to separating the analyses on the probability and amount of parental wealth transfers, as it assumes that the two processes are independent. Such assumption, however, is too stringent for two reasons. First, it is likely that children who receive more money come from better-off families, and so are also more likely to receive parental transfers. Therefore, unobserved heterogeneity is correlated with both the probability and the amount of transfers. Failure to capture this correlation in the two processes is likely to lead to biased estimates in both models (Berry, 2006; Heckman, 1979). The direction of bias, however, is not clear, because the bias in the transfer amount equation can go either upward or downward[27]. For example, if excluding observations with missing transfer amount results in children from well-off families being overly representative, the effect of family background would be overestimated. Conversely, if children from adverse family background are overly represented after excluding observations with missing transfer amount, the effect of family background would be underestimated. Hence, determining which of these scenarios hold remains a question to be addressed empirically. Second, only children who are "selected" to receive parental transfers reported the amount of transfers received. In other words, the amount of parental transfers is contingent upon having received transfers. The conditionality of transfer amount indicates that modelling the amount of parental transfers without taking into account the probability of receiving transfers may result in biased estimates in the amount equation.

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[27] The bias would most likely occur in the transfer amount equation, as the selection equation always uses the full sample, regardless of whether the transfer amount equation is jointly estimated or not.

To account for this correlation and address these sources of selection bias, the models for the probability and the amount of parental transfers need to be estimated jointly. Heckman selection models are a widely used tool to jointly model the selection and outcome processes (Heckman, 1979).

A handful of studies on parental wealth transfers used this model to jointly estimate (i) the probability and amount of transfers (Berry, 2006), or (ii) the probability of co-residence and the probability of making financial transfers (conditional on children not co-residing with parents) (Albertini & Kohli, 2013).[28] These studies, however, use cross-sectional data. When panel data are used (see Berry, 2008 and Rosenzweig and Wolpin, 1993), processes of transfer amount/probability are treated as independent, which as explained before is problematic.

I improve upon these studies by applying Heckman selection models to panel data. This is done by adding random effects to the models, thereby capturing the nested structure of the data (multiple observations nested within individuals). The random-effect Heckman selection model has two important advantages over the standard panel regression models and the (cross-sectional) Heckman selection model. First, it allows me to examine changes in parental wealth transfers received over time, avoids transitory fluctuations associated with parental transfers received due to children's major life events, and improves efficiency in the estimation. Second, it models the probability and amount of parental transfers jointly even after accounting for the panel structure of the data, thus addressing the correlated residuals and avoiding selection bias.[29]

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[28] Other studies use alternative methods to account for the correlated residuals that may underlie the system of equations of interest. Nordblom and Ohlsson (2011) use the trivariate probit model to predict the probabilities of receiving university education, *inter vivos* transfers and inheritances. Attias-Donfut, Ogg and Wolf (2005) apply the Geweke–Hajivassiliou–Keane simulation method to estimating the probabilities of giving and receiving financial and time transfers, specifying the residuals of these models to follow a multivariate normal distribution. Spilerman and Wolff (2012) jointly estimate the impact of gift/bequest transfers on the proportion of down payment (ordered probit) and the housing value (OLS) using a maximum likelihood algorithm with numerical integration of the residuals from the statistical package aML.

[29] While there have been a number of econometric solutions to estimating selection models in the context of panel data (Hsiao, 2003; Kyriazidou, 1997; Wooldridge, 1995), their applications remained difficult, chiefly because standard statistical packages did not allow for these. From its 13th version, these models can be fit in Stata's software via its generalised structural equation

4.6.2 Statistical methods

Let me denote $\ln(G_{it})$ as the logarithmic transformation of the transfer amount G_{it} individual i received at wave t, D_{it} as the binary outcome of having received parental transfers for individual i at wave t, and y_{it}^* as the latent continuous variable that determines the outcome D_{it}. I have:

$$\ln(G_{it})\,|_{D_{it}=1} = \boldsymbol{X_{it}\beta} + u_i + \varepsilon_{it}, \text{ and missing otherwise} \tag{4.1}$$

$$y_{it}^* = \boldsymbol{Z_{it}\gamma} + v_i + e_{it} > 0 \tag{4.2}$$

Equations (4.1) and (4.2) need to be estimated jointly, as the error term of the probability of receiving parental transfers and the error term of the transfer amount are likely correlated. In the context of panel data, I fit the Heckman selection model using generalised structural equation modelling (GSEM) by adding random effects at level two (i.e. the individual level) (StataCorp, 2013). The coefficients of interest, i.e. $\boldsymbol{\beta}$ and $\boldsymbol{\gamma}$ can then be transformed from the corresponding GSEM $\boldsymbol{\beta}^*$ and $\boldsymbol{\gamma}^*$ in the output by $\boldsymbol{\beta} = \boldsymbol{\beta}^*$ and $\boldsymbol{\gamma} = \boldsymbol{\gamma}^*/\sqrt{\sigma^{2^*} + \tilde{\sigma}^{2^*} + 1}$, where σ^{2^*} is the GSEM output for the error variance in the transfer probability model and $\tilde{\sigma}^{2^*}$ is the GSEM output for the variance of the random effects. The coefficients $\boldsymbol{\beta}$ can be interpreted as the percentage changes in parental transfers associated with a one-unit increase in $\boldsymbol{X_{it}}$, and the coefficients $\boldsymbol{\gamma}$ can be interpreted as the change in the log of odds of receiving over not receiving parental transfers associated with a one-unit increase in $\boldsymbol{Z_{it}}$. In the results, I will present the transformed coefficients in the amount equation (i.e. $\boldsymbol{\beta}$), and the odds ratios of the transformed coefficients in the probability equation (i.e. $\boldsymbol{\gamma}$).

To correctly identify the system of equations, it is advised that $\boldsymbol{X_{it}}$ be a subset of $\boldsymbol{Z_{it}}$ (for detailed discussions, see Wooldridge, 2009; Wooldridge, 2010). The analyses show that, for models involving the overall effect of parental background (section 4.7.2) and parental transfers at children's major life events (section 4.7.4), the quadratic term of age is significant only in the probability equation. Therefore, I use this in the selection equation to meet the requirement of exclusion restriction. Similarly, for models examining the life-

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modelling routine (Statacorp, 2013). This simplifies the task of estimating Heckman selection models using panel data.

course patterns of parental transfers (section 4.7.3), the cubic term of age serves as the variable "excluded" from the amount equation.

4.6.3 Analytical approach

I begin with descriptive analyses of the probability and amount of parental wealth transfers. I then fit a series of random-effect Heckman selection models, introducing different indicators of family background. To examine the life-course patterns of parental transfers by parental SES, I model the probability and amount of parental transfers as a function of higher-order age polynomials. I test the robustness of the differences in the predicted probability and amount of parental transfers across SES families by including different sets of controls. To further my discussions on the different patterns of parental transfers by parental SES over children's life course, I explore how parental transfers differ at children's major life events by parental SES. In all models that separate respondents by parental SES, I use parental occupation (managerial/professional vs other occupations) as the proxy of SES: low SES families are families in which neither parents are in managerial/professional occupations; families in which one parent is in managerial/professional occupation are middle SES families; and children are from high SES families if both parents are in managerial/professional occupations. To ease comparisons, I combine middle and high SES families and contrast these families with low SES families in subsequent analyses of the life-course patterns of parental transfers.

4.7 Results

4.7.1 Descriptive statistics

Figure 4-1 reports the unconditional probabilities, mean and median amount of parental wealth transfers received over the observation window. I find that while both the probability and the amount of parental transfers fluctuate from 2001 to 2015, there is an overall increase in the probability of receiving parental transfers over time. 5.3% of respondents aged 18-40 in 2001 received transfers from parents, and by 2015 this figure increased to 10.4%. The mean amount of parental transfers varies to a greater extent compared to the probability of parental transfers, and the overall mean transfers remain stable over time. The lowest amount appears in 2004 ($4,926), whereas the highest amount shows in 2003 ($9,222). The over-time average of the probability and amount of

parental transfers is 8.3% and $7,215, respectively. The median amount of parental transfers, however, stays around $2,000 over the 15 years. Summary statistics of the analytical variables can be found in Table A4-1 in the Appendices.
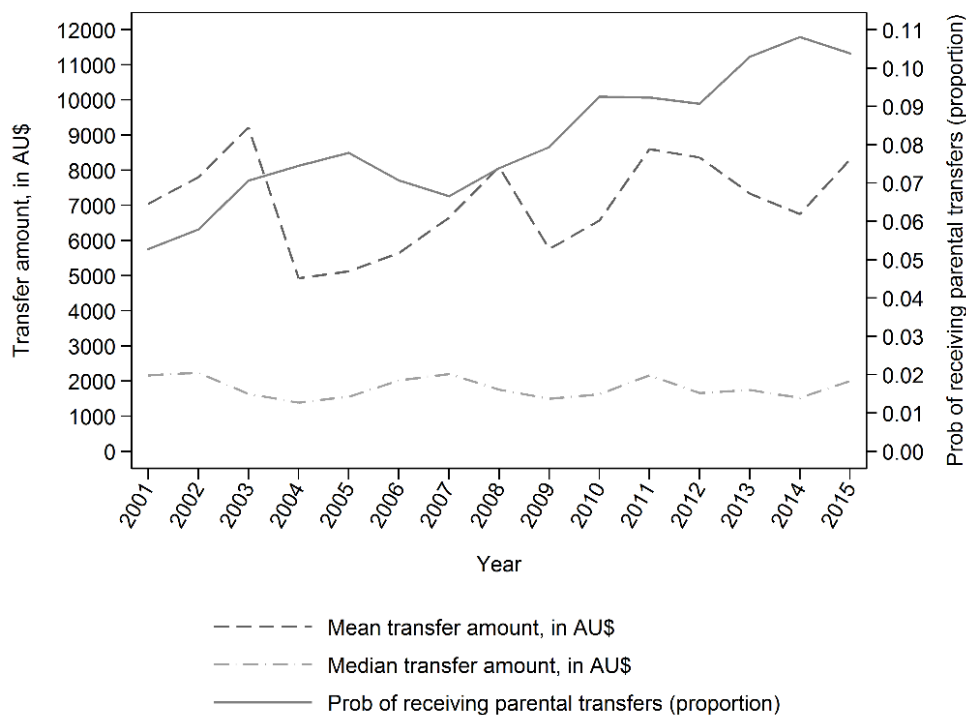
Figure 4-1 Probability and amount of parental wealth transfers, by year

Notes: HILDA Survey, 2001-2015. Mean and median transfer amounts do not include zero transfers. All figures are adjusted for inflation to 2015 prices using CPI.

Disaggregating the full sample by family background reveals that there are clear disparities in the probability and amount of parental wealth transfers by parental SES (Figure 4-2). Children born to low SES families are not only less likely to receive parental transfers (6%), but also receive much less money (mean amount of $4,789 and median amount of $1,224), than children born to middle SES families (9%, mean amount of $8,172 as well as median amount of $1,680) and high SES families (15%, mean amount of $9,039 as well as median amount of $2,304). On average, children from high SES families are 42% more likely to receive money, and receive 88% more money when they do, than their peers from low SES families. The gaps in the probability and amount of parental transfers between low and middle/high SES families are statistically significant. Descriptive statistics on the demographic characteristics of the adult children by parental SES can be found in Table A4-2 in the Appendices.

Figure 4-2 Probability and amount of parental wealth transfers, by parental SES

Notes: HILDA Survey, 2001-2015. 95% confidence intervals are reported. Mean and median transfer amounts do not include zero transfers. All figures are adjusted for inflation to 2015 prices using CPI.

4.7.2 Family background and parental wealth transfers

To examine the overall effect of family background on the probability and amount of receiving parental transfers, I fit a series of random-effect Heckman selection models, controlling for various child characteristics as outlined before.[30] I enter parental labour force characteristics in separate models to avoid collinearity (Table 4-1). Full model output can be found in Table A4-4 in the Appendices.

I find that all else being equal, children from intact families (i.e. parents never divorced or separated) are significantly more likely to receive parental transfers (odds ratio [OR] =1.16, $p<0.001$), and receive 24% more money ($\beta=0.24$, $p<0.01$), than children from families in which parents experienced union dissolution. Parental employment status positively predicts the probability of parental transfers ($OR_{one}=1.34$, $OR_{both}=1.48$, $p<0.001$), and children receive 47%-50% more money if at least one parent is employed ($\beta_{one}=0.47$, $\beta_{both}=0.50$, $p<0.01$). Transfer receiving is more likely (OR=1.22, $p<0.001$), and transfer

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[30] I present in Table A4-3 in the Appendices the results of the baseline model with control variables only.

amount is 36% higher ($\beta=0.36$, $p<0.001$), if fathers were never unemployed for 6 months or longer. Not surprisingly, parental education and occupation significantly raise the likelihood and magnitude of parental transfers. The odds of receiving parental transfers are significantly higher if at least one parent has a university degree ($OR_{one}=1.30$, $OR_{both}=1.63$, $p<0.001$), or is in a managerial/professional occupation ($OR_{one}=1.25$, $OR_{both}=1.58$, $p<0.001$). Children receive 21%-43% more money if they are born to parents with one or both university degrees ($\beta_{one}=0.21$, $\beta_{both}=0.43$, $p<0.001$), and 22%-53% more if they are born to parents with one or both in managerial/professional occupations ($\beta_{one}=0.22$, $\beta_{both}=0.53$, $p<0.001$). Similarly, parental occupational status score significantly increases the odds of parental transfers ($OR=1.01$, $p<0.001$). A 10-unit increase in parental occupational status score is associated with a 10% increase in the magnitude of parental transfers received ($\beta=0.01$, $p<0.001$).

Table 4-1 Random-effect Heckman selection models of the effect of family background on parental wealth transfers

Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	S	A	S	A	S	A	S	A	S	A	S	A
Parents ever divorced/separated												
Yes *(reference)*												
No	0.15***	0.24**	0.14***	0.23**	0.13***	0.21*	0.14***	0.22*	0.15***	0.23**	0.12***	0.21*
# parents employed												
0 *(reference)*												
1			0.29***	0.47**								
2			0.39***	0.50**								
Father ever unemployed over 6 months												
Yes *(reference)*												
No					0.20***	0.36***						
# parents with university degree												
0 *(reference)*												
1							0.26***	0.21***				
2							0.49***	0.43***				
# parents in managerial/professional occupation												
0 *(reference)*												
1									0.22***	0.22***		
2									0.46***	0.53***		
Parental mean occupational status											0.01***	0.01***
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N (observations)	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*83,677*	*83,677*

N (individuals)	16,628	16,628	16,628	16,628	16,628	16,628	16,628	16,628	16,628	16,628	15,967	15,967
AIC / BIC	62,715 / 63,118		62,634 / 63,094		62,602 / 63,043		62,380 / 62,839		62,334 / 62,794		60,125 / 60,545	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Control variables in all models include respondent's gender, age, marital status, employment status, country of birth, disability, OECD-equivalised household income, number of dependent children, number of siblings, number of co-residing parents, and survey wave. Parental employment status and occupation are measured when the respondent was 14 years of age. The coefficients on the dummy variables capturing missing information are omitted for readability. Significance levels: [*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$.

4.7.3 Life-course patterns of parental wealth transfers by parental SES

While I have established that parental SES (using various measures of the labour force characteristics of the parents) is strongly and positively associated with the probability and amount of parental wealth transfers, it remains unclear how parental transfers change over individuals' life course and how the life-course patterns of parental transfers differ by parental SES. To examine these, I model the probability and amount of parental transfers as a function of children's age. To ease comparisons, I combine the middle and high SES samples and contrast this sample to the sample of low SES. I first determine the best functional form of age effect for the sample of low SES (cubic in the selection equation and quadratic in the amount equation) and for the sample of middle/high SES (quadratic in both the selection and amount equations). I then fit the random-effect Heckman selection models by adding the interaction terms of parental SES with age polynomials, and calculate the predicted probability and amount of parental transfers by SES as well as their differences across the two SES groups.

Model results are reported in Figure 4-3. The top-left graph compares across middle/high and low SES families the predicted probabilities of parental transfers over children's age of 18-40. It gives the predicted probabilities for each SES group. The top-right graph is the difference across middle/high and low SES families in the predicted probabilities of parental transfers over the same (children's) age range. It provides a more straightforward approach to identify whether differences in the predicted probabilities across SES groups are significantly different from 0. Likewise, the bottom-left graph compares across middle/high and low SES families the predicted amount of parental transfers over children's age of 18-40. The bottom-right graph is the difference across middle/high and low SES families in the predicted amount of parental transfers over the same (children's) age range.

I find significant differences in the life-cycle patterns of parental transfers by parental SES. The predicted probabilities of parental transfers decrease as children age, with children from middle/high SES families 7 times more likely to receive parental transfers before 20 than after 35 and children from low SES families 6 times more likely. This is consistent with findings in Cooney and Uhlenberg (1992). [31] However, the gradient

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[31] The findings of a decline in the probability of receiving parental transfers as children age could be due to selection bias if parents who give more to children are older on average than parents

of the decreases is sharper before age 28, and becomes smooth thereafter. The sharp decline in the predicted probabilities may reflect the fact that children enter the labour market and become wage earners themselves, thus parental transfers become less frequent and probable. The predicted probabilities are consistently higher for the middle/high SES group than for the low SES group over children's life course. Although the two trends of probability converge after age 30, the gap remains statistically significant. Similarly, children from middle/high SES families receive more money over their life course than their counterparts from low SES families. The shapes of the trends in transfer amount, however, differ from the shapes of the trends in the probability of parental transfers. The gap in transfer amount is small before age 20, and widens thereafter until it peaks at age 29. After this age point, the difference in transfer amount declines and becomes statistically insignificant after age 38.
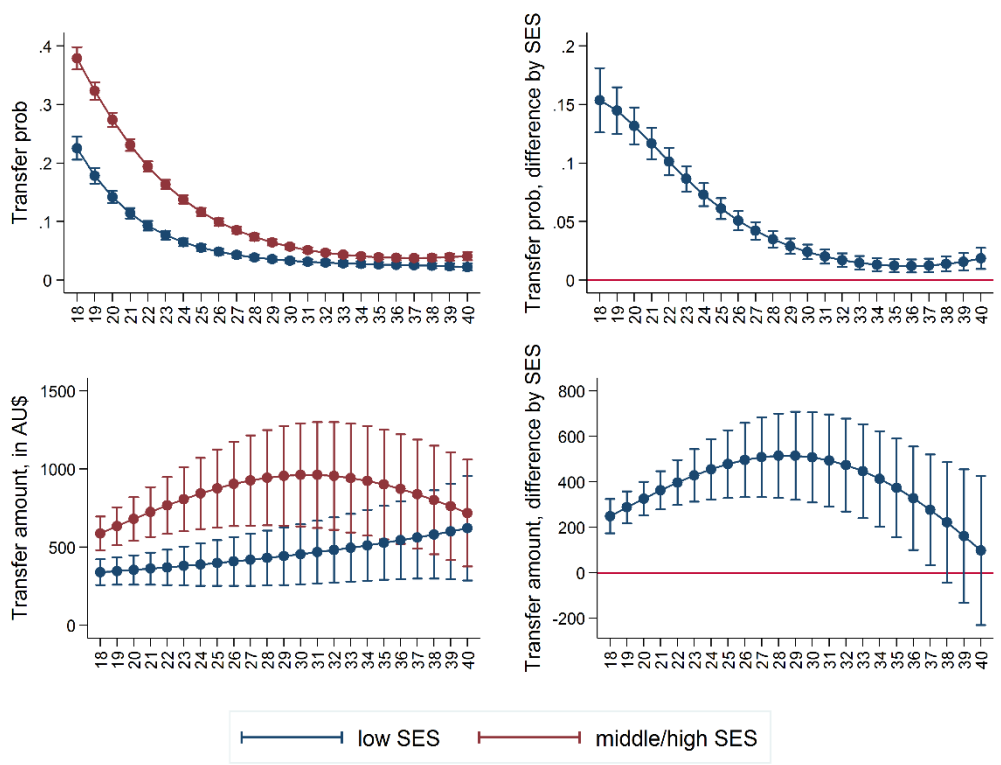
Figure 4-3 Life-course patterns of parental wealth transfers, by parental SES

Notes: HILDA Survey, 2001-2015. 95% confidence intervals are reported. Age polynomials and their interactions with parental SES are included in the models. The graphs in the first row are

who do not, and older parents are more likely to have deceased than younger parents. Additionally, children's age effect could reflect a parental age effect. Older children have older parents who have more limited capacity to give as they transition from paid work to retirement incomes.

marginal effects of the probability of receiving parental transfers, and the graphs in the second row are marginal effects of the amount of parental transfers received. The best functional forms of the age effect are fitted for both the low and the middle/high SES groups: for the low SES group, the best functional forms of the age effect are cubic in the selection equation and quadratic in the amount equation. For the middle/high SES group, the best functional forms of the age effect are quadratic in both the selection and amount equations.

I conduct a number of additional analyses to examine whether the patterns in the probability and amount of parental transfers between low and middle/high SES families persist after accounting for various child characteristics. I do so by adding different permutations of covariates in the models and test whether the gaps in the predicted probability and amount of parental transfers narrow or widen as a result. I first estimate a random-effect Heckman selection model with age polynomials only, then add a set of variables that represent pre-determined child characteristics, including gender, country of birth, number of siblings and survey wave. In the third model, I add a new set of covariates related to children's earnings potential, i.e. education, employment status, OECD-equivalised household income and disability. In the fourth model, I replace the variables related to children's earnings potential with another set of covariates pertaining to respondents' family structure, including marital status and number of dependent children. I then again replace these variables with number of co-residing parents to assess if the presence of co-residing parents would lead to changes in the differences in transfer patterns across the SES groups. Finally, I add back all the aforementioned covariates.

I find that different model specifications do not substantially change the gaps in the probability and amount of parental transfers by parental SES over children's life course (Figure 4-4). This is demonstrated by the overlapping confidence intervals of the gaps using different specifications in both Figures. The gaps in the probability of receiving parental transfers by SES remain significantly different from 0 for all models (left panel in Figure 4-4). While the shape of the differences in transfer amount by SES changes slightly as all covariates enter the model (right panel in Figure 4-4), all model specifications yield more or less the same outcomes: the difference in transfer amount by SES increases as children age, peaks in children's late 20s, and declines afterwards. This difference becomes statistically insignificant after age 38. Overall, these results suggest that the life-course patterns of parental wealth transfers across different SES families exist and cannot be explained away by child characteristics.
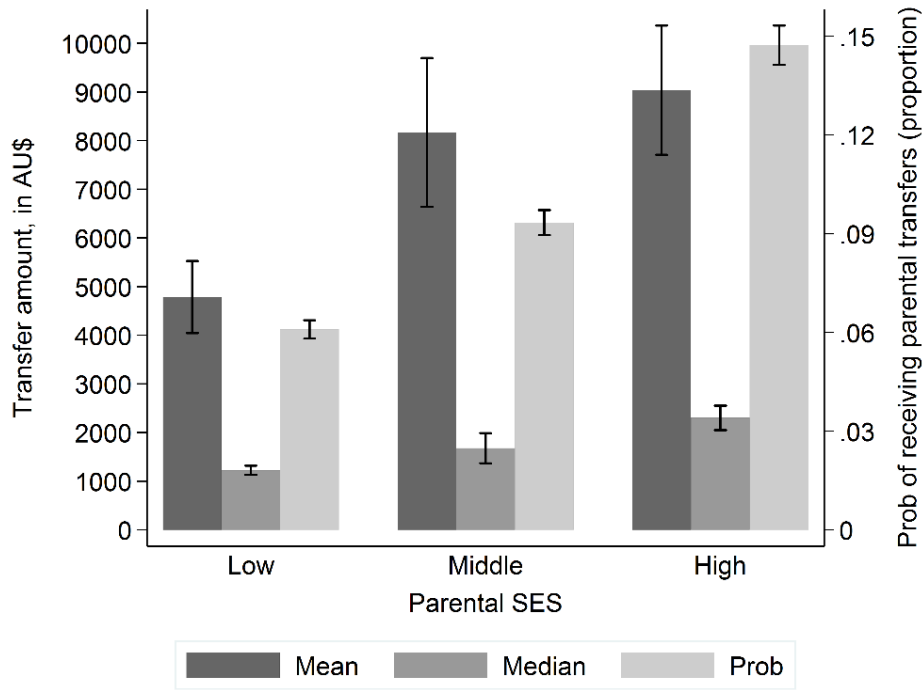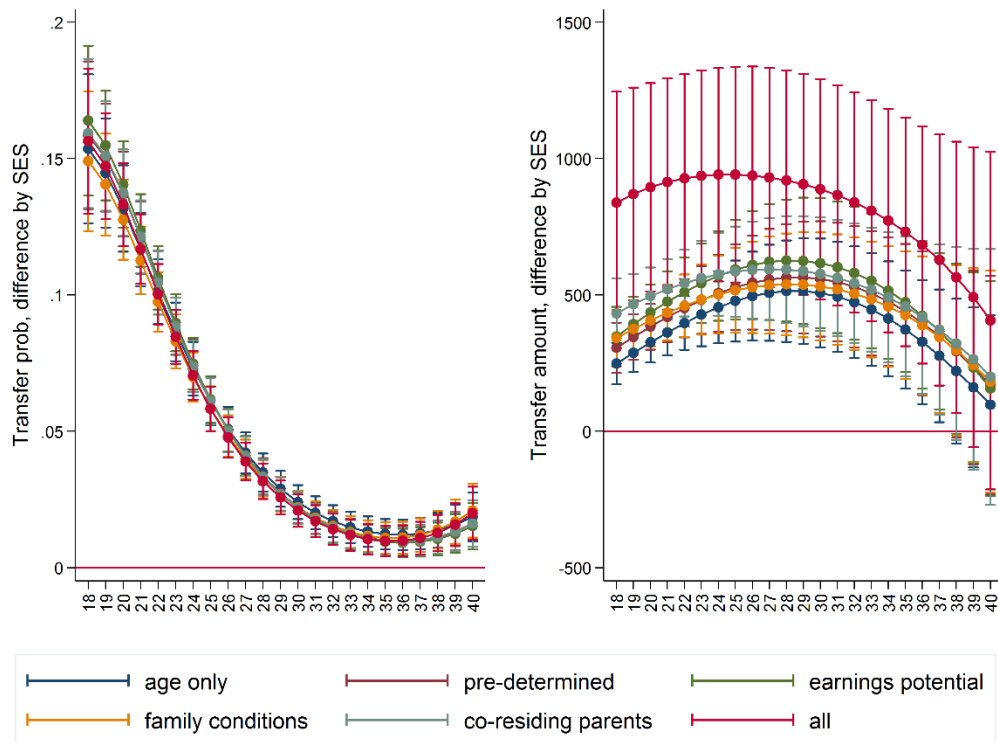
Figure 4-4 Differences in the probability and amount of parental wealth transfers, by parental SES

Notes: HILDA Survey, 2001-2015. 95% confidence intervals are reported. Six models with different sets of covariates are fitted and marginal effects are presented. The covariates in the first model (age only) include age polynomials only. The covariates in the second model (pre-determined child characteristics) include age polynomials, gender, country of birth, number of siblings and survey wave. The covariates in the third model (earnings potential) include age polynomials, gender, country of birth, number of siblings, survey wave, education, employment status, OECD-equivalised household income and disability. The covariates in the fourth model (family conditions) include age polynomials, gender, country of birth, number of siblings, survey wave, marital status and number of dependent children. The covariates in the fifth model (co-residing parents) include age polynomials, gender, country of birth, number of siblings, survey wave, and number of co-residing parents. The final model includes all of these covariates.

4.7.4 Parental wealth transfers at children's major life events by parental SES

In this section, I look specifically at the patterns of parental wealth transfers at major life events of children born to different SES families. This is important because while parental transfers exhibit different life-course patterns by parental SES overall, the patterns of parental transfers may diverge even further when it comes to children's life

circumstances. The analyses are based on the following life events: childbirth, getting married, buying a property, being a full-time student, lack of financial prosperity, financial worsening, material deprivation, and income poverty.

Existing studies have found that childbirth, marriage and university enrolment are associated with increased probability of receiving parental transfers (Cooney & Uhlenberg, 1992; Leopold & Schneider, 2011). Since property purchase is another important life decision that involves large volume of money and young adults do not have enough savings, parental financial support in the form of financial transfers is often involved, particularly for the downpayment (Angelini, Laferrère & Weber, 2013). Such support may be more pronounced in high than low SES families because of the differences in the capacity of giving. Additionally, parental transfers may also be associated with children's adverse financial circumstances, because monetary transfers serve as direct ease for children's financial stress.

I find that the patterns of parental wealth transfers are similar when respondents experience childbirth, marriage, being a full-time student, material deprivation, lack of financial prosperity and income poverty (Table 4-2, full model output can be found in Tables A4-5 to A4-12 in the Appendices). The event of having children has no significant effect on the likelihood and magnitude of parental transfers for both low and middle/high SES families. This finding is consistent with Leopold and Schneider (2011). One possible explanation is that parents are more likely to be involved in care and purchasing maternity items than direct monetary transfers. Parental transfers are more prevalent for both SES groups, however, when children get married. The odds of receiving parental transfers are higher in the year of marriage for the low (OR=1.21, p<0.05) and middle/high (OR=1.23, p<0.001) SES families, and higher in the year before marriage for the middle/high SES group only (OR=1.13, p<0.05). Children born to low SES parents receive 57% more money in the year before marriage (β=0.57, p<0.05), and 81% more in the year of marriage (β=0.81, p<0.001). Likewise, children born to middle/high SES parents receive 35% more money in the year before marriage (β=0.35, p<0.01), and 90% more in the year of marriage (β=0.90, p<0.001). Being a full-time student is associated with higher odds of receiving parental transfers for children in both SES groups (OR=1.45, p<0.001), and with 41% more parental transfers in low SES families as well as 33% more parental transfers in middle/high SES families. Material deprivation significantly raises the odds of receiving parental transfers for both SES groups (OR$_{low}$=1.22, OR$_{middle/high}$=1.27, p<0.001), although the effect is not significant for transfer amount. Similar to childbirth, lack of financial

prosperity and income poverty have no effect on the probability and amount of parental transfers.

The patterns of parental transfers diverge notably when it comes to buying a property and financial worsening, with parental transfers more likely and involving larger volume of money in middle/high SES families. While purchasing properties has no effect on the probability and amount of parental transfers in low SES families, the effect is significant in the year of purchase for middle/high SES families. The odds of transfer receiving is significantly higher (OR=1.14, p<0.01), and the transfer amount increases by 80% (β=0.80, p<0.001) in the year of buying a property. I interpret these as suggesting that middle/high SES parents simply have the capacity to help with large purchases. When children born to middle/high SES families experience worsening finance, they are more likely to receive parental transfers (OR=1.22, p<0.001), whereas the effect is not significant in low SES families.

Table 4-2 Random-effect Heckman selection models of the effect of children's major life events on parental wealth transfers by parental SES

Variables	Low SES		Middle/High SES	
	S	A	S	A
Panel 1				
Childbirth	-0.08	-0.03	-0.01	0.09
Childbirth: year before	-0.08	-0.35	-0.02	-0.02
Panel 2				
Getting married	0.19*	0.81***	0.21***	0.90***
Getting married: year before	-0.01	0.57*	0.12*	0.35**
Panel 3				
Buying a property	0.10	0.29	0.13**	0.80***
Buying a property: year before	0.03	0.35	0.01	-0.03
Panel 4				
Being a full-time student	0.37***	0.41***	0.37***	0.33***
Panel 5				
Lack of financial prosperity [a]	0.04	0.06	0.10	-0.08
Panel 6				
Financial worsening [a]	0.08	0.25	0.20***	0.05
Panel 7				
Material deprivation [a]	0.20***	0.06	0.24***	0.07

Panel 8

Income poverty	0.00	0.07	0.04	-0.05
Controls	Y	Y	Y	Y
N (observations)	*28,387*	*28,387*	*35,811*	*35,811*
N (individuals)	*5,534*	*5,534*	*6,833*	*6,833*

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Each panel represents a separate set of two models by parental SES. Control variables in all models include respondent's gender, age, marital status, employment status, country of birth, disability, OECD-equivalised household income, number of dependent children, number of siblings, number of co-residing parents, and survey wave. [a] The coefficients on the dummy variables capturing missing information are omitted for readability. Significance levels: [*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$.

4.8 Discussion and conclusion

4.8.1 Summary of aims, contributions and key findings

The objectives of this chapter are (i) provide first-time empirical evidence on the effect of family background on the probability and amount of parental wealth transfers in Australia, (ii) pioneer the application of random-effect Heckman selection model to the analysis of parental wealth transfers, and (iii) examine how patterns of parental wealth transfers over children's life course differ by parental SES for the first time in wealth transfer literature in Australia. In doing so, I contribute to the literature of intergenerational transmission of advantage (i) methodologically, by applying Heckman selection model to the panel data, thereby taking into account the inter-dependence of the probability and amount of parental transfers, avoiding selection bias, and capturing the underlying dynamics of parental transfers, and (ii) substantively, by using a life-course approach to better understand the different patterns of parental wealth transfers among children born to different family background, thereby shedding some lights on one important mechanism through which social and economic advantages transmit across generations.

I find an overall increase in the probability of receiving parental wealth transfers over time, while the amount of transfers received remain stable. On average, children from high SES families are 42% more likely to receive money, and receive 89% more money when they do, than their peers from low SES families. Random-effect Heckman selection models indicate that children are more likely to receive parental transfers, and receive larger amount of parental transfers, if their parents never divorced or separate, and if their

fathers were never unemployed for 6 months or longer. Parental employment status, education and occupation also positively predict the likelihood and magnitude of parental transfers. Therefore, I find robust evidence that parental socioeconomic resources and union history are positively associated with the probability and amount of parental wealth transfers.

Parental wealth transfers exhibit different life-cycle patterns by parental SES. The predicted probabilities and amount of parental transfers are consistently higher for the middle/high SES group than for the low SES group over children's life course. The gap in the likelihood of receiving parental transfers narrows as children age, while the gap in the amount of parental transfers exhibits an inverse "U" shape with respect to children's age: the difference in transfer amount increases and peaks in children's early 30s, and declines afterwards. These life-course patterns are robust to various model specifications.

The patterns of parental wealth transfers by parental SES are similar at the events of childbirth, marriage, being a full-time student, material deprivation, lack of financial prosperity and income poverty. Marriage is significantly associated with higher likelihood and magnitude of parental transfers for both SES groups, whilst material deprivation significantly increases the odds of receiving parental transfers. On the contrary, purchasing a property positively predicts the probability and amount of parental transfers for the middle/high SES group only, and financial worsening is related to higher odds of parental transfers for children born to middle/high SES families only. These findings suggest that patterns of parental wealth transfers show similarities and differences depending on specific life events of the children.

4.8.2 Implications for research and practice

The findings of the divergent life-course patterns of parental transfers point towards an important mechanism of intergenerational transmission of advantage. The reproduction of socioeconomic statuses across generations persists not only because high SES parents invest more on children over their life course, but also because they invest more regularly over the early adult years, and invest particularly at children's major life events. This has important implications for research and practice. Parental wealth transfers provide a significant head start that enables children of high SES parents to advance more quickly than their peers from low SES families. Further research could consider whether and how such differences in parental wealth transfers may be associated with sustained gaps in

children's cognitive and non-cognitive skills, social and economic statuses, health and subjective wellbeing. The sizes of these associations may have important policy implications, because if there exist substantial associations between gaps in parental wealth transfers and in children's skills, statuses and wellbeing, policy interventions using targeted, compensatory public transfers would provide real impact on mitigating such gaps and creating equal chance for children from adverse family background.

4.8.3 Limitations and future research

Despite my theoretical and methodological contributions to the intergenerational wealth transfer literature, some limitations of this study must be acknowledged. First, I lack critical information on parental income and wealth, which are arguably better measures of parental background. As a result, using parental union history and labour force characteristics to predict parental wealth transfers, this chapter remains largely exploratory and lacks systematic development and testing of substantive hypotheses. This could have been addressed if parental income and wealth were observed in the data. For example, the correlation between parental wealth transfers and parental income/wealth offers an important tool of assessing the role family background plays in child investment. These data will also enable me to calculate the fraction of parental transfers over parental income and wealth, thereby providing new insights into the generosity of parents. Future research aiming to peruse these data will be possible by matching parent-child dyads across the entire age distribution (to avoid the potential life-cycle bias associated with young dyads) as the HILDA Survey continues to mature.

Second, some of my data on family background are retrospective reports of parental statuses (i.e. employment and occupation) when respondents were 14 years of age, and this may have ramifications on the precision of my analyses. It is understood that retrospective reports of parental characteristics are more noisy measures of status than those directly observed, as they are susceptible to measurement errors (Huang, Perales & Western, 2016a; Huang, Perales & Western, 2016b). Additionally, these data only capture parental characteristics at one time point, whereas parental wealth transfers are dynamic. Hence, my results need to be interpreted with care. Future research could use other data sources that directly observe parental characteristics in the years in which parental transfers are made.

Third, the probability and amount of parental wealth transfers are found to vary with children's age, but children's age effect may as well reflect parental age effect. Older children have older parents who may have limited capacity to give as they transition from paid work to retirement income. Another possibility that older children are less likely to receive parental wealth transfers is that their parents are older than parents of young children, and hence more likely to have deceased. The HILDA Survey only collects information on parents' decease status in waves 8 and 12, resulting in unknown decease status of parents in other waves. Consequently, this is not controlled for in the analyses. Future research using the HILDA Survey data could capture the decease of one parent by matching parents with children in the panel as more data of the HILDA Survey become available.

Finally, a promising avenue for future research on parental wealth transfers is to study the impact of parental wealth transfers on economic wellbeing, quality of life, standard of living and socioeconomic achievement of adult children. Data from the HILDA Survey will enable the examination of the ways in which such transfers at different time points of children's early life can affect the wellbeing and success in children's later life.

Chapter 5 Intra-generational and intergenerational impact on economic behaviours in contemporary Australia

5.1 Chapter introduction

This chapter examines adult children's economic behaviours, operationalised using within-couple bank account choices, in contemporary Australia. It provides evidence of the over-time changes in and predictors of within-couple bank account ownership, focusing on intra- and inter-generational economic, life-course, and socio-cultural factors. Section 5.2 lays out the background for studying bank account choices. Section 5.3 discusses the importance of studying couples' bank account choices as a reflection of egalitarianism in financial arrangements within families. Section 5.4 develops a set of research hypotheses on the key predictors of within-couple bank account choices. Sections 5.5 and 5.6 explain the social and institutional context in Australia for the study of couples' bank account choices, and how this chapter contributes to the existing within-household finance literature. Sections 5.7 and 5.8 detail the data and methods used. Section 5.9 presents the findings and my interpretations of these findings. Section 5.10 concludes.

5.2 Background

In the past few decades, Western countries have witnessed important changes towards more progressive gender ideologies (England, 2010), the emergence of increasingly participative economic roles for women (OECD, 2013; United Nations Department of Economic and Social Affairs, 2010), and substantial diversification in the duration, types and outcomes of intimate relationships (Cherlin, 2009; Lesthaege, 2014). All of these factors have had an impact on the financial circumstances of partnered individuals and the patterns through which these individuals manage their economic assets (Cunningham-Burley & Jamieson, 2003). It is therefore unsurprising that academic and policy interest in how couples manage their financial resources grew exponentially following these unprecedented socio-demographic transformations, with Pahl's (1983) influential conceptual framework as a departure point.

Women's financial independence is an important aspect of gender equality within heterosexual couples, because it liberates women from fear of obligations to men (England, 2010). With the surge of cohabitation and the increasing incidence of

relationship breakdown, financially dependent women are susceptible to income poverty, material deprivation, poor physical and mental health, and marital instability (Burgoyne, 1990; Munsch, 2015; Pahl, 1980; Pahl, 1995; Vogler, 1989; Wilson, 1987). While women's labour force participation, occupational standing and earnings in Western countries have increased substantially since the mid 20th century, it is unclear whether these improvements have translated into egalitarian arrangements concerning the management of and control over household financial resources (Morris, 1987; United Nations Department of Economic and Social Affairs, 2009).

The continuing normativity of historical stereotypes of women as 'secondary earners', at the macro level (United Nations Department of Economic and Social Affairs, 2009; Zelizer, 1994), and the prevalence of traditional gender-role attitudes among women and their partners, at the micro level, have been put forwards as explanations for prevailing gender inequality in financial management (Bartley, Blanton & Gilliard, 2005; Kaufman, 2000). Despite ideological movements towards gender egalitarianism since the 1960s (Brewster & Padavic, 2000; Brooks & Bolzendahl, 2004), traditional family models involving a male 'breadwinner' and a female 'homemaker' remain popular, particularly at some stages of the life course (Brown & Robert, 2014; Hendrickx, Bernasco & de Graaf, 2001; Vogler & Pahl, 1993). This is evidenced, among others, by remaining inequalities between men and women in housework and childcare responsibilities (Bianchi et al., 2012; Sayer, Bianchi & Robinson, 2004), and a greater tendency for women to work part-time to 'juggle' work and family and to forfeit paid employment after childbirth (Budig, 2003; Lyonette, 2015).

As men remain the main contributors to household income, they often feel entitled to control over the household financial resources (Fleming, 1997). This leaves women with weak bargaining power and financial vulnerability, and may have important long-term consequences on their financial security and wellbeing (Burgoyne, 2004). Hence, studying financial arrangements within heterosexual couples provides deep insights into intra-household gender equality, and its implications on women's financial and general wellbeing. In this chapter, I consider an aspect of gender egalitarianism in couples' financial arrangements that has been largely overlooked: bank account choices, defined as the choices made within intimate relationships concerning the number, type (joint vs. separate) and holder of couple members' bank accounts. Bank account choices are an important reflection of gender egalitarianism in financial arrangements within couples, with distinctions drawn between 'collectivised' arrangements (when couples pool financial

resources in joint bank accounts) and 'privatised' arrangements (when couple members hold financial resources in separate bank accounts) (Treas, 1993). However, despite some pioneer contributions (Cheal, 1993; Kan & Laurie, 2014; Kenney, 2006; Lee & Pocock, 2007; Lyngstad, Noack & Tufte, 2011; Treas, 1993), we still know relatively little about what personal, familial and societal factors are associated with the adoption of different bank account arrangements within couples.

In this chapter I use panel data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey and panel regression models to examine the predictors of bank account choices among heterosexual couples in Australia. In doing so, I add to the existing literature by (i) systematically assessing how intra- and inter-generational economic, life-course, and socio-cultural factors jointly determine couples' bank account choices, using relevant information from both couple members; (ii) modelling couples' bank account choices as they evolve over time; and (iii) providing first-time evidence for the Australian context that complements the limited international evidence available. Key findings indicate that a relatively large share of couples in Australia favour 'mixed' bank account choices (i.e. holding both joint and separate accounts), but 'egalitarian' choices (i.e. dual separate accounts) are prevalent and on the rise. Couples' bank account choices are influenced in theoretically-meaningful ways by economic resources, transaction costs, relationship history, gender-role attitudes, and family background.

5.3 Egalitarianism in financial arrangements through the lens of bank account choices

Assessing the ways in which couples arrange their bank accounts opens a window to improving our understanding of gender egalitarianism in financial arrangements within the household. Joint bank accounts have been argued to have symbolic meanings involving mutuality, collectivity and trust, as they signal commitment to the conjugal family (Treas, 1993). From this perspective, joint bank accounts are a symptom of egalitarianism concerning how couples manage, control and access money. In contrast, separate bank accounts have symbolic meanings of financial autonomy, and the money deposited in separate bank accounts is often viewed by partners as 'their own money' (Vogler, Lyonette & Wiggins, 2008).

The choice between joint and separate bank accounts has important substantive implications. For example, separate bank accounts allow men and women to have

independent and relatively unsupervised access to money, whereas expenditure of money deposited in joint bank accounts may be subject to closer scrutiny by the other partner and more overt within-couple negotiations. Given this, individuals who rely exclusively on joint accounts, but whose partners have also separate accounts, may find themselves particularly disadvantaged. This imbalance can become the root of power differentials within the couple, and a potential source of tension and conflict (see Kan & Laurie, 2014).

While bank account choices are an important aspect of financial organisation within the household, research into the patterns and precursors of within-couple bank account arrangements is very limited. This lack of attention likely has its roots in the absence of suitable data sources that collect such complex information. Consequently, the majority of the literature on within-couple financial arrangements focuses on subjectively defined money management (Ludwig-Mayerhofer et al., 2011). For instance, surveys often ask respondents which couple member takes the responsibility for managing household money, or who has the final say over large expenditure decisions (Vogler, Brockmann & Wiggins, 2006). While these measures provide valuable insights, they are not without issues or an exhaustive representation of couples' financial arrangements. One problem is that these subjective measures may not reflect actual behaviours, and hence may be susceptible to measurement error. For example, respondents may over-report their partner's role in deciding how money is organised or spent, or report more egalitarian arrangements than actually take place due to social pressures, resulting in social desirability bias (Zaller & Feldman, 1992). Responses between couple members are also likely to be inconsistent due to differences in their subjective perceptions of or definitions around money management. Information on bank account ownership, on the other hand, is an objective measure of financial arrangements, and may be more accurate in capturing actual financial practices within couples and a better proxy for economic behaviour. Altogether, I argue that there is value in paying attention to within-couple bank account choices as an alternative and additional aspect of gender-egalitarianism (or lack of it) in day-to-day financial practices.

5.4 Predictors of bank account arrangements: Theoretical expectations and international evidence

An extensive literature examines intra-household financial organisation and money management generally, yet only a handful of studies has examined couples' bank account

choices more specifically. This includes Treas (1993) and Kenney (2006) for the US, Cheal (1993) for Canada, Kan and Laurie (2014) for the UK, Lyngstad, Noack and Tufte (2011) for Norway and Lee and Pocock (2007) for South Korea. Despite some inconsistencies in the measurement of bank account choices and the timing of the studies used, findings from this small pool of international studies suggest that couples' bank account choices differ substantially across countries: two thirds of American couples rely exclusively on joint bank accounts (Treas, 1993), whereas around 60-80% of UK couples hold separate bank accounts (Kan & Laurie, 2014). About 44% of Norwegian couples pool their economic resources in joint bank accounts (Lyngstad, Noack & Tufte, 2011), while these are virtually inexistent among South Korean couples –due to legislative emphasis on financial individuality (Lee & Pocock, 2007). Across studies, bank account choices are associated with couple members' absolute and relative income, education, ethnicity, employment status, relationship characteristics, and family size (Cheal, 1993; Kan & Laurie, 2014; Kenney, 2006; Lyngstad, Noack & Tufte, 2011; Treas, 1993). Taking together these previous findings, and theory and evidence from the broader literature on within-couple financial organisation and practices, I derive testable hypotheses about how different factors will be related to couples' bank account choices in our contemporary Australian panel data.

5.4.1 Absolute and relative income

Income is a key predictor of within-couple financial arrangements (Heimdal & Houseknecht, 2003; Vogler & Pahl, 1993; Yodanis & Lauer, 2007). The effect of income on financial arrangements depends on two factors. The first factor is the position of couples' total income in the income distribution. Independent financial arrangements are more prevalent among high-income couples (Edwards, 1982; Vogler, Brockmann & Wiggins, 2006), whereas resource sharing occurs more often in low- and moderate-income couples (Bennett & Sung, 2013). This is because resource pooling accomplishes economies of scale in household production, whereas high-income couples are able to forgo the cost advantages by adopting multiple bank accounts (i.e. separate accounts) in pursuit of financial autonomy.

The second factor is the relative contributions of the male and female partners to couples' total income (i.e. their relative resources). Relative resources and bargaining power theories pose that an individual's power in household decision making is

proportional to the amount of resources that she/he contributes to the household *vis-à-vis* her/his partner (Blood & Wolfe, 1960; Nyman, 2003; Rogers & Schlossman, 1990). Particularly, couples are more likely to pool resources as the male and female income contributions approach equality, and more likely to bank separately when women contribute more than men to household income (Kenney, 2006; Yodanis & Lauer, 2007). This resonates with research findings indicating that financial independence is higher in dual-earner couples (Fleming, 1997; Pahl, 1989; Vogler, Brockmann & Wiggins, 2006).

Based on this literature, for bank account choices I hypothesise that:

Hypothesis 1a: Couples' total income will be positively associated with the probability of holding separate bank accounts.

Hypothesis 1b: Unequal income contributions to couple household income will lead to separate banking strategies, with women's contributions being more predictive of separate bank account choices than men's contributions.

5.4.2 Children as a transaction cost

The resources necessary to raise children (e.g. time and effort) are scarce, and so families with children operate subject to constraints (Becker, 1981). In this context, families must strategically allocate their finite resources to maximise outputs. One way to accomplish this is smoothing their daily operations by minimising everyday-life hassles, constant auditing of the spending of the other couple member and persistent negotiations on what money needs to be spent on, and why (Treas, 1993). In the context of family finance research, the presence of children has been argued to lead to increasing 'transaction costs', i.e. costs associated with bargaining and monitoring household resource spending among couple members (Pollak, 1985). For example, children increase the number of payments and daily financial operations within households. To minimise these transaction costs, couples with children will be particularly likely to seek efficient banking strategies that enable them to maximise personal and household utilities. Specifically, having joint bank accounts should reduce time-consuming discussions and negotiations about whose account to use to make payments. Another important consideration regarding the implications of joint accounts in the presence of transaction costs of children is that paying for children's costs is often undertaken by women. In situations where most women have fewer economic resources than their partners do, joint

accounts minimise transaction costs and also provide women with access to resources they would otherwise lack. I therefore hypothesise that:

Hypothesis 2: The number of dependent children will be positively associated with the likelihood of having a joint bank account.

5.4.3 Relationship history and duration

Relationship history can predict financial organisation because, compared to other couples, remarried/re-partnered couples (i) are more likely to consider money management as a major issue in their relationship (Lown, McFadden & Crossman, 1989), (ii) may have gained a certain degree of financial autonomy (Fishman, 1983), and (iii) may have more complicated financial situations, e.g. they may retain complex financial links with their ex-partners and/or biological children (Burgoyne & Morison, 1997; Coleman & Ganong, 1989). Collectively, these suggest that remarried/re-partnered couples may have a tendency towards banking separately. Conversely, couples in longer relationships may be more likely to bank jointly, because the longevity in their relationship is indicative of mutual trust.

Empirically, evidence suggests that relationship duration is positively associated with the likelihood of income pooling (Lyngstad, Noack & Tufte, 2011). On the other hand, the incidence of separate financial management in remarried couples is much higher than in the general population. This constitutes suggestive evidence that resource pooling in new families is hampered by unresolved financial problems from previous relationships, the desire to protect one's financial assets in case the new relationship breaks down, or as an 'exit' option from such relationship (Burgoyne & Morison, 1997). Studies also indicate that having a previous history of union dissolution predicts bank account choices: couples in which at least one partner was divorced or widowed are less likely to use joint bank accounts (Heimdal & Houseknecht, 2003; Treas, 1993).

Based on the existing theory and evidence, I hypothesise that:

Hypothesis 3a: Remarried/re-partnered couples will be more likely to use separate bank accounts than couples in their first marriages/de facto relationships.

Hypothesis 3b: Relationship duration will be positively associated with the probability of resource pooling.

5.4.4 Gender-role attitudes

The traditional male breadwinner model is still enacted by many couples, given economic realities such as the gender pay gap and unaffordable childcare (Burgoyne et al., 2006). Since gender attitudes are often predictive of subsequent behaviour (Davis & Greenstein, 2009), these can be considered an important driver of within-couple financial arrangements (Roman & Vogler, 1999). The perception that women should prioritise homemaking and childrearing justifies men's assertion of masculinity and domination in household money control and financial decision making, which should in turn preclude financial separateness –particularly for women. Consistent with this, traditional gender ideology is often associated with joint access to money (Treas & Widmer, 2000) and authoritarian control over money by the male partner (Kenney, 2006). In contrast, the egalitarian ideology of co-providing emphasises equal financial wellbeing through independent money control and management (Cheal, 1993; Vogler, 1998; Vogler, Brockmann & Wiggins, 2006).

I therefore hypothesise that:

Hypothesis 4: Couples in which partners hold traditional gender-role attitudes will be less likely to have separate bank accounts than couples in which partners hold egalitarian gender-role attitudes.

5.4.5 Intergenerational effects

The family is a socialising unit through which children learn about their social world. One component of this socialisation process is the transmission of information, attitudes, values, etc. about money and finances from parents to children. Through explicit education, information sharing, and day-to-day interactions, parents pass onto their children financial attitudes, knowledge and capabilities (Alhabeeb, 1996; Gudmunson & Danes, 2011; John, 1999; Moschis, 1985; Wald, 1974). This financial mentality is then brought into intimate relationships, and enacted –among others– via bank account choices. Family financial socialisation theory suggests that individuals' financial perceptions and practices are reflective of parental social class and parental education (Cateora, 1963; Gudmunson & Danes, 2011; John, 1999; Wald, 1974). Specifically, high parental education and occupational status are associated with positive offspring

economic behaviours, including prudent saving, rational spending and strategic financial planning (Furnham, 1999; Gudmunson & Danes, 2011). Additionally, highly educated parents are more likely to set up egalitarian family arrangements concerning finances and money management (Conger, Conger & Martin, 2010). Hence, it is possible that their adult children also do so through the impact of socialisation and role modelling. I thus predict that:

Hypothesis 5a: Couples in which partners come from high socioeconomic family backgrounds will be more likely to organise money separately than couples in which partners come from low socioeconomic family backgrounds.

Another strand of intergenerational research on the transmission of financial attitudes and practices has focused on the role of gender egalitarian attitudes and practices in the parental generation. For example, growing up in a family in which the mother held egalitarian gender-role attitudes has a large positive effect on daughters' gender ideology and labour market outcomes, such as the probability of full-time employment and work hours (Johnston, Schurer & Shields, 2014). Other research has found similar results for maternal engagement in the labour force, earnings and occupational standing (Morrill & Morrill, 2013; van Putten, Dykstra & Schipper, 2008). These families can be described as 'non-traditional', in the sense that mothers' bargaining power is more comparable to fathers'. Children raised in such non-traditional families (particularly daughters) are likely to emulate these arrangements as adults, which should in turn translate into egalitarian financial arrangements by banking separately as they form their own family. While research on this is very limited, descriptive analyses reveal substantial intergenerational continuity in money management among couples in the UK, whereby adult children's financial management resembles that of the parental generation (Volger & Pahl, 1993). Based on this, I expect that:

Hypothesis 5b: Couples in which partners come from non-traditional family backgrounds will be more likely to organise money separately than couples in which partners come from traditional family backgrounds.

5.5 The Australian case: Institutional context and previous evidence

While the international literature on within-couple bank account choices is growing, very few studies have focused on Australia. However, Australia stands out as an important case study because of its centralised pay setting for most of the 20th century. This is a unique policy phenomenon by international standards, which had a remarkable impact on women's financial dependence on their partners/husbands. This state-instituted pay setting system consisted of a regulated "family wage" for male jobs, and half the male earning rates for women in the same jobs. These practices deterred women's labour force participation and institutionalised a male breadwinner model in which men were considered to be the 'financial leaders' within their households (Nolan, 2003; Whitehouse, 2004). Historically, this has been identified as a major factor obstructing women's financial independence and enhancing men's sense of entitlement to a higher standard of living (Land, 1980; Rathbone, 1947). It has been argued that a legacy of these institutional arrangements is the historical, high prevalence of female part-time work rates in Australia. Women in Australia are more likely to engage in part-time work, particularly after becoming mothers, than women in other OECD countries, which entrenches their financial dependence on their male partners (Baxter, 2013; Bittman et al., 2003). To the extent that these factors have remained embedded in the Australian social ethos, bank account arrangements within couples in Australia may exhibit different patterns and dynamics than those in other developed countries. For example, there may exist a greater tendency towards joint banking due to this historical legacy, and such tendency may be more highly associated with couple's relative income contribution and gender ideology than observed in other countries. Examining couples' bank account choices in Australia may also contribute to the within-couple finance literature more broadly, because the blend of an egalitarian 'fair go' culture, the institutionalised male breadwinner ideology, and the historical expectations of female homemakers in Australia may influence the way couple members arrange their bank accounts, thereby creating a unique model of mixed banking strategies combining joint and separate bank accounts in Australian households.

There is only one previous quantitative study on the predictors of bank account choices among couples in Australia (Singh & Morley, 2010).[32] This explored factors

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[32] There is however more Australian evidence focusing on financial organisation more generally. For instance, in descriptive analyses of three datasets (*Australian Family Formation Project* 1981, n=2,544 and 1991, n=1,536, *Australian Family Formation Case Studies* 1983, n=58, and *Australian Family Project* 1986, n= 2,041), Glezer (1994) found a comparatively high degree of resource

influencing individual-level bank account choices using a multinomial logit model estimated on the 2006 wave of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. Key findings from this study indicate that employment status (but not household income) is an important predictor of bank account choices. While a pioneer in the Australian context, this can be extended in several fronts. The study relies on data which are now relatively old, uses the data cross-sectionally, does not exploit the household structure of the HILDA Survey, and does not account for many important theoretical factors (e.g. gender-role attitudes, transaction costs, parental background, and relationship history). I further its findings in these and other ways, as described below.

5.6 The current study

I expand upon earlier studies of within-couple bank account choices in several ways. First, I provide a more systematic examination of couple's bank account choices than can be found in the available literature. I compare and contrast the predictive power on bank account choices of a wider range of factors than those considered by previous studies, including economic factors (absolute and relative income, and number of dependent children as transaction costs), life-course factors (relationship history and duration), and socio-cultural factors (gender-role attitudes). Second, I am the first to use longitudinal survey data and panel regression models. This enables me to estimate the predictors of couple's bank account choices more robustly by taking into consideration within- and between-couple differences in bank account ownership and its underlying over-time dynamics. Third, I also innovative by examining bank account choices at the couple level using information from both couple members. This is important, as reliance on survey responses from just one couple member leads to measurement error (due to misreporting of joint bank accounts) and omitted-variable bias (due to the absence of partner characteristics in the model). Some studies use respondents' reports of partners' characteristics, but these are less precise than partners' self-reports (Heimdal &

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pooling among dual-earner couples, and no association between such financial arrangements and partners' employment status. These findings were replicated by Foreman and Wilson (1995) using two samples of low-income families reliant on social security payments (*Social Impact Study* 1992-1993, n=1,402 and *Pre-Home Child Care Allowance Survey* 1994, n=1,453. These surveys were collected from the female partner only).

Houseknecht, 2003; Lyngstad, Noack & Tufte, 2011; Yodanis & Lauer, 2007). Fourth, I consider intergenerational effects on within-couple bank account choices. While parental background is a theoretically important factor potentially explaining partnered individuals' bank account choices, it has so far been overlooked in the existing literature. Finally, I provide the first robust account of couples' bank account choices in Australia. This is important because Australia is an interesting case study due to its institutional legacy, and so this study contributes to enriching cross-national comparisons.

5.7 Data

5.7.1 Dataset

The goal is to model the longitudinal determinants of couples' bank account choices. To accomplish this, I use four waves of data (2002, 2006, 2010 and 2014) from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. This survey is particularly useful for my research purposes in this chapter for several reasons. First, its wealth module collects longitudinal information on participants' bank account ownership in four occasions: wave 2 (2002), wave 6 (2006), wave 10 (2010) and wave 14 (2014). Few international panel surveys collect such complex information over an extended period of time and on an ongoing basis. Second, data on joint bank accounts contain personal identifiers of household members, which enables me to determine whether a joint bank account is in fact held by both couple members. Third, couple-level data enable more precise estimates of the effects of relative income and relationship history than individual-level data.

5.7.2 Information on bank account ownership

In the HILDA Survey's wealth module, respondents are asked whether they have any bank accounts in their name only (i.e. separate accounts), and whether they hold any joint bank accounts with other people (i.e. joint accounts). For respondents who indicated that they hold joint bank accounts, the number of joint accounts and the identity of other household members who co-held each of the accounts were asked. These names were coded into person identifiers to facilitate matching. I use this information to identify different bank account choices at the couple level. My initial categorisation of bank account choices

draws upon Treas' (1993) typology, including the following seven mutually exclusive categories:[33]

    (i)   Both partners have a joint bank account only.

    (ii)   Both partners have separate bank accounts only.

    (iii)   The male partner has a separate bank account, while the female partner has no bank accounts.

    (iv)   The female partner has a separate bank account, while the male partner has no bank accounts.

    (v)   Both partners have a joint bank account, and the male partner has a separate bank account.

    (vi)   Both partners have a joint bank account, and the female partner has a separate bank account.

    (vii)   Both partners have a joint bank account, and both the male and female partners have separate bank accounts.

I use this categorisation in a first set of analyses to examine the distribution of couples' bank account choices and how it has changed over time. In subsequent analyses, I simplify this categorisation to produce results that are theoretically meaningful and statistically feasible. First, I construct a dichotomous variable indicating whether or not couples have at least one joint account. Second, I construct a four-category variable splitting couples as follows:

    (i)   Both partners have a joint bank account only (i.e. no separate bank accounts, the reference category);

    (ii)   The male partner has a separate bank account, while the female partner does not;

    (iii)   The female partner has a separate bank account, while the male partner does not; and

    (iv)   Both the male and female partners have a separate bank account.

5.7.3 Sample selection

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[33] For 3.79% of couples (n= 1,062) there are mismatches in their reports of joint bank accounts. Most of these emerge when one partner reports having a joint bank account, but the other partner does not. In these cases, I consider couples as having a joint bank account as long as one partner indicates so.

Since bank account information is only available in HILDA Survey waves 2, 6, 10 and 14, my initial sample excludes unpartnered individuals, and comprises 34,854 observations from 15,579 *partnered* individuals who participated in any of these four survey waves with valid bank account information. I drop observations from individuals who do not *cohabit* with their partners (n=101 person-year observations), and from respondents whose partners did not participate in the survey (n=1,827 person-year observations). For respondents who did not have a consistent partner over the observation period, I exclude observations from their second and higher-order partnerships (n=635 person-year observations). I also exclude from my analytical sample same-sex couples, as the theoretical reasons leading to different bank account choices are likely to be different for these couples (n=314 person-year observations), couples in which the male and female partners reported inconsistent marital statuses (n=20 person-year observations), and couples in which neither of the partners reported having a bank account (n=80 person-year observations). Based on data from these matched couples, I derive the couple-level analytical variables by using information from both couple members, resulting in two identical records for each couple (n=31,144). I retain only one of these two identical records. My final analytical sample consists of 15,572 observations from 7,094 couples.

5.7.4 Other analytical variables

Income. For total income, I take the inverse hyperbolic sine (IHS) transformation[34] of the sum of both partners' financial-year gross total incomes, after having adjusted these for inflation to 2014 prices using annual Consumer Price Index rates. For relative income, I follow Kenney's (2006) approach and create a categorical variable with three categories: (i) women contribute 60% or more of the income; (ii) both men and women contribute 40-60% of the income (equal contribution); and (iii) men contribute 60% or more of the income.

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[34] The formula for the IHS transformation is: $\log(income + \sqrt{income^2 + 1})$. For very small changes, the square root component goes to 0 and in the limit the transformation is $\log(income)$ giving the standard interpretation. This transformation can effectively deal with non-positive income while at the same time transforming a positively skewed income into a normally distributed income.

Number of children. I use an available variable within the HILDA Survey capturing the number of dependent children in the household. Dependent children are defined as persons under 15 years of age, or persons aged 15-24 who are *"engaged in full-time study, not employed full-time, living with one or both parents, not living with a partner, and who does not have a resident child of their own"* (Wilkins, 2015: 14).

Relationship history and duration. The HILDA Survey contains information on the number of marriages and *de facto* relationships (of 3 months or more) participants have had. I use this in combination with respondents' current marital status to separate individuals who are in their first marriage/*de facto* relationship from individuals who are in their second or higher order marriage/*de facto* relationship. At the couple level, I combine this information from both partners into a variable containing four categories: (i) both partners are in their first marriage/*de facto* relationship; (ii) men are in their first marriage/*de facto* relationship and women in their second or higher order marriage/*de facto* relationship; (iii) women are in their first marriage/*de facto* relationship and men in their second or higher order marriage/*de facto* relationship; and (iv) both partners are in their second or higher order marriage/*de facto* relationship. Relationship durations for both marriages and *de facto* relationships are recorded in years.

Gender-role attitudes. In its self-completed questionnaires, the HILDA Survey asks about respondents' gender-role attitudes. These questions were included in waves 1, 5, 8 and 11. I carry forward their responses to waves in which bank details were collected: attitudes in wave 1 are brought forward to wave 2, attitudes in wave 5 are brought forward to wave 6, attitudes in wave 8 are brought forward to wave 10, and attitudes in wave 11 are brought forward to wave 14. I use the degree of respondents' agreement with the following four items to measure respondents' attitudes towards gender roles: (i) *"Many working mothers seem to care more about being successful at work than meeting the needs of their children"*; (ii) *"Whatever career a woman may have, her most important role in life is still that of being a mother"*; (iii) *"Mothers who don't really need the money shouldn't work"*; and (iv) *"It is better for everyone involved if the man earns the money and the woman takes care of the home and children"* (Cronbach's α=0.66). Higher scores represent more traditional attitudes, with variables being reverse coded where necessary. Scores in each of these items are then summed and rescaled to create an index ranging from 0 (most egalitarian attitudes) to 100 (most traditional attitudes). I then created a variable measuring the average attitude score of each couple by taking the mean of both partners' scores.

Family background. Parental occupation and education are used to capture the socioeconomic status (SES) of the family in which respondents grew up. Parental occupational status is measured by the Australian Socioeconomic Index 2006 (McMillan, Beavis & Jones, 2009), while parental education is recoded into three categories: (i) school year 12 and below, (ii) professional qualification, and (iii) bachelor degree or higher. I create a continuous variable measuring the average status of the family by taking the mean occupational status scores of parents. In addition, I derive a dichotomous variable identifying whether the respondent comes from a 'non-traditional family', i.e. a family in which the mother's educational level is higher than or equal to the father's educational level. I then create a couple-level categorical variable comparing the partners' family background: (i) both partners come from non-traditional families; (ii) only men come from non-traditional families; (iii) only women come from non-traditional families; and (iv) neither partner comes from a non-traditional family.

Control variables. My multivariate models control for a set variables which are known predictors of within-couple financial organisation. Couples in *de facto* relationships are more likely to use separate bank accounts than married couples (Heimdal & Houseknecht, 2003; Kan & Laurie, 2014; Lyngstad, Noack & Tufte, 2011). Hence, I control for marital status in all models except for the model testing the effect of relationship history, due to multicollinearity. I also control for couples' mean age, and age differences between partners within a couple. The latter is captured by a trichotomous variable: (i) men are at least 5 years older than women; (ii) the age difference is within five years; and (iii) women are at least 5 years older than men. This is important, as age gaps can be reflective of financial mentality: the larger the age gap, the more divergent individual financial perceptions may be, and thus the more likely it is that couples organise money separately. Controls for education are added because highly educated couples are likely to be more financially liberal than those with low education levels, and therefore more likely to choose separate bank accounts. Couple-level education is measured through a variable capturing the following scenarios: (i) both partners have University degrees; (ii) only the male partner has a University degree; (iii) only the female partner has a University degree; and (iv) neither partner has a University degree. Dual-earner couples are more likely to have separate bank accounts than other couples (Fleming, 1997; Pahl, 1989; Vogler, Brockmann & Wiggins, 2006), and so I distinguish between couples in which (i) both partners are employed; (ii) only the male partner is employed; (iii) only the female partner is employed; and (iv) neither partner is employed. Because there may be cultural

differences in financial practices, I also control for ethnicity in my models. I use a variable that separates couples into those in which (i) both partners were born in Australia; (ii) only the male partner was born in Australia; (iii) only the female partner was born in Australia; and (iv) neither partner was born in Australia. To test the direct effects of key variables and account for the effect of income on financial organisation, I control for total income in all models.

5.8 Methods

5.8.1 Statistical models

I extend Treas's (1993) analyses of bank account choices using panel data and panel regression models. Unlike cross-sectional techniques, these models take into consideration both within-couple and between-couple differences in bank account ownership over time, improving efficiency and reducing bias in their predictions of the longitudinal associations between the factors of interest and couples' bank account choices (Hsiao, 2007).

First, I estimate a set of random-effect binary logit models that predict whether or not couples hold a joint bank account. These models are extensions of cross-sectional binary logit models for panel data. Let y_{it} denote the choice of bank account for couple i at time t, π_{it} denote the probability of having a joint bank account, $\boldsymbol{X_{it}}$ denote a $N_X \times 1$ vector of time-varying variables, $\boldsymbol{Z_i}$ denote a $N_Z \times 1$ vector of time-invariant variables, and N. the number of variables in each vector. The probability function of holding a joint bank account for couple i at time t can be written as:

$$\pi_{it} = \Pr(y_{it} = 1 | \boldsymbol{X_{it}}, \boldsymbol{Z_i}) = F(\alpha + \boldsymbol{\beta'X_{it}} + \boldsymbol{\theta'Z_i} + u_i + e_{it}) \tag{5.1}$$

where

$$F(z) = \frac{e^z}{1+e^z} \tag{5.2}$$

The log of the odds (i.e. the ratio of the probability of having a joint bank account to the probability of not having a joint bank account, denoted as η_{it}) is a linear function of $\boldsymbol{X_{it}}$ and $\boldsymbol{Z_i}$:

$$\log(\eta_{it}) = \log\left(\frac{\pi_{it}}{1-\pi_{it}}\right) = \alpha + \boldsymbol{\beta}'\boldsymbol{X_{it}} + \boldsymbol{\theta}'\boldsymbol{Z_i} + u_i + e_{it} \tag{5.3}$$

This gives the random-effect binary logit model for panel data. The coefficients of continuous independent variables can be interpreted as changes in the logarithmic odds ratio (denoted as OR):

$$\log(OR) = \log\left(\frac{\eta_{it}|_{x+\Delta x}}{\eta_{it}|_x}\right) = \beta \tag{5.4}$$

Equation (5.4) can be rewritten as:

$$OR = \frac{\eta_{it}|_{x+\Delta x}}{\eta_{it}|_x} = e^\beta \tag{5.5}$$

which is the relative probability, or the change in the odds, of having a joint account associated with a one-unit change in the continuous independent variable. For categorical independent variables, a more nuanced equation of the OR is:

$$OR = \frac{\eta_{it}|_{z_c}}{\eta_{it}|_{z_b}} = e^\theta \tag{5.6}$$

where z_c is the comparison category, and z_b is the baseline category.

Second, I estimate a set of random-effect multinomial logit models that distinguish between four different types of bank account choices: (i) partners have a joint bank account only (the reference category), (ii) only the male partner has a separate bank account, (iii) only the female partner has a separate bank account, and (iv) both partners have a separate bank account.[35]

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[35] In practice, these are fitted as generalised structural equation models using Stata 13 (StataCorp, 2013).

Let $\tilde{y}_{it}$ denote the observed type of bank account choice for couple i at time t, and $\mathbb{Z}$ denote the integer set containing the aforementioned four types, $\tilde{y}_{it} \in \mathbb{Z} = \{1, \dots, 4\}$. Let $\tilde{y}_{it}^{(j)}$ represent the jth type of bank account choice in $\mathbb{Z}$, $j = 1, \dots, 4$. The probability of couple i at time t choosing certain type of bank account (denoted as $\tilde{\pi}_{it}^{(j)}$) is:

$$\tilde{\pi}_{it}^{(j)} = \Pr\left(\tilde{y}_{it} = \tilde{y}_{it}^{(j)} \middle| \boldsymbol{X}_{it}, \boldsymbol{Z}_i\right) = \frac{e^{\boldsymbol{\beta}_j' \boldsymbol{X}_{it} + \boldsymbol{\theta}_j' \boldsymbol{Z}_i + u_i + e_{it}}}{\sum_{k=1}^{4} e^{\boldsymbol{\beta}_k' \boldsymbol{X}_{it} + \boldsymbol{\theta}_k' \boldsymbol{Z}_i + u_i + e_{it}}} \tag{5.7}$$

where $\boldsymbol{X}_{it}$ and $\boldsymbol{Z}_i$ are the same vectors of independent variables as in equation (5.1); $\boldsymbol{\beta}_j$ is the jth coefficient vector associated with $\tilde{y}_{it}^{(j)}$ for $\boldsymbol{X}_{it}$, and $\boldsymbol{\theta}_j$ is the jth coefficient vector associated with $\tilde{y}_{it}^{(j)}$ for $\boldsymbol{Z}_i$. If one computes each $\tilde{\pi}_{it}^{(j)}$ using equation (5.7), however, the model is unidentified (StataCorp, 2013). To identify the model, it is customary to treat one type of bank account, $\tilde{y}_{it}^{(b)}$ as the baseline (or reference) type. Equation (5.7) can then be rewritten as:

$$\tilde{\pi}_{it}^{(b)} = \Pr\left(\tilde{y}_{it} = \tilde{y}_{it}^{(b)} \middle| \boldsymbol{X}_{it}, \boldsymbol{Z}_i\right) = \frac{1}{1 + \sum_{k=1}^{4} e^{\boldsymbol{\beta}_k' \boldsymbol{X}_{it} + \boldsymbol{\theta}_k' \boldsymbol{Z}_i + u_i + e_{it}}}, k \neq b;$$

$$\tilde{\pi}_{it}^{(j)} = \Pr\left(\tilde{y}_{it} = \tilde{y}_{it}^{(j)} \middle| \boldsymbol{X}_{it}, \boldsymbol{Z}_i\right) = \frac{e^{\boldsymbol{\beta}_j' \boldsymbol{X}_{it} + \boldsymbol{\theta}_j' \boldsymbol{Z}_i + u_i + e_{it}}}{1 + \sum_{k=1}^{4} e^{\boldsymbol{\beta}_k' \boldsymbol{X}_{it} + \boldsymbol{\theta}_k' \boldsymbol{Z}_i + u_i + e_{it}}}, j \neq b \text{ and } k \neq b \tag{5.8}$$

Hence, the log odds of the probability of the jth bank account type over the probability of the baseline type is a linear function of $\boldsymbol{X}_{it}$ and $\boldsymbol{Z}_i$:

$$\log\left(\frac{\tilde{\pi}_{it}^{(j)}}{\tilde{\pi}_{it}^{(b)}}\right) = \boldsymbol{\beta}_j' \boldsymbol{X}_{it} + \boldsymbol{\theta}_j' \boldsymbol{Z}_i + u_i + e_{it}, j \neq b \tag{5.9}$$

This gives the random-effect multinomial logit model for panel data.

5.8.2 Analytical approach

I begin with descriptive analyses of the distribution of couples' bank account choices for the pooled sample and its changes over time, followed by bivariate analyses comparing the prevalence of different bank account arrangements across categories of the

independent variables. I then estimate more robust multivariate panel regression models that account for observable and unobservable confounders. I first fit a baseline multivariate model that includes only the control variables: marital status, age, employment status, education, ethnicity, and couple total income. This serves as a benchmark for five subsequent models in which I add sets of independent variables of interest. In models that test the effect of relationship history and duration, I exclude marital status, which is collinear with the more detailed measured added in this model. I perform all bivariate and multivariate analyses on both the short (binary) and long (multinomial) measures of bank account choices described before.

5.9 Results

5.9.1 Descriptive analyses

Table 5-1 summarises the sample prevalence of different bank account arrangements. Couples in Australia generally prefer a mixed strategy, with 47% of couples holding both joint and separate accounts, compared to 31% having only a joint account, and 22% holding only separate accounts. Altogether, about 78% of couples in Australia have a joint account. Among those couples with joint bank accounts in which at least one partner also has a separate account, women (17% of *all* couples) are more than twice as likely as men (8% of *all* couples) to have separate accounts. It is however more common for both partners within these couples to hold a separate account (23% of *all* couples). Just in over 1% of couples in Australia, a partner reports having no bank accounts.

Figure 5-1 shows changes in the distribution of couples' bank account choices over the 2002-2014 observation window. There have been declines in the proportions of couples with (i) a joint account only, and (ii) a joint account and a separate account for one of the partners. In contrast, there have been increases in the proportions of couples in which (i) both partners hold separate accounts only, and (ii) both partners hold a joint account and a separate account. These trends suggest that, as time unfolds, there is increasing financial autonomy among individuals within heterosexual couples in Australia, as well as greater gender equality in separate bank account ownerships.

Sample means in the explanatory variables by bank account choices are shown in Table 5-2. These show that couples with higher incomes are more likely to have separate accounts and less likely to have joint accounts. Partners' relative resources are also

related to banking strategies: partners who contribute more income to the household are more likely to have a separate account, whereas couples in which both partners contribute equally tend to have a joint bank account only. Relative to couples with a joint bank account only, couples with dual separate bank accounts are characterised by fewer dependent children, shorter relationship duration, more complex relationship histories, more egalitarian gender attitudes, and a higher likelihood of coming from non-traditional families. Couples in *de facto* relationships are more than twice as likely as married couples to have dual separate accounts. In contrast, married couples are five times as likely as couples in *de facto* relationships to have only a joint account. Compared to couples with separate bank accounts, couples with a joint bank account only have older partners with smaller age gaps, lower education levels, and lower employment participation, and are more likely to be migrants.

Table 5-1 Bank account choices of heterosexual couples in Australia

Bank account choices	%	
Partners have only a joint account	30.9	
Partners have only separate accounts	21.9	
Man has separate account, woman has no accounts		0.6
Woman has separate account, man has no accounts		0.7
Both have separate accounts		20.6
Partners have both joint and separate accounts	47.2	
Joint account + man has a separate account		7.6
Joint account + woman has a separate account		16.6
Joint account + both partners have a separate account		23.0
N (observations)	*15,572*	
N (individuals)	*7,094*	

Notes: HILDA Survey data (2002, 2006, 2010 and 2014). Percentages do not add up to 100 due to rounding.
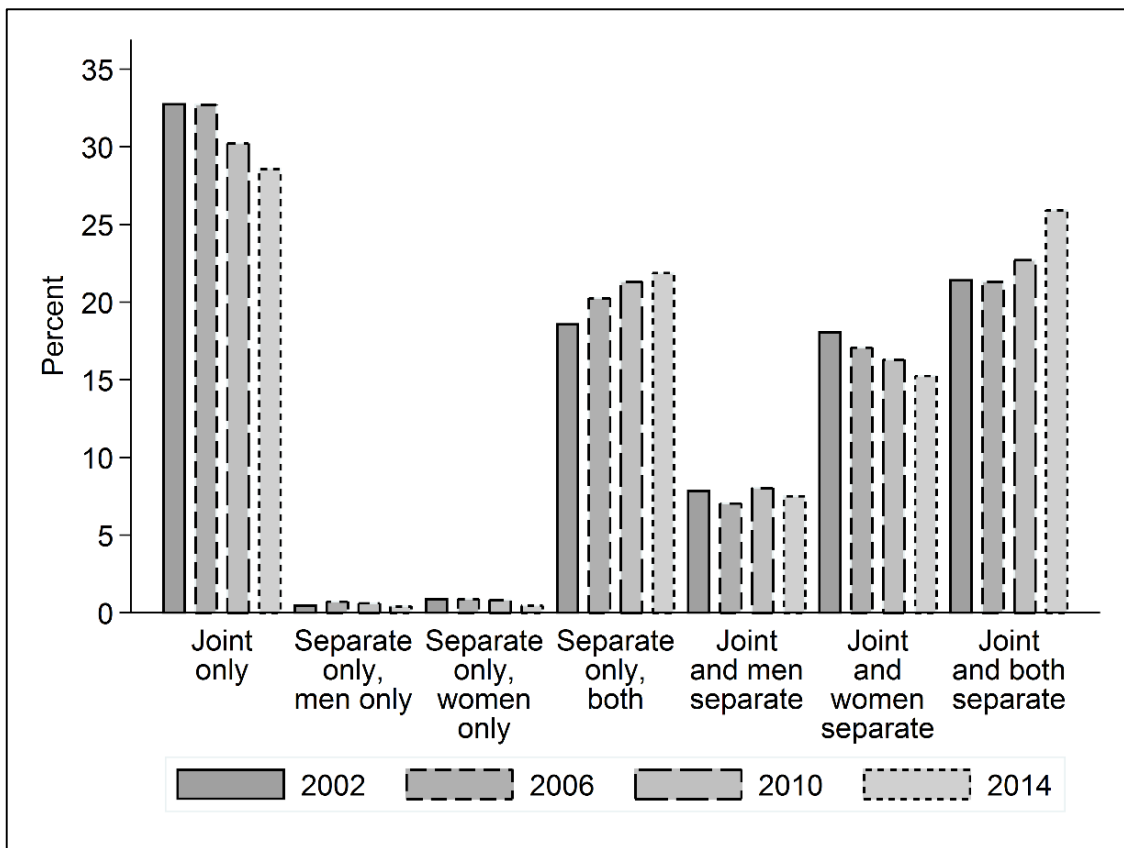
Figure 5-1 Over-time change in bank account choices of heterosexual couples in Australia

Notes: HILDA Survey data (2002, 2006, 2010 and 2014).

Table 5-2 Sample descriptive statistics (means and standard deviations)

	Number of observations	All couples	Bank account choices			
			Only man has a separate account	Only woman has a separate account	Both have separate accounts	Joint account only
Total income (IHS) [a]	15,572	11.4 (0.7)	11.5 (0.8)	11.4 (0.7)	11.4 (0.7)	11.3 (0.8)
Relative income [b]	15,572					
Women contribute 60%+		12.7	7.4	19.0	47.9	25.8
Similar income contributions		36.7	7.2	15.1	43.5	34.2
Men contribute 60%+		50.7	9.0	18.6	42.6	29.8
Number of dependent children [a]	15,572	0.9 (1.2)	1.1 (1.2)	1.0 (1.2)	0.8 (1.1)	1.0 (1.2)
Relationship duration [a]	15,450	19.8 (16.4)	19.5 (15.1)	23.2 (15.3)	14.5 (15.5)	25.3 (16.4)
Relationship history [b]	15,570					
Both 1st relationship		64.4	9.1	19.5	33.1	38.3
Men 1st relationship and women 2nd+		5.5	7.1	20.6	45.1	27.2
Women 1st relationship and men 2nd+		6.2	10.0	16.9	44.5	28.6
Both 2nd+ relationship		23.9	5.3	10.8	71.3	12.6
Gender-role attitudes, mean [a]	14,245	59.6	60.2	60.2	57.8	61.4

		(11.6)	(11.3)	(11.2)	(11.7)	(11.3)
Mean parental SES [a]	15,559	42.3	43.8	41.0	43.6	40.9
		(15.8)	(16.3)	(15.1)	(16.3)	(15.1)
Non-traditional family background	15,572					
Both from non-traditional family		35.1	7.8	17.3	43.6	31.4
Only man from non-traditional family		15.0	8.5	16.9	44.7	29.8
Only woman from non-traditional family		16.7	9.2	18.3	42.8	29.7
Neither from non-traditional family		8.7	8.2	16.4	42.1	33.3
Controls						
Marital status [b]	15,572					
Married		81.4	8.9	19.7	35.2	36.3
De facto relationship		18.6	5.0	7.0	80.6	7.4
Mean age [a]	15,572	47.5	46.5	50.1	44.0	51.3
		(15.6)	(14.2)	(14.1)	(15.9)	(15.3)
Age difference [b]	15,572					
Man 5+ years older		19.0	8.6	15.1	48.1	28.3
Age difference within 5 years		77.9	8.2	18.0	42.0	31.9
Woman 5+ years older		3.0	5.5	15.6	57.1	21.8
Employment status [b]	15,572					
Both employed		54.8	8.1	17.6	45.8	28.6

Only man employed		19.0	10.9	17.5	42.3	29.3
Only woman employed		4.9	7.3	17.4	51.3	24.0
Neither employed		21.3	6.1	16.6	37.5	39.9
Education [b]	15,572					
Both have degree		14.5	10.6	15.9	47.1	26.4
Only man has degree		10.1	8.9	17.3	43.3	30.5
Only woman has degree		12.1	9.4	15.2	45.5	30.0
Neither has degree		63.3	7.2	18.1	42.5	32.2
Ethnicity [b]	15,572					
Both born in Australia		65.8	7.6	18.0	44.6	29.9
Men born in Australia only		8.9	10.2	16.0	48.2	25.7
Women born in Australia only		10.4	8.2	16.6	44.7	30.5
Neither born in Australia		14.8	9.5	15.8	35.8	38.8

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Standard deviations in parentheses. Percentages do not add up to 100 due to rounding. The missing category of non-traditional family background is omitted for readability. [a] statistically significant at the 0.1% level in a one-way analysis of variance. [b] statistically significant at the 0.1% level in a Pearson chi-square test.

5.9.2 Multivariate analyses: Baseline models

I begin by fitting baseline panel regression models which test the effect of the control variables on couples' bank account choices (Table 5-3). The baseline random-effect logit model in column 1 compares couples with joint accounts with couples without joint accounts. The odds of having joint bank accounts is significantly higher among couples who are married (OR=54.44, $p<0.001$)[36], Australian-born ($OR_{men}=1.99$, $OR_{women}=1.90$, $OR_{both}=1.67$, $p<0.01$), and older (OR=1.06, $p<0.001$), and among couples with smaller age gaps ($OR_{men\_older}=0.41$, $\beta_{women\_older}=0.29$, $p<0.001$) and higher absolute income (OR=1.31, $p<0.001$). Significantly higher odds of having joint accounts are also observed among dual-earner couples (OR=3.05, $p<0.001$) and couples in which only the male partner is employed (OR=2.40, $p<0.001$) vis-à-vis jobless couples. Compared to couples in which neither partner has a university degree, couples in which both partners (OR=1.82, $p<0.001$) or only the male partner (OR=1.41, $p<0.1$) do so have significantly higher odds of holding joint accounts.

The baseline random-effect multinomial logit model further splits couples' bank account choices into four categories, which collectively consider an exhaustive set of permutations concerning couples' separate and joint account ownership (columns 2-4, Table 5-3). This more complex model reveals several interesting patterns which were not apparent in the more parsimonious random-effect logit model. The odds of having separate bank accounts over no separate accounts (i.e. joint accounts only) for married couples relative to cohabiting couples indicates that married couples are significantly less likely to have separate bank accounts either for one partner ($OR_{men}=0.10$, $OR_{women}=0.13$, $p<0.001$) or both partners ($OR_{both}=-3.66$, $p<0.001$), and so display a greater tendency to rely exclusively on a joint account. The odds of having separate accounts over no separate accounts either for one partner ($OR_{men}=0.97$, $p<0.001$; $OR_{women}=0.99$, $p<0.01$) or for both

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[36] The high odds ratio (raw coefficient equal to 4) is not due to collinearity, error in the coding, or computational issue associated with inflated standard error. It is likely due to a concentration of data among married couples who hold joint accounts (70% of the sample), which leads to a large maximum likelihood estimate. Ideally, a penalised likelihood estimation method should be used to deal with this, such as the exact logit model or the Firth logit model (Firth, 1993; Heinze & Schemper, 2002). Such model, however, is not implemented in the context of panel data. I therefore use the "doing nothing" strategy suggested in Allison (2008), as the maximum likelihood for other independent variables are still valid.

partners ($OR_{both}=0.97$, $p<0.001$) also decrease as couples age. If the partner is over 5 years older than the other, he/she is more likely to have separate accounts alone than having no separate accounts ($OR_{men}=1.55$, $p<0.01$, $OR_{women}=2.00$, $p<0.05$). These gendered age gaps also positively predict the odds of both partners having separate accounts relative to having no separate accounts ($OR_{men\ older}=1.65$, $OR_{women\ older}=2.80$, $p<0.001$). Employed couples have significantly higher odds of holding separate accounts relative to no separate accounts than jobless couples: the male partner is more likely to have separate accounts than having no separate accounts when either partner is employed ($OR_{men\ employed}=1.69$, $p<0.01$; $OR_{women\ employed}=1.70$, $p<0.05$), whereas the female partner is more likely to have separate accounts than having no separate accounts when at least one partner is employed ($OR_{men\ employed}=1.59$, $p<0.01$; $OR_{women\ employed}=2.19$, $p<0.001$; $OR_{both\ employed}=1.67$, $p<0.001$). The higher level of education both couple members have, the more likely they hold separate accounts than no separate accounts for the male partner ($OR_{men\ degree}=1.43$, $p<0.05$; $OR_{women\ degree}=1.34$, $p<0.1$; $OR_{both\ degree}=1.88$, $p<0.001$), or both partners ($OR_{men\ degree}=1.45$, $p<0.05$; $OR_{both\ degree}=1.72$, $p<0.001$). Separate bank accounts are also more likely relative to no separate accounts to be organized among Australian-born couples: the male partner is more likely to have separate accounts alone than having no separate accounts ($OR=1.83$, $p<0.01$) if he was born in Australia, while the female partner ($OR_{men\ Australia}=1.86$, $p<0.01$; $OR_{women\ Australia}=1.46$, $p<0.1$; $OR_{both\ Australia}=1.55$, $p<0.01$) or both partners ($OR_{men\ Australia}=1.95$, $p<0.01$; $OR_{women\ Australia}=1.42$, $p<0.1$; $OR_{both\ Australia}=1.39$, $p<0.05$) are more likely to have separate accounts than having no separate accounts if at least one couple member was born in Australia.

Across the two baseline models, I find that couples' employment status, education and ethnicity predict their ownership of joint and separate bank accounts in similar directions: employed, educated and Australian-born couples have a comparatively higher odds of holding both joint accounts (in the random-effect logit model) and some form of separate accounts (in the random-effect multinomial logit model). The random-effect multinomial logit results reveal reasonably consistent patterns in how the explanatory variables relate to the male and female partner having a separate account in addition to a joint account, hinting a certain degree of gender egalitarianism in bank account choices in the contemporary Australian context.

Table 5-3 Bank account choices among heterosexual couples in Australia, baseline models

Variables	Joint account vs. no joint account	Account choice (ref. partners have only a joint account)		
		Only man has a separate account	Only woman has a separate account	Both have separate accounts
Marital status (ref. *de facto*)				
Legally married	54.44***	0.10***	0.13***	0.026***
Mean couple age	1.06***	0.97***	0.99**	0.97***
Age difference (ref. <5 years)				
Man 5+ years older	0.41***	1.55**	1.23	1.65***
Woman 5+ years older	0.29***	1.50	2.00*	2.80***
Employment status (ref. neither employed)				
Only man employed	2.40***	1.69**	1.59**	0.95
Only woman employed	1.11	1.70*	2.19***	1.77**
Both employed	3.05***	1.20	1.67***	0.96
Education (ref. neither have degree)				
Only man has degree	1.41+	1.43*	1.16	1.45*
Only woman has degree	1.26	1.34+	0.94	1.14
Both has degree	1.82***	1.88***	1.27	1.72***
Ethnicity (ref. neither born in Australia)				
Only man born in Australia	1.99**	1.83**	1.86**	1.95**

Only woman born in Australia	1.90**	1.15	1.46+	1.42+
Both born in Australia	1.67**	1.07	1.55**	1.39*
Total couple income (IHS)	1.31***	1.19**	1.08	1.08
N (observations)	15,572	15,572	15,572	15,572
N (individuals)	7,094	7,094	7,094	7,094
AIC / BIC	11,684 / 11,814		33,222 / 33,597	

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Odds ratios reported. Column 1 displays the results of the random-effect binary logit model (with robust standard errors), and columns 2-4 display the results of the random-effect multinomial logit model (with robust standard errors). + $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

5.9.3 Multivariate analyses: Hypothesis testing

In Table 5-4 I present the results of a final series of panel regression models aimed at testing the 5 sets of research hypotheses. These add selected variables to the baseline models discussed before. Full model output can be found in Tables A5-1 to A5-5 in the Appendices. The first set of models tests the effect of absolute and relative income on couples' bank account choices. In the random-effect logit model absolute income increases the odds of couples choosing a joint account (OR=1.30, p<0.001). However, results from the random-effect multinomial logit model reveal that it actually raises the relative probability that couples have some combination involving separate accounts. These seemingly contradictory results resonate with findings from Treas (1993): while partially pooling their resources, high-income couples also maintain a certain extent of financial autonomy to ensure freedom in personal spending. This is not evident in the simpler binary logit model, as joint accounts are often accompanied by separate accounts. Consistent with my relative resources hypothesis, I find that couples in which the female partner contributes more income to the household have a significantly lower odds than couples in which both partners make similar income contributions to have a joint account (OR=0.67, p<0.05). The random-effect multinomial logit model results further reveal that greater income contributions to the household by the female partner increase the chances that couples have any bank account arrangement involving separate accounts, suggesting that women's income contribution is more predictive of separate banking than men's.

The second set of models tests the effect of the number of dependent children in the household on couples' bank account choices. In the random-effect logit model, the number of children is associated with increased odds of having a joint account (OR=1.33, p<0.001). In the random-effect multinomial logit model, the number of children is negatively associated with the odds of having separate accounts over having no separate accounts for either partner (OR_{men}=0.86, p<0.001; OR_{women}=0.92, p<0.05) or both partners (OR_{both}=0.77, p<0.001). These findings are consistent with my second hypothesis, and suggests that couples pool resources to achieve optimal utility in the presence of increased transaction costs.

Results from the third set of models indicate that, as predicted in my hypotheses, relationship history and duration are strong predictors of bank account choices. In the random-effect logit model, remarried/re-partnered couples have much lower odds of having joint accounts than couples in their first marriages/*de facto* relationships

(OR$_{men}$=0.23, OR$_{women}$=0.33, OR$_{both}$=0.05, p<0.001). In the random-effect multinomial logit model, I further learn that remarriage/re-partnership is positively associated with having separate accounts relative to having no separate accounts for either or both partners. In a similar vein, relationship duration is positively associated with the odds of having a joint account in the random-effect logit model (OR=1.07, p<0.001), and negatively associated with the odds of all arrangements involving separate accounts in the random-effect multinomial logit model (OR$_{men}$=0.97, OR$_{women}$=0.97, OR$_{both}$=0.95, p<0.001).

The fourth set of models considers the predictive power of gender ideology on bank account choices. Traditional gender attitudes are not associated with the odds of couples having joint accounts in the random-effect logit model. However, results in the more complex random-effect multinomial logit model indicate that traditional gender attitudes predict reduced odds of the female partner (OR=0.99, p<0.1) or both partners (OR=0.99, p<0.001) having separate accounts, relative to having a joint account only. This is consistent with my fourth hypothesis.

The final set of models yields evidence of substantial intergenerational impacts on couples' bank account choices. As predicted in my last hypothesis, in the random-effect logit model, couples in which both partners come from non-traditional family backgrounds have much lower odds of having joint accounts (OR=0.57, p<0.05). The random-effect multinomial logit model yields additional insights: parental socioeconomic status is positively associated with the odds of both partners having separate bank accounts over having no separate accounts (OR=1.01, p<0.1), with women's family background being more predictive of separate account choices than men's. That is, separate bank accounts are more prevalent among couples in which only one partner comes from a non-traditional family when such partner is the woman (OR$_{men}$=1.52, p<0.1; OR$_{women}$=1.51, p<0.05; OR$_{both}$=1.42, p<0.1).

Table 5-4 Bank account choices among heterosexual couples in Australia, hypothesis testing

Hypotheses	Joint account vs. no joint account	Account choice (ref. partners have only a joint account)		
		Only man has a separate account	Only woman has a separate account	Both have separate accounts
Hypothesis 1				
Total income (IHS)	1.30***	1.19**	1.08	1.09+
Relative resources (ref. similar contribution)				
Women contribute 60%+	0.67**	1.32+	1.64***	1.51***
Men contribute 60%+	1.01	1.14	1.27**	1.06
Control variables [a]	Yes	Yes	Yes	Yes
N (observations)	*15,572*	*15,572*	*15,572*	*15,572*
N (individuals)	*7,094*	*7,094*	*7,094*	*7,094*
AIC / BIC	*11,679 / 11,824*	*33,208 / 33,628*		
Hypothesis 2				
Number of dependent children	1.33***	0.86***	0.92*	0.77***
Control variables [b]	Yes	Yes	Yes	Yes
N (observations)	*15,572*	*15,572*	*15,572*	*15,572*
N (individuals)	*7,094*	*7,094*	*7,094*	*7,094*
AIC / BIC	*11,651 / 11,789*	*33,140 / 33,537*		
Hypothesis 3				

Relationship history (ref. both 1st relationship)				
Men 1st relationship and women 2nd+	0.23***	1.55+	2.07***	2.12***
Women 1st relationship and men 2nd+	0.33***	1.80*	1.69*	1.96***
Both 2nd+ relationship	0.05***	5.50***	5.90***	14.57***
Relationship duration	1.07***	0.97***	0.97***	0.95***
Control variables [c]	Yes	Yes	Yes	Yes
N (observations)	*15,449*	*15,449*	*15,449*	*15,449*
N (individuals)	*7,046*	*7,046*	*7,046*	*7,046*
AIC / BIC	*11,582 / 11,734*		*33,089 / 33,533*	

Hypothesis 4

Gender-role attitudes	1.00	1.00	0.99+	0.99***
Control variables [b]	Yes	Yes	Yes	Yes
N (observations)	*14,243*	*14,243*	*14,243*	*14,243*
N (individuals)	*6,522*	*6,522*	*6,522*	*6,522*
AIC / BIC	*10,469 / 10,605*		*30,709 / 31,095*	

Hypothesis 5

Mean parental SES	1.00	1.01	1.00	1.01+
Family background (ref. neither from non-traditional family)				
Only man from non-traditional family	0.70	1.33	1.29	1.34
Only woman from non-traditional family	0.83	1.52+	1.51*	1.42+
Both from non-traditional family	0.57*	1.29	1.36	1.40+

Control variables [b]		Yes	Yes	Yes	Yes
N (observations)		15,559	15,559	15,559	15,559
N (individuals)		7,084	7,084	7,084	7,084
AIC / BIC		11,667 / 11,835		33,211 / 33,700	

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Odds ratios reported. Column 1 displays the results of the random-effect binary logit models, and columns 2-4 display the results of the random-effect multinomial logit models. All models feature robust standard errors. The coefficient of the missing category in non-traditional family background is omitted for readability. [a] marital status, age, employment, education and ethnicity. [b] marital status, age, employment, education, ethnicity and total income (IHS). [c] age, employment, education, ethnicity and total income (IHS). Significance levels: [+] $p<0.1$, [*] $p<0.05$, [**] $p<0.01$, [***] $p<0.001$.

5.10 Discussion and conclusion

5.10.1 Summary of aims, contributions and key findings

In this chapter I have systematically examined the trends in and predictors of bank account choices among heterosexual couples in contemporary Australia. By paying attention to economic, life-course, and socio-cultural explanations, and taking into consideration intergenerational factors, I provided a more encompassing and granular picture of within-couple bank account choices than ever before. My empirical analyses were undertaken using a large, nationally representative household panel survey comprising the period 2002-2014, exploiting both its panel structure (by estimating state-of-the-art panel regression models for the first time in this field) and its household structure (by leveraging couple-level data that better reflects partnership circumstances and improves estimation).

I find that heterosexual couples in contemporary Australia tend to favour mixed banking strategies which combine joint and separate bank accounts. The most prevalent scenario is the exclusive use of a joint bank account, but alternative 'separate but equal' models are on the rise. These involve both the male and female partners holding separate accounts in addition or instead of a joint account. In addition to confirming that couple's bank account choices in the contemporary Australian context are reflective of partners' socio-demographic characteristics (e.g. age, marital status, age, employment status, education, and ethnicity), I find new evidence that such choices are also contingent on other economic, life-course, socio-cultural and intergenerational factors. Altogether, I found robust evidence supporting Hypotheses 1 to 3 (relative resources, transaction costs, relationship history), and some evidence in support of Hypotheses 4 and 5 (gender ideology, intergenerational effects).

Economic factors were found to be important predictors of couples' bank account choices. Both absolute and relative income affected these in theoretically expected ways: high absolute income was associated with increased odds of joint account ownership, whereas comparable income contributions to the household by couple members were associated with arrangements involving separate accounts. This pattern of results concerning spousal bargaining power is consistent with findings from other literatures examining couple-level outcomes (e.g. employment and housework). Interestingly, women's contribution of total income was more predictive of separate bank accounts than

men's contribution. I take this finding as evidence that women's economic resources are important drivers of financial independence. My results were also consistent with the hypothesis that the number of children in the household would lead to increased odds of joint bank accounts and decreased odds probability of arrangements involving separate bank accounts. I take this finding as suggestive evidence of the notion of 'transaction costs'. That is, couples opt for a joint banking strategy that minimises negotiations and disputes on the source of payments associated with their collective capitals.

Life-course factors were also important precursors of couples' banking arrangements. Particularly, shorter and more complicated relationship histories were associated with couples more often relying on separate accounts. This finding highlights the importance of considering bank account choices within a life-course perspective.

In addition, socio-cultural aspects, measured through individual attitudes, were also predictive of bank account choices in theoretically meaningful ways. In this respect, I provide evidence that traditional gender-role attitudes are negatively related to the odds of couple members using separate banking. This constitutes novel evidence that attitudes are important drivers of individuals' bank account choices net of material/tangible factors, and of couples 'doing gender' when making banking decisions. This finding adds to a body of knowledge documenting the effects of gender-role attitudes on individuals' behaviours across life domains, e.g. labour, childcare and housework supply, union formation and dissolution, leisure time allocations, or marital conflict –see Davis & Greenstein (2009) for a review.

Finally, I provided first-time evidence of intergenerational effects on bank account choices –prior research focused predominantly on concurrent individual and couple factors. High parental socio-economic status and 'non-traditional' family background (concerning gender equality) were both associated with an increased prevalence of separate banking arrangements. Altogether, the intergenerational effects found were more pronounced for women, suggesting that certain family backgrounds may promote the transgression of gendered scripts.

5.10.2 Implications for theory, policy and practice

My results speak of similarities and differences in the prevalence and predictors of different bank account arrangements between Australia and other countries. Unlike countries in which exclusive use of joint accounts (e.g. the US) or separate accounts (e.g.

the UK and South Korea) is the norm, Australia is distinctive for the prevalence of mixed banking strategies which combine joint and separate accounts. Similar to studies in the US, the UK and Norway, I find that egalitarian contributions to household income, dependent children and longer relationships are all positively associated with joint account ownership and negatively associated with separate accounts. However, my finding of a positive (negative) effect of traditional gender ideology on couples' ownership of joint (separate) bank accounts in Australia is at odds with findings for other countries. In the US, Heimdal & Houseknecht (2003) found no such effect. This could reflect Australia's unique historical legacy: institutional inertia due to previous legislation reinforcing the male-breadwinner model may still influence the behaviours and outcomes of couples in contemporary Australia. More broadly, my study has added Australia as a comparison benchmark to existing evidence for the US, the UK, Canada, Norway and South Korea. Pooling the results from my study and these other studies, I now have a relatively good understanding of the micro-level factors associated with different bank account arrangements within couples, e.g. age, education, number of children, and marital status. Yet, I have virtually no evidence on the role of macro-level factors in influencing couples' bank account arrangements. One set of such macro-level factors may operate through country contexts, as hinted by documented country-level differences in the prevalence of joint bank accounts across studies –with the United States (very prevalent) and South Korea (virtually non-existent) as two extremes. Hence, a promising research avenue within this field of enquiry would be to systematically examine the country-level factors associated with bank account choices. From other literature looking at contextual moderators of gender inequality (e.g. pertaining to the division of domestic labour, see Geist & Cohen, 2011), I suspect that such factors may encompass welfare regimes, average levels of female economic activity, normative gender ideologies, or family tax policies (see also Prince-Cooke & Baxter, 2010). A move in this direction would however require the availability of a harmonised cross-national dataset containing the requisite information.

Concerning gender theory, my findings confirm that aspects known to produce gendered behaviours and outcomes in other domains (e.g. domestic divisions of labour) also produce gendered behaviours and outcomes in relation to couples' bank account choices. These include economic factors (absolute income, relative resources), cultural factors (gender ideology), and life-course factors (relationship history and duration). Hence, taken together, my results indicate that examining the precursors of bank account

choices constitutes a novel and insightful way to further probe into the gendering of every-day family life. Thus, my findings have implications for gender equality in financial arrangements within Australian couples, and the financial emancipation of partnered women. High female income contributions to household resources and egalitarian ideologies of co-provision both translate into more 'democratic' bank account arrangements. If empowering women in intimate relationships through more equal banking strategies is a desirable goal, social policies and interventions which promote the emergence of gender egalitarian attitudes and improve the financial position of women are likely to have such an effect. Mothers' education was also an important precursor of adult children's bank account choices, being associated with banking arrangements that provide their adult daughters with increased financial autonomy. Hence, current trends in female educational attainment may indirectly result in societal changes in the prevalence of more gender-egalitarian bank account arrangements. More broadly, I find that factors such as parental socio-economic status are related to couple members' separate banking behaviours. Given ongoing socio-demographic trends in these factors, my findings suggest that bank account choices will become progressively more egalitarian and individualised over the life course, across generations and over time.

5.10.3 Limitations and further research

Despite several contributions to the scant international literature on bank account choices, this chapter suffers from some limitations which must be acknowledged. First, my operationalisation of certain explanatory variables is hampered by data quality. Particularly, the gender-attitude measure is not concurrent and neglects the fact that such attitudes can change (Baxter et al., 2015), and parental background variables are retrospectively reported by adult children, which may lead to measurement error (Huang, Perales & Western, 2016). Additionally, I lacked information on parents' bank account choices, financial arrangements, and gender ideology, all of which would have added depth to my intergenerational analyses. Second, I only consider the types of bank account arrangements, but do not delve into other potentially important factors. These may include the number of accounts, how much money people have in each account, the source of money deposited in joint accounts, and the spending behaviour of the different owners of joint accounts. It is likely that having joint accounts does not translate into egalitarian control over the money deposited in such accounts (Edwards, 1981; Glezer, 1994), as

perceptions of money ownership and patterns of expenditure may be associated with who brings money in (Nyman, 2003). Future research studies should consider these factors as a means to gain better insights into within-couple everyday financial arrangements. In particular, there is room for more qualitative research examining whether and how gender ideology and family background relate to individual- and couple-level decision making concerning bank account ownership. Third, while I now know a lot about the precursors of bank account choices, I still have a very limited understanding about the potential consequences of these choices. Pioneer research suggests that couples who make spending decisions separately are comparatively less satisfied with family life (Vogler, Lyonette & Wiggins, 2008), while whether or not couples have joint accounts makes no significant difference to partners' psychological wellbeing (Kan & Laurie, 2014). Future studies should expand the analysis of bank account choices by considering their potential consequences on other (inter)personal outcomes, including relationship quality and satisfaction, happiness, life satisfaction, financial stress, and perceptions of money control. Such studies, however, will face important methodological challenges, particularly concerning their ability to identify the direction of causal arrows (Nyman, 2003).

To conclude, this chapter has focused on an important and often overlooked aspect of within-couple financial arrangements: bank account choices. As I have argued and demonstrated throughout this chapter, bank account choices are complex and multifaceted, and provide an additional window into how everyday-life family decisions are enacted, and are sometimes rooted within gendered discourses. Findings in this chapter contributed to our understanding of intergenerational economic mobility by providing empirical evidence of the intergenerational impact of parental socioeconomic status on adult children's financial behaviour. More research on financial autonomy among couple members is needed, as this has important implications on women's financial emancipation.

Chapter 6 Discussion and conclusion

6.1 Summary of aims, contributions and findings of the thesis

This thesis aims to provide a better understanding of the degree, nature and mechanisms of intergenerational economic mobility in contemporary Australia. I began the thesis by providing an overview of historical evidence on intergenerational social mobility in colonial and post-colonial Australia, and then I outlined the potential consequences of intergenerational economic immobility, surveyed the active areas of research in intergenerational economic mobility, and summarised the main contributions and key findings. In Chapter 2, I developed a conceptual framework of intergenerational economic mobility, and detailed various pathways from social origins to destinations —linking family background to adult children's economic outcomes. In Chapter 3, I examined the degree and dynamics of intergenerational earnings mobility in Australia, focusing on the effects of different levels of occupational disaggregation and different earnings measures on the magnitude of father-son earnings elasticities, and revisiting international associations between economic inequality and immobility. In Chapter 4, I investigated the effect of family background on the probability and amount of parental wealth transfers, and assessed the different patterns of parental wealth transfers by parental SES over children's life courses and at children's major life events. Finally, in Chapter 5 I explored how intra-generational and intergenerational factors impact on couple-level economic behaviours in Australia (using bank account choices as a case study).

In providing empirical evidence of the degree and mechanisms of intergenerational economic mobility, I used data from the longest running Australian panel study—the Household, Income and Labour Dynamics in Australia Survey (2001-2015), and state-of-the-art statistical techniques adequate to panel data and to the nature of the response variables. Specifically, I deployed (i) random-effect panel regression models for the estimation of intergenerational earnings elasticity, (ii) random-effect selection models for the study of intergenerational wealth transfers, which jointly estimate the probability of receiving parental transfers and the amount of such transfers; and (ii) binary and multinomial random-effect logit models of couple-level bank account choices.

6.1.1 Revisiting my conceptual framework of intergenerational economic mobility

Intergenerational economic mobility reflects the economic aspect of social mobility across generations. This concept is therefore embedded in the broader area of social mobility. Social mobility can be categorised into within-generation (intra-generational) and between-generation (intergenerational) mobility. Intergenerational mobility constitutes occupational mobility, class mobility, educational mobility and economic mobility. Three important components were identified to measure intergenerational economic mobility: income mobility, wealth transfers, and the effect of family background on adult children's financial attitudes and behaviours. Theoretically, economic mobility in respect to personal wealth is another critical measure of economic mobility, because lifetime wealth is one of the best proxies of economic resources (Boserup, Kopczuk & Kreiner, 2014). In practice, however, studies on intergenerational wealth mobility are largely constrained by the availability of wealth data that (i) capture all dimensions of wealth (including assets, debts, public and private transfers etc.), and (ii) capture lifetime wealth of at least two generations. In the absence of administrative data and long-running panel data, studies on intergenerational transmission of wealth focus on wealth transfers made from parents to children. This thesis, therefore, considers parental wealth transfers as an important mechanism of intergenerational wealth transmission to assess intergenerational economic mobility.

In developing this conceptual framework, this thesis contributed to the research area of intergenerational economic mobility in the following ways. First, it provided a new conceptualisation of intergenerational economic mobility that was neither explicitly nor fully discussed in the literature. It mapped out the hierarchical relationship between social mobility, intergenerational mobility and intergenerational economic mobility, and outlined the measures and components of each type of mobility. Second, this conceptual framework combined research areas in economics and sociology, thereby providing a more comprehensive and granular picture of social mobility than ever before. Third, this conceptual framework linked the study of intergenerational economic mobility to the study of economic behaviour. Studying economic behaviour provides an important lens into economic mobility by examining the impact that family background has on grown-up children's economic and financial practices, which has implications on their economic outcomes. Finally, this conceptual framework provided an important guidance for future mobility studies to expand and modify the conceptualisation of intergenerational economic mobility in different contexts.

6.1.2 Intergenerational earnings elasticity

By convention, intergenerational income mobility is measured using father-son earnings elasticity. This measure captures the expected percentage change in child's earnings associated with a one-percent increase in father's earnings. Due to high rates of part-time work and discontinuous employment histories, women's permanent earnings are less predictable than men's. As a result, the common practice in the income-mobility literature is to estimate earnings elasticity using father-son dyads. Since fathers' earnings are not observable in the HILDA Survey, I applied a two-stage panel regression model which first computes fathers' earnings based on sons' reports of fathers' occupations, and then estimates the elasticity.

This study constituted one of the few income mobility studies in Australia. It also added to the existing literature by introducing and applying a two-stage panel regression model to estimate earnings elasticities, establishing trends in earnings elasticity in Australia over time, examining how using different levels of occupational (dis)aggregation and earnings measures affects elasticity estimates, and providing the latest elasticity estimates in Australia using more recent data than previous studies.

Results show that father-son earnings elasticity in Australia between 2001 and 2013 ranges from 0.11 to 0.30, and has increased over the observation window. My preferred elasticity estimates lie between 0.24 and 0.28. Elasticity estimates vary depending on the level of occupational (dis)aggregation and earnings measure used: they are highest when two-digit level occupations and hourly earnings are used, and lowest when four-digit level occupations and annual earnings are used. A statistically significant correlation between earnings elasticity and Gini coefficients supports the empirical argument in the existing literature that economic mobility is inversely associated with economic inequality. I read these findings as indicating that (i) Australia has a moderate level of income mobility by international standards; (ii) over the past decade there was a slight decline in intergenerational income mobility, and this decline in income mobility is accompanied by an increase in income inequality; and (iii) elasticity estimates are very sensitive to the choice of data and methods.

These findings have the following implications. First, analyses of earnings elasticity should pay careful attention to the extent to which their results are robust to alternative analytic choices. Second, cross-temporal and cross-national comparative analyses should recognise that differences in the analytic approach across comparison units may

contribute to observed similarities or differences. Third, changing patterns of earnings elasticity in a specific country need to be carefully evaluated with the dynamics of economic inequality.

In summary, this chapter adds to my overarching framework for the study of intergenerational economic mobility by having examined the degree and dynamics of intergenerational income mobility (using intergenerational earnings elasticity) in contemporary Australia. Findings in this chapter constitute the income aspect of economic mobility outlined in Chapter 2.

6.1.3 Intergenerational wealth transfers

Intergenerational wealth transfers are financial transfers made within families and across generations. The direction of transfers can be either "downward" or "upward": downward wealth transfers include (i) transfers made from parents to children; and (ii) generation-skipping transfers from grandparents to grandchildren (or transfers involving multiple generations). Upward wealth transfers go in the opposite direction: a typical type of these is transfers from children to parents. Wealth transfers take two forms: *inter vivos* transfers (i.e. monetary gifts) and bequests/inheritances. Since the HILDA Survey records gift transfers received from parents, and collects information on inheritances received without specifying its source, I focused on examining the effect of family background on the probability and amount of parental gift transfers (generalised as parental wealth transfers thereafter). I also adopted a life-course approach to the study of wealth transfers by examining how the probability and amount of such transfers differ by parental SES over children's life course and at children's major life events.

In doing so, I provided first-time empirical evidence on the effect of family background on parental wealth transfers in Australia. I pioneered the application of random-effect Heckman selection model to the analysis of parental wealth transfers, thereby taking into account the inter-dependence of the probability and amount of parental transfers, avoiding selection bias, and capturing the underlying dynamics of parental transfers. Additionally, I examined how life-course patterns of parental transfers differ by parental SES for the first time in wealth transfer literature in Australia.

Findings show an overall increase in the probability of receiving parental transfers over time, while transfer amount remains stable. Parental employment status, education and occupation positively predict the likelihood and magnitude of parental transfers,

whereas parental union history and father's unemployment history are negatively associated with the probability and amount of parental transfers. The predicted probabilities and amount of parental transfers are consistently higher for the middle/high SES group than for the low SES group over children's life course. Transfer patterns by parental SES are similar at the events of childbirth, marriage, being a full-time student, material deprivation, lack of financial prosperity and income poverty, while purchasing a property and financial worsening are related to increases in the likelihood and magnitude of parental transfers for children born to middle/high SES families only.

These findings have important implications for research and practice. First, parental wealth transfers may provide an important means through which intergenerational transmission of advantage takes place. Children from affluent families over their life course and at major life events not only are more likely to receive parental transfers, but also receive larger amount of parental transfers, than their peers from poor families, suggesting that parental transfers facilitate the reproduction of socioeconomic statuses (Albertini & Radl, 2012). Therefore, parental wealth transfers need to be theorised as an important driver of intergenerational inequality and persistence. Second, parental wealth transfers are likely to become more important over time, given the critical role these transfers play in helping children deal with the surge of tertiary education costs and property price. The findings point out that parents' abilities to give depend not only on their socioeconomic statuses (measured by their employment status, education and occupation), but also on whether their unions remain intact, because separation and divorce fracture parental assets. Third, further research could consider whether and how differences in parental wealth transfers may be associated with sustained gaps in children's cognitive and non-cognitive skills, social and economic statuses, health and subjective wellbeing. The sizes of these associations may have important policy implications, because if there exist substantial associations between gaps in parental wealth transfers and in children's skills, statuses and wellbeing, policy interventions using targeted, compensatory public transfers would provide real impact on mitigating such gaps and creating equal chance for children from adverse family background.

In summary, this chapter adds to my overarching framework for the study of intergenerational economic mobility by having explored the effect of family background on the probability and amount of parental wealth transfers, and how parental wealth transfers differ by family socioeconomic status over the life course and at major life events of adult

children. Findings in this chapter constitute the wealth transfer aspect of economic mobility outlined in Chapter 2.

6.1.4 Intra-generational and intergenerational factors and economic behaviours

Adult children's financial organisation is an important aspect of their economic behaviours, and may be influenced by parental resources during upbringing. For example, parental earning capacity affects the way in which they manage, save and spend money, which in turn shapes children's monetary views and practices. In this thesis, I studied the patterns, determinants and dynamics of within-couple bank account choices (a case study for financial behaviours), paying attention to a wide range of intra-generational and intergenerational factors. The use of couple-level bank account information improves upon studies using such information from just one couple member, as doing so reduces (i) measurement errors associated with misreport of joint bank accounts, and (ii) omitted-variable bias due to the absence of partner characteristics in the model. This study was the first to use longitudinal survey data and panel regression models in within-couple finance literature, and provides the first robust account of couples' bank account choices in Australia. It was also the first to empirically test the effect of family background on partnered individuals' bank account choices, as the intergenerational factors have largely been overlooked in the literature.

Results suggest that heterosexual couples in contemporary Australia favour mixed banking strategies which combine joint and separate bank accounts. In addition to confirming that couple's bank account choices are reflective of partners' socio-demographic characteristics (e.g. age, marital status, age, employment status, education, and ethnicity), I find new evidence that such choices are also contingent on other economic, life-course, socio-cultural and intergenerational factors: income, number of children and traditional gender ideologies increase the odds of joint account choices and decrease the odds of separate banking, whereas comparable income contribution, shorter and more complicated relationship histories, high parental socioeconomic status and non-traditional family background are associated with couples choosing separate bank accounts.

The findings of intergenerational impact on adult children's bank account choices have important implications for practice. Mothers' education was found to be an important precursor of adult children's bank account choices, being associated with banking

arrangements that provide their adult daughters with increased financial autonomy. Hence, current trends in female educational attainment may indirectly result in societal changes in the prevalence of more gender-egalitarian bank account arrangements. Parental socioeconomic status are related to couple members' separate banking behaviours. Given ongoing socio-demographic trends in these factors, the findings suggest that bank account choices will become progressively more egalitarian and individualised over the life course, across generations and over time.

In summary, this chapter adds to my overarching framework for the study of intergenerational economic mobility by studying the intergenerational impact on adult children's economic behaviour (operationalised using bank account choices), while also taking into consideration intra-generational predictors. Findings in this chapter constitute the economic behaviour aspect of economic mobility outlined in Chapter 2.

6.2 Limitations of the thesis

This thesis is not without limitations. First, my empirical analyses lack information on actual parental income and wealth, which are arguably better measures of parental socioeconomic status than parental education, occupation or imputed earnings (Boserup, Kopczuk & Kreiner, 2014). The lack of observed parental income poses significant challenges to the estimation of intergenerational earnings elasticity, and points towards a suboptimal solution of imputing parental earnings. The imputed parental earnings are less precise than the actual earnings, and this may hamper the accuracy of the elasticity estimates. The lack of observed parental wealth obstructs the estimation of intergenerational wealth mobility, and due to its multidimensionality, imputation of parental wealth is theoretically and empirically difficult. Lacking parental income and wealth also impedes the calculation of the share of parental transfers over parental income and wealth, which can be used to assess wealth transfer motives and the degree of generosity of parents (Cox & Rank, 1992; Norton, Nicholas & Huang, 2013). The thesis also lacks information on parental bank account arrangements, which would otherwise provide additional insights into the intergenerational transmission of financial practices. Additionally, information on parental characteristics comes from respondents' retrospective reports, which is susceptible to measurement errors and recall bias (Huang, Perales & Western, 2016a; Huang, Perales & Western, 2016b).

Second, in this thesis I was unable to estimate the causal effect of family background on children's income, bank account choices and parental wealth transfers received. Fixed-effect models are an important analytical tool for causal inference in the context of panel data (Antonakis et al., 2010), because these models can control for the unobserved time-invariant cofounders that may be correlated with the explanatory variables, thereby reducing omitted variable bias (Hsiao, 2007). The trade-off is that fixed-effect models do not estimate the effects of the explanatory variables whose values are time-constant. Since retrospective information on family background is time invariant, I could not use such information in fixed-effect models. Random-effect models use both the within-individual and between-individual variation in the panel data and improve the efficiency of the estimation, but assume no omitted variables and orthogonality (i.e. no correlation) between individual-level unobserved heterogeneity and the explanatory variables in the models. These assumptions, however, are restrictive and unrealistic. For example, respondents' unobserved characteristics such as cognitive abilities, non-cognitive abilities and family environment when they grew up are likely to affect their income, bank account choices and parental transfers received (thus the assumption of no omitted variables is violated), and are correlated with family background as well as their observed characteristics such as education (thus the assumption of orthogonality is violated). Therefore, estimates of the effect of family background in this thesis need to be interpreted as association rather than causation. Other statistical techniques for causal inference, such as instrumental variables, could be potential alternatives to fixed-effect models, although valid instruments for family background remain difficult to find.[37]

Finally, most family background variables pertain to parental characteristics when the respondent was 14 years of age. These include parental employment status, education and occupation. Using these parental characteristics in the past to predict adult children's contemporary economic outcomes may result in imprecise estimates of the "true" effect of

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[37] The idea of using instrumental variables is to isolate the part of the variation in the endogenous regressor (i.e. family background) that is correlated with the error term (i.e. individual-level unobserved heterogeneity), thereby obtaining an estimate of the "true" effect. To obtain this causal effect, however, the selected instruments need to be valid. To meet the requirement of validity, the selected instruments must be uncorrelated with the error term in the outcome equation (*instrument exogeneity*), be highly correlated with the endogenous regressor (*instrument relevance*), and not be predictors of the outcome variable themselves (*exclusion restriction*).

family background, because such prediction assumes that parental employment status and occupation do not change over time. This assumption is less likely to hold, given the ongoing socio-demographic transformation taking place in contemporary Australia. A solution to this is to match parents and adult children in the panel data so that we could use the observed parental characteristics in the same waves as the observed children's economic outcomes to establish the models. Doing so in the HILDA Survey—a comparatively short panel with 15 waves of available data—may however results in a selective sample of mostly young adult children, which, as has been discussed before, is problematic.

6.3 The future of research into intergenerational economic mobility

This thesis points out several fruitful avenues for future research in the broad area of intergenerational economic mobility. First, future studies on intergenerational income mobility could move beyond my analyses by estimating earnings elasticities using other parent-child dyads, such as father-daughter or mother-son dyads, and examine whether different types of fathers/parents (e.g. step fathers, adoptive fathers, and biological fathers) influence their children's outcomes to the same extent. Additionally, income measures other than earnings, such as total household income, could be used to estimate and compare the elasticities, as past research suggests that household income can account for spousal selection (i.e. assortative mating) and better capture inter-family dynamics than individual earnings (Torche, 2015). Furthermore, studies in Australia could also explore the patterns of income mobility by different ethnic/racial groups, by migrant status or by Indigenous status. Such studies will help provide a clear picture of how well different social groups in Australia perform in income across generations.

Second, future research could explore intergenerational correlation of wealth by estimating wealth elasticities. To do so, the wealth of both parents and adult children needs to be observed. This can be done by linking parents to adult children in the HILDA Survey, taking care of the potential life-cycle bias associated with using young parent-child dyads. Cohort analysis can also be conducted to compare the trends of intergenerational wealth mobility over time.

Third, future studies could delve into the mechanisms through which intergenerational transmission of income and wealth takes place. This can be done by decomposing income or wealth elasticity into components contributed by different

characteristics of parents and adult children, such as education, occupation, health and marital status (Blanden et al., 2014). In doing so, we could examine the relative strengths of the influences of various characteristics of parents and adult children on income and wealth mobility, and understand multiple channels and pathways into status transmission and intergenerational persistence. Understanding these mechanisms also involves examining how advantage emerges from early life and is perpetuated thereafter. Therefore, it is important to link studies of child development and educational inequality to studies of intergenerational transmissions of socioeconomic statuses.

Fourth, future research could examine the effect of family background and major life events of adult children on the occurrence and timing of parental wealth transfers (Leopold & Schneider, 2011). While in this thesis I have established that parental wealth transfers follow different patterns over children's life course by parental SES, how children's life events trigger the occurrence and timing of parental transfers and how these differ by parental SES remain unclear. Additionally, parents typically transfer wealth multiple times, and this needs to be taken into consideration empirically. Multilevel event-history analysis can be used to accommodate these multiple occurrences of parental wealth transfers. Furthermore, new analyses on how receiving parental transfers transforms into advantage amongst adult children of middle/high SES parents would also help advance the research area of intergenerational wealth transfers. This could involve examining, for example, whether parental transfers in middle/high SES families improve adult children's health, buffer against children's economic strains, or enable children to choose better jobs.

Fifth, future studies could link wealth transfers to wealth mobility to examine the role that parental transfers play in reducing or exacerbating intergenerational wealth mobility. Existing studies show mixed findings with regard to the impact of wealth transfers on wealth correlations: evidence from Sweden suggests that bequests and gifts account for at least 50% of the parent-child correlation (Adermon, Lindahl & Waldenström, 2016), whereas parental wealth transfers have negligible effects on intergenerational wealth elasticity in Norway (Fagereng, Mogstad & Rønning, 2015). More research is needed on the association between wealth transfers and wealth mobility, and cross-country comparative analysis will provide more insights into the similarities and differences of this association across different welfare regimes.

Sixth, findings of the intergenerational impact on children's financial organisation in this thesis point towards a promising research avenue consisting of examining the intergenerational transmission of economic behaviours, attitudes and practices.

Information on financial arrangements of the parents and adult children can be used to investigate the degree of intergenerational continuity of financial organisation. Future research could explore data sources that contain requisite information on banking practices of both generations, or conduct case studies that gather information on bank account choices of both the focus group and their parents.

Seventh, separate analyses of the different patterns of intergenerational economic mobility by ethnicity, by geography, or by the distribution of income/wealth could be conducted. In doing so, we could examine the ethnic and geographic variations of intergenerational economic mobility and how the mobility patterns differ at different positions of the income/wealth distribution. Prior research suggests great geographic variation in intergenerational mobility (Chetty et al., 2014), more mobility in the white population than in the non-white population (Mazumder, 2014), and less mobility at the tails of the income/wealth distribution (Jianakoplos & Menchik, 1997). Similar analysis could be conducted in Australia to enrich international comparisons.

Finally, international comparative work on intergenerational economic mobility is needed to complement my findings for Australian context. In this thesis I have established that the institutionalised family wage system, the historical egalitarian culture and the early abolition of wealth transfer tax have made Australia an internationally distinctive country in the patterns of intergenerational economic mobility observed: comparatively high income mobility due to the legacy of wage compression in the 1980s, larger volume of and more frequent parental wealth transfers in high SES families than in low SES families in a tax-free environment, and mixed financial arrangements combining joint and separate bank accounts in Australian families due to the blend of male breadwinner ideology and the egalitarianism tradition. It would be highly desirable to conduct cross-country comparative analysis on intergenerational economic mobility that follow my proposed theoretical model and empirical specification. These would showcase how the patterns of economic mobility differ by historical, institutional and socio-cultural contexts. International comparisons would also contribute to the theory of welfare state regimes by assessing how well the patterns of intergenerational economic mobility among rich capitalist countries fit into the three worlds of welfare capitalism (Esping-Andersen, 1990).

6.4 Concluding remarks

Is Australia still the land of the "fair go"? Does the egalitarian ethos still exist in contemporary Australia? These questions have always been under the spotlight in mass media and debated in academic and government work in Australia.[38] Inspired by the long-standing, heated discussions in the public sphere, this thesis has provided a much needed evidence base to inform these discussions. It accomplished this by developing a conceptual framework of intergenerational economic mobility and providing empirical evidence of the degree, nature and mechanisms of intergenerational transmission of (dis)advantage in Australia. In doing so, this thesis contributed to clarifying the hierarchical relationships between social mobility, intergenerational mobility and intergenerational economic mobility, provided up-to-date estimates of intergenerational income mobility, underlined the importance of recognising intergenerational wealth transfers as a mechanism of status reproduction, and linked the study of economic mobility to the study of economic behaviour. Methodologically, this thesis used the newest, longest-running high-quality panel data in Australia and state-of-the-art panel regression models, and pioneered the application of panel Heckman selection model to the study of intergenerational economic mobility. Key findings in this thesis suggest a moderate level yet decreasing trend of intergenerational income mobility, persistent life-course gaps in parental wealth transfers by family socioeconomic status, and independent and individualised economic behaviours associated with 'non-traditional' family background. These findings help provide new insights into the degree, mechanism and progress of intergenerational economic mobility in contemporary Australian society.

Future research in the area of intergenerational economic mobility needs to move beyond simple analyses of measuring intergenerational inequalities and calculating intergenerational correlations of income, and to pay more attention to the mechanisms through which intergenerational (im)mobility takes place. Given the global trends of massive expansion of higher education and the internationalisation of labour market, the younger generations may have more economic opportunities than their parental

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[38] An example of the frequent media attention and debates on these questions is that, in 2013 and 2016, two programs under the same title "Is Australia still the land of the fair go?" were broadcasted in the Australian Broadcasting Corporation Radio National. These featured debates and critiques about Australia's standing as the land of the "fair go". In addition, numerous newspaper articles and politicians' speeches routinely comment on the degree of "fair go" in contemporary Australia.

generations on one hand, but may face more economic inequalities than older generations on the other hand (as the wealthy can afford moving internationally to take over better opportunities, leading to more stratification). Increased employment flexibility, job precariousness and global competitions of work lead to greater economic uncertainties, which in turn transform into longer stay in education, delayed family formation and later labour market entry. These macro-level trends associated with globalisation play out differently and unevenly in ways that are mediated by local institutions of education, welfare state, labour market and family. More studies on social and economic stratification are needed to examine how these global trends interplay with factors influencing the degree and mechanisms of intergenerational economic mobility.

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Table A3-1 Intergenerational income mobility across OECD countries

Country	Dyad	Index[a]	Method[b]
Australia	Father-son	[0.2, 0.3]	2SLS
Canada	Father-son	[0.13, 0.26]	OLS, IV
	Father-daughter	0.22	IV
Denmark	Father-son	[0.071, 0.082]	OLS
	Father-daughter	0.034	OLS
Finland	Father-son	[0.086, 0.18]	OLS
	Father-daughter	0.08	OLS
France	Father-son	[0.36, 0.50]	IV, TS2SLS
	Father-daughter	[0.23, 032]	IV
Germany	Father-son	[0.095, 0.34]	OLS
Italy	Father-son	[0.44, 0.50]	TS2SLS
Japan	Father-son	[0.25, 0.46]	TS2SLS, IV
	Father-daughter	[0.3, 0.38]	IV
South Korea	Father-son	[0.22, 0.36]	IV, SIMEX
	Father-daughter	[0.34, 0.46]	IV, SIMEX
Norway	Father-son	[0.12, 0.29]	OLS, quantile regression
	Father-daughter	[0.11, 0.22]	OLS, quantile regression
Spain	Father-son	[0.33, 0.60]	OLS, IV
Sweden	Father-son	[0.13, 0.30]	OLS, IV
	Father-daughter	0.19	OLS
United Kingdom	Father-son	[0.22, 0.59]	OLS, IV, TS2SLS
	Father-daughter	[0.33, 0.70]	OLS, IV
	Mother-son	[0.06, 0.23]	OLS, IV
	Mother-daughter	0.24	OLS, IV
United States	Father-son	[0.09, 0.61]	OLS, IV, tobit, TS2SLS
	Father-daughter	[0.28, 0.61]	OLS, IV, tobit, TS2SLS
	Mother-son	0.29	IV
	Mother-daughter	0.27	IV

Notes: We summarize up-to-date measures of parent-children income linkages, and present broad income mobility coefficients which include, but are not confined to, earnings elasticities. These are given as a range within which the estimates from studies in each country fall.

[a] The range [a, b] denotes the lowest and highest values for the income mobility index in the existing literature.

Table A3-2 Father-son hourly earnings elasticity in Australia, by level of occupational (dis)aggregation, hourly wage adjusted using WPI

Results	Occupational disaggregation							
	One digit		Two digits		Three digits		Four digits	
	25-64	30-55	25-64	30-55	25-64	30-55	25-64	30-55
	0.234	0.303	0.262	0.284	0.237	0.257	0.113	0.131
	(0.034)	(0.041)	(0.022)	(0.026)	(0.019)	(0.023)	(0.013)	(0.015)
R^2 (overall)	0.031	0.024	0.047	0.037	0.049	0.039	0.038	0.030
N (observations)	30,175	21,101	30,175	21,101	30,175	21,101	30,175	21,101
N (individuals)	4,960	3,603	4,960	3,603	4,960	3,603	4,960	3,603

Notes: Standard errors in parentheses. Elasticities estimated using hourly earnings in the main job. All elasticities are statistically significant at the 0.1% level.

Table A3-3 Father-son hourly earnings elasticity in Australia, by level of occupational (dis)aggregation (full model output)

Results	One digit		Two digits		Three digits		Four digits	
	25-64	30-55	25-64	30-55	25-64	30-55	25-64	30-55
Elasticities	0.232***	0.301***	0.259***	0.282***	0.235***	0.255***	0.112***	0.129***
Son's age	0.007***	0.004***	0.007***	0.005***	0.007***	0.005***	0.007***	0.004***
Son's age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
Father's age when son was 14	0.006**	0.006*	0.006**	0.006*	0.006**	0.006*	0.006**	0.006*
Father's age squared when son was 14	-0.000*	-0.000	-0.000*	-0.000	-0.000*	-0.000	-0.000**	-0.000
Survey wave	0.019***	0.020***	0.019***	0.020***	0.019***	0.020***	0.019***	0.020***
R^2 *(overall)*	*0.044*	*0.038*	*0.060*	*0.051*	*0.061*	*0.053*	*0.050*	*0.044*
N (observations)	*30,175*	*21,101*	*30,175*	*21,101*	*30,175*	*21,101*	*30,175*	*21,101*
N (individuals)	*4,960*	*3,603*	*4,960*	*3,603*	*4,960*	*3,603*	*4,960*	*3,603*

Notes: HILDA Survey, 2001-2013. Elasticities estimated using hourly earnings in the main job. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A3-4 Father-son earnings elasticity using different earnings measures (full model output)

Results	Weekly earnings				Annual earnings			
	Two digits		Three digits		Two digits		Three digits	
	25-64	30-55	25-64	30-55	25-64	30-55	25-64	30-55
Elasticities	0.175***	0.234***	0.166***	0.221***	0.205***	0.235***	0.177***	0.207***
Son's age	0.006***	0.005***	0.006***	0.005***	0.009***	0.007***	0.009***	0.006***
Son's age squared	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
Father's age when son was 14	0.005*	0.008**	0.005*	0.008*	0.003	0.009*	0.003	0.009**
Father's age squared when son was 14	-0.000*	-0.001*	-0.000*	-0.001*	-0.000	-0.001**	-0.000	-0.001**
Survey wave	0.020***	0.019***	0.020***	0.019***	0.020***	0.019***	0.020***	0.020***
R^2 (overall)	0.052	0.037	0.053	0.040	0.043	0.030	0.042	0.030
N (observations)	30,211	21,125	30,211	21,125	32,675	22,857	32,675	22,857
N (individuals)	4,962	3,604	4,962	3,604	5,017	3,674	5,017	3,674

Notes: HILDA Survey, 2001-2013. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4-1 Summary statistics for the analytical variables in Chapter 4

Variables	Mean/%	S.D.	Obs.
<u>Outcome variables</u>			
Transfer amount	7,214.6	27,032.0	7,059
Transfer probability	8.3		87,854
<u>Explanatory variables: Child characteristics</u>			
Female			
No *(reference)*			
Yes	52.1		87,854
Age	28.9	6.7	87,854
University degree			
No *(reference)*			
Yes	24.9		87,827
Marital status			
Partnered *(reference)*			
Divorced, separate or widowed	3.9		87,838
Never partnered	37.5		87,838
Employment status			
Employed *(reference)*			
Unemployed	5.4		87,854
Not in the labour force	16.5		87,854
Ethnicity			
Born in Australia *(reference)*			
Main English Speaking countries	6.1		87,827
Other countries	10.2		87,827
Disability			
No *(reference)*			
Yes	14.8		87,834
OECD equivalised household income in 10,000s	5.6	3.9	87,854
Number of dependent children	0.8	1.2	87,854
Number of siblings	2.4	1.7	87,249
Number of co-residing parents			
0 *(reference)*			
1	6.0		87,854
2	14.1		87,854
Survey wave	8.5	4.4	87,854

Explanatory variables: Family background

Parental union history

  Divorced/separated *(reference)*

Did not divorce or separate	64.7		87,854
Missing	24.8		87,854

Number of parents employed

  0 *(reference)*

1	32.8		87,854
2	54.1		87,854
Missing	8.3		87,854

Father ever unemployed over 6 months

  Yes *(reference)*

No	74.9		87,854
Missing	10.6		87,854

Number of parents with university degrees

  0 *(reference)*

1	15.8		87,854
2	8.4		87,854
Missing	15.0		87,854

Number of parents in managerial/professional occupations

  0 *(reference)*

1	25.4		87,854
2	15.4		87,854
Missing	26.8		87,854
Parental mean occupational status	46.7	20.8	83,880

Explanatory variables: Children's life events

Having children

  No *(reference)*

Yes	7.2		87,854

Having children: year before

  No *(reference)*

Yes	7.3		87,854

Getting married

  No *(reference)*

Yes	2.9		87,854

Getting married: year before		
No *(reference)*		
Yes	3.0	87,854
Buying a property		
No *(reference)*		
Yes	4.7	87,854
Buying a property: year before		
No *(reference)*		
Yes	4.7	87,854
Being a full-time student		
No *(reference)*		
Yes	12.2	87,854
Missing	0.0	87,854
Lack of financial prosperity		
No *(reference)*		
Yes	3.1	87,854
Missing	14.6	87,854
Financial worsening		
No *(reference)*		
Yes	2.4	87,854
Missing	20.7	87,854
Material deprivation		
No *(reference)*		
Yes	26.1	87,854
Missing	20.4	87,854
Income poverty		
No *(reference)*		
Yes	15.9	87,854

Notes: HILDA Survey, 2001-2015. Parental employment status and occupation are measured when the respondent was 14 years of age.

Table A4-2 Descriptive statistics on the demographic characteristics of adult children by parental SES

Variables	Parental SES			
	Low	**Middle**	**High**	**Missing**
<u>Outcome variables</u>				
Transfer amount	4,789 (15,449)	8,172 (35,067)	9,039 (29,823)	6,215 (19,228)
Transfer probability	6.1	9.3	14.7	6.2
<u>Demographic characteristics</u>				
Female				
No *(reference)*				
Yes	52.9	52.0	53.6	50.4
Age	29.2 (6.8)	29.1 (6.8)	28.6 (6.6)	28.5 (6.6)
University degree				
No *(reference)*				
Yes	16.5	29.5	42.3	20.5
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	4.3	3.8	2.6	4.4
Never partnered	33.2	36.8	37.9	43.2
Employment status				
Employed *(reference)*				
Unemployed	5.7	4.1	3.5	7.5
Not in the labour force	16.3	13.7	12.8	21.5
Ethnicity				
Born in Australia *(reference)*				
Main English Speaking countries	6.9	7.2	6.4	3.9
Other countries	5.9	8.2	11.6	16.4
Disability				
No *(reference)*				
Yes	15.6	13.2	11.7	17.3
OECD equivalised household income in 10,000s	5.2 (3.2)	6.1 (4.4)	6.7 (5.0)	5.0 (3.3)
Number of dependent children	0.9 (1.2)	0.8 (1.1)	0.7 (1.1)	0.8 (1.2)

Number of siblings	2.3 (1.6)	2.2 (1.4)	2.1 (1.4)	2.8 (2.0)
Number of co-residing parents				
0 *(reference)*				
1	5.8	5.3	4.4	7.8
2	12.0	13.9	14.2	16.7
Survey wave	8.5 (4.4)	8.6 (4.4)	8.8 (4.4)	8.2 (4.5)
<u>Life events</u>				
Having children				
No *(reference)*				
Yes	7.4	7.0	7.3	7.2
Having children: year before				
No *(reference)*				
Yes	7.5	7.1	7.4	7.2
Getting married				
No *(reference)*				
Yes	2.8	2.9	3.3	2.8
Getting married: year before				
No *(reference)*				
Yes	2.9	3.0	3.3	2.8
Buying a property				
No *(reference)*				
Yes	4.6	4.9	5.3	4.3
Buying a property: year before				
No *(reference)*				
Yes	4.6	5.0	5.4	4.3
Being a full-time student				
No *(reference)*				
Yes	9.3	13.8	18.0	10.9
Missing	0.0	0.0	0.0	0.0
Lack of financial prosperity				
No *(reference)*				
Yes	3.5	2.8	2.1	3.7
Missing	14.0	14.0	12.9	17.0
Financial worsening				
No *(reference)*				
Yes	2.6	2.2	2.2	2.6

Missing	20.2	20.0	18.1	23.6
Material deprivation				
No *(reference)*				
Yes	28.5	24.0	21.9	27.4
Missing	19.9	19.8	18.9	22.5
Income poverty				
No *(reference)*				
Yes	15.9	12.6	11.2	21.7
N (observations)	*28,422*	*22,294*	*13,559*	*23,579*
N (individuals)	*5,542*	*4,319*	*2,522*	*4,340*

Notes: HILDA Survey, 2001-2015. Mean values for continuous variables and percentages for categorical variables are reported. Standard deviations are in parentheses.

Table A4-3 Random-effect Heckman selection models of the effect of child characteristics on parental wealth transfers, baseline models

Variables	S	A
Female		
No *(reference)*		
Yes	0.06**	0.08+
Age	-0.31***	-0.00
Age square	0.01***	
University degree		
No *(reference)*		
Yes	0.13***	0.17**
Marital status		
Partnered *(reference)*		
Divorced, separate or widowed	0.08	0.29
Never partnered	0.17***	0.07
Employment status		
Employed *(reference)*		
Unemployed	0.23***	0.12*
Not in the labour force	0.17***	0.29***
Country of birth		
Born in Australia *(reference)*		
Main English Speaking	0.18***	0.10
Other	0.22***	0.88***
Disability		
No *(reference)*		
Yes	0.07***	-0.15**
OECD equivalised household income in 10,000s	0.01***	0.08***
Number of dependent children	-0.06***	-0.02
Number of siblings	-0.09***	-0.11***
Number of co-residing parents		
0 *(reference)*		
1	-0.16***	-0.61***
2	-0.08**	-0.78***
Survey wave	0.02***	-0.02***
N (observations)	*87,196*	*87,196*
N (individuals)	*16,628*	*16,628*

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Significance levels: [*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$.

Table A4-4 Random-effect Heckman selection models of the effect of family background on parental wealth transfers (full model output)

Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	S	A	S	A	S	A	S	A	S	A	S	A
Parents ever divorced/separated												
Yes *(reference)*												
No	0.15***	0.24**	0.14***	0.23**	0.13***	0.21*	0.14***	0.22*	0.15***	0.23**	0.12***	0.21*
# parents employed												
0 *(reference)*												
1			0.29***	0.47**								
2			0.39***	0.50**								
Father ever unemployed over 6 months												
Yes *(reference)*												
No					0.20***	0.36***						
# parents with university degree												
0 *(reference)*												
1							0.26***	0.21***				
2							0.49***	0.43***				
# parents in managerial/professional occupation												
0 *(reference)*												
1									0.22***	0.22***		
2									0.46***	0.53***		
Parental mean occupational status											0.01***	0.01***

<u>Controls</u>

Female

  No *(reference)*

0.06**	0.08	0.06**	0.08	0.06**	0.08	0.06**	0.08	0.06**	0.07	0.07**	0.09

Yes: 0.06** 0.08 0.06** 0.08 0.06** 0.08 0.06** 0.08 0.06** 0.07 0.07** 0.09

Age: -0.31*** -0.00 -0.31*** -0.00 -0.31*** -0.00 -0.30*** 0.00 -0.31*** 0.00 -0.31*** 0.00

Age square: 0.00***   0.00***   0.00***   0.00***   0.00***   0.00***

University degree

  No *(reference)*

Yes: 0.11*** 0.14* 0.11*** 0.14* 0.11*** 0.14* 0.06** 0.10 0.07** 0.09 0.03 0.06

Marital status

  Partnered *(reference)*

Divorced, separate or widowed: 0.08 0.28 0.09 0.28 0.08 0.28 0.09 0.29 0.09 0.30 0.11 0.27

Never partnered: 0.17*** 0.07 0.18*** 0.08 0.18*** 0.07 0.17*** 0.06 0.17*** 0.05 0.16*** 0.03

Employment status

  Employed *(reference)*

Unemployed: 0.24*** 0.13* 0.26*** 0.14* 0.26*** 0.15* 0.26*** 0.14* 0.26*** 0.14* 0.27*** 0.18**

Not in the labour force: 0.17*** 0.29*** 0.18*** 0.30*** 0.18*** 0.30*** 0.17*** 0.29*** 0.18*** 0.29*** 0.18*** 0.31***

Country of birth

  Born in Australia *(reference)*

Main English Speaking: 0.19*** 0.11 0.18*** 0.11 0.19*** 0.11 0.17*** 0.10 0.18*** 0.12 0.15*** 0.04

Other: 0.20*** 0.84*** 0.21*** 0.86*** 0.20*** 0.85*** 0.13*** 0.79*** 0.20*** 0.84*** 0.18*** 0.83***

Disability

No *(reference)*

	S	A	S	A	S	A	S	A	S	A	S	A
Yes	0.08***	-0.13*	0.09***	-0.12*	0.09***	-0.12*	0.09***	-0.13*	0.09***	-0.13*	0.10***	-0.13*
OECD equivalised household income in 10,000s	0.01***	0.08***	0.01***	0.08***	0.01***	0.08***	0.01***	0.08***	0.01***	0.08***	0.01***	0.08***
Number of dependent children	-0.06***	-0.02	-0.06***	-0.02	-0.06***	-0.01	-0.05***	-0.02	-0.06***	-0.02	-0.05***	-0.03
Number of siblings	-0.09***	-0.10***	-0.08***	-0.09***	-0.08***	-0.10***	-0.08***	-0.09***	-0.08***	-0.09***	-0.08***	-0.08***
Number of co-residing parents												
0 *(reference)*												
1	-0.11**	-0.50***	-0.10**	-0.50***	-0.10**	-0.49***	-0.11**	-0.50***	-0.10**	-0.48***	-0.11**	-0.48***
2	-0.12***	-0.84***	-0.11***	-0.83***	-0.12***	-0.83***	-0.12***	-0.84***	-0.10***	-0.82***	-0.12***	-0.83***
Survey wave	0.02***	-0.02***	0.02***	-0.02***	0.02***	-0.02***	0.02***	-0.02***	0.02***	-0.02***	0.02***	-0.02***
N (observations)	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*87,196*	*83,677*	*83,677*
N (individuals)	*16,628*	*16,628*	*16,628*	*16,628*	*16,628*	*16,628*	*16,628*	*16,628*	*16,628*	*16,628*	*15,967*	*15,967*
AIC / BIC	*62,715 / 63,118*		*62,634 / 63,094*		*62,602 / 63,043*		*62,380 / 62,839*		*62,334 / 62,794*		*60,125 / 60,545*	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Parental employment status and occupation are measured when the respondent was 14 years of age. The coefficients on the dummy variables capturing missing information are omitted for readability. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4-5 Random-effect Heckman selection models of the effect of childbirth on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Childbirth	-0.08	-0.03	-0.01	0.09
Childbirth: year before	-0.08	-0.35	-0.02	-0.02
Controls				
Female				
No *(reference)*				
Yes	0.04	0.10	0.11***	0.12
Age	-0.30***	0.03	-0.33***	-0.01
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.10*	0.13	0.07*	0.05
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.09	-0.10	0.09	0.36
Never partnered	0.15***	-0.17	0.16***	0.13
Employment status				
Employed *(reference)*				
Unemployed	0.26***	0.07	0.27***	0.26**
Not in the labour force	0.17***	0.41***	0.18***	0.31***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.25	0.09	0.23
Other	0.25***	0.26	0.22***	1.02***
Disability				
No *(reference)*				
Yes	0.06	-0.22	0.11***	-0.16*
OECD equivalised household income in 10,000s	0.01	0.09***	0.01***	0.08***
Number of dependent children	-0.07**	-0.07	-0.04	0.02
Number of siblings	-0.09***	-0.07	-0.09***	-0.10***
Number of co-residing parents				
0 *(reference)*				

1	0.02	-0.48**	-0.23***	-0.64***
2	-0.08	-0.62***	-0.11**	-0.87***
Survey wave	0.03***	-0.05***	0.02***	-0.01
N (observations)	28,387	28,387	35,811	35,811
N (individuals)	5,534	5,534	6,833	6,833
AIC / BIC	16,207 / 16,562		33,032 / 33,396	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4-6 Random-effect Heckman selection models of the effect of marriage on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Getting married	0.19*	0.81***	0.21***	0.90***
Getting married: year before	-0.01	0.57*	0.12*	0.35**
Controls				
Female				
No *(reference)*				
Yes	0.04	0.12	0.11***	0.11
Age	-0.30***	0.04*	-0.34***	-0.01
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.10*	0.10	0.07*	0.04
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.12	-0.02	0.11	0.45
Never partnered	0.17***	-0.09	0.19***	0.22**
Employment status				
Employed *(reference)*				
Unemployed	0.26***	0.05	0.28***	0.26**
Not in the labour force	0.16***	0.36**	0.18***	0.32***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.27	0.10	0.26*
Other	0.26***	0.25	0.23***	1.03***
Disability				
No *(reference)*				
Yes	0.07	-0.23*	0.11***	-0.17*
OECD equivalised household income in 10,000s	0.01	0.09***	0.01***	0.07***
Number of dependent children	-0.07**	-0.05	-0.03	0.07
Number of siblings	-0.09***	-0.07	-0.09***	-0.10***
Number of co-residing parents				
0 *(reference)*				

1			0.02	-0.48**	-0.23***	-0.63***
2			-0.08	-0.62***	-0.11**	-0.87***
Survey wave			0.03***	-0.05***	0.03***	-0.01
N (observations)			28,387	28,387	35,811	35,811
N (individuals)			5,534	5,534	6,833	6,833
AIC / BIC			16,189 / 16,544		32,973 / 33,338	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4-7 Random-effect Heckman selection models of the effect of property purchase on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Buying a property	0.10	0.29	0.13**	0.80***
Buying a property: year before	0.03	0.35	0.01	-0.03
Controls				
Female				
No *(reference)*				
Yes	0.04	0.10	0.11***	0.11
Age	-0.30***	0.03	-0.34***	-0.01
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.10*	0.11	0.07*	0.03
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.10	-0.06	0.09	0.37
Never partnered	0.16***	-0.14	0.17***	0.16*
Employment status				
Employed *(reference)*				
Unemployed	0.25***	0.04	0.27***	0.24**
Not in the labour force	0.16***	0.38**	0.18***	0.31***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.25	0.10	0.24
Other	0.26***	0.27	0.23***	1.03***
Disability				
No *(reference)*				
Yes	0.07	-0.22	0.11***	-0.15*
OECD equivalised household income in 10,000s	0.01	0.09***	0.01***	0.07***
Number of dependent children	-0.07**	-0.06	-0.04	0.05
Number of siblings	-0.09***	-0.07	-0.09***	-0.10***
Number of co-residing parents				
0 *(reference)*				

1		0.02	-0.49**	-0.24***	-0.70***
2		-0.08	-0.61***	-0.12**	-0.90***
Survey wave		0.03***	-0.05***	0.02***	-0.01
N (observations)		28,387	28,387	35,811	35,811
N (individuals)		5,534	5,534	6,833	6,833
AIC / BIC		16,204 / 16,559		32,966 / 33,331	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4-8 Random-effect Heckman selection models of the effect of being a full-time student on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Being a full-time student	0.37***	0.41***	0.37***	0.33***
Controls				
Female				
No *(reference)*				
Yes	0.03	0.10	0.10**	0.10
Age	-0.26***	0.03*	-0.30***	-0.00
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.15**	0.17	0.14***	0.13
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.11	-0.05	0.07	0.33
Never partnered	0.14***	-0.15	0.14***	0.10
Employment status				
Employed *(reference)*				
Unemployed	0.26***	0.13	0.27***	0.26**
Not in the labour force	0.10**	0.32**	0.11***	0.26***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.20	0.10	0.24
Other	0.20**	0.23	0.18***	0.98***
Disability				
No *(reference)*				
Yes	0.08*	-0.18	0.13***	-0.14
OECD equivalised household income in 10,000s	0.01*	0.09***	0.01***	0.08***
Number of dependent children	-0.06**	-0.06	-0.03	0.03
Number of siblings	-0.08***	-0.08*	-0.08***	-0.09***
Number of co-residing parents				
0 *(reference)*				
1	0.03	-0.45**	-0.24***	-0.65***

2	-0.11*	-0.65***	-0.13***	-0.90***
Survey wave	0.02***	-0.05***	0.02***	-0.01
N (observations)	28,387	28,387	35,811	35,811
N (individuals)	5,534	5,534	6,833	6,833
AIC / BIC	16,087 / 16,426		32,801 / 33,149	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A4-9 Random-effect Heckman selection models of the effect of lack of financial prosperity on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Lack of financial prosperity [a]	0.04	0.06	0.10	-0.08
<u>Controls</u>				
Female				
No *(reference)*				
Yes	0.04	0.10	0.10***	0.12
Age	-0.30***	0.03	-0.33***	-0.01
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.10*	0.13	0.07*	0.05
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.11	-0.05	0.10	0.35
Never partnered	0.16***	-0.14	0.17***	0.13
Employment status				
Employed *(reference)*				
Unemployed	0.25***	0.06	0.27***	0.26**
Not in the labour force	0.16***	0.39***	0.17***	0.31***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.25	0.10	0.23
Other	0.26***	0.27	0.23***	1.02***
Disability				
No *(reference)*				
Yes	0.07	-0.22	0.11***	-0.16*
OECD equivalised household income in 10,000s	0.01*	0.09***	0.01***	0.08***
Number of dependent children	-0.07**	-0.07	-0.04*	0.03
Number of siblings	-0.09***	-0.07	-0.09***	-0.10***
Number of co-residing parents				
0 *(reference)*				
1	0.02	-0.49**	-0.24***	-0.64***

2	-0.09	-0.63***	-0.12**	-0.87***
Survey wave	0.03***	-0.05***	0.02***	-0.01
N (observations)	28,387	28,387	35,811	35,811
N (individuals)	5,534	5,534	6,833	6,833
AIC / BIC	16,202 / 16,557		33,002 / 33,367	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. [a] The coefficients on the dummy variables capturing missing information are omitted for readability. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4-10 Random-effect Heckman selection models of the effect of financial worsening on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Financial worsening [a]	0.08	0.25	0.20***	0.05
Controls				
Female				
No *(reference)*				
Yes	0.04	0.10	0.11***	0.12
Age	-0.30***	0.03	-0.33***	-0.01
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.10*	0.14	0.07*	0.06
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.11	-0.05	0.09	0.34
Never partnered	0.16***	-0.13	0.17***	0.12
Employment status				
Employed *(reference)*				
Unemployed	0.25***	0.06	0.26***	0.26**
Not in the labour force	0.15***	0.38***	0.17***	0.31***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.24	0.10	0.22
Other	0.26***	0.28	0.23***	1.01***
Disability				
No *(reference)*				
Yes	0.06	-0.23*	0.11***	-0.17*
OECD equivalised household income in 10,000s	0.01	0.09***	0.01***	0.08***
Number of dependent children	-0.07**	-0.06	-0.04	0.03
Number of siblings	-0.09***	-0.07	-0.09***	-0.10***
Number of co-residing parents				
0 *(reference)*				
1	0.02	-0.49**	-0.24***	-0.64***

2	-0.09	-0.63***	-0.12**	-0.86***
Survey wave	0.02***	-0.05***	0.02***	-0.01
N (observations)	*28,387*	*28,387*	*35,811*	*35,811*
N (individuals)	*5,534*	*5,534*	*6,833*	*6,833*
AIC / BIC	*16,199 / 16,554*		*32,997 / 33,362*	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. [a] The coefficients on the dummy variables capturing missing information are omitted for readability. Significance levels: [*] p < 0.05, [**] p < 0.01, [***] p < 0.001.

Table A4-11 Random-effect Heckman selection models of the effect of material deprivation on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Material deprivation [a]	0.20***	0.06	0.24***	0.07
<u>Controls</u>				
Female				
No *(reference)*				
Yes	0.04	0.10	0.10***	0.12
Age	-0.31***	0.03	-0.34***	-0.01
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.12*	0.13	0.09**	0.06
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.08	-0.07	0.06	0.33
Never partnered	0.17***	-0.15	0.16***	0.12
Employment status				
Employed *(reference)*				
Unemployed	0.24***	0.06	0.25***	0.25**
Not in the labour force	0.15***	0.39***	0.17***	0.31***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.25	0.09	0.23
Other	0.27***	0.27	0.24***	1.02***
Disability				
No *(reference)*				
Yes	0.05	-0.23*	0.09**	-0.17*
OECD equivalised household income in 10,000s	0.01*	0.09***	0.01***	0.08***
Number of dependent children	-0.07**	-0.07	-0.04*	0.03
Number of siblings	-0.09***	-0.07*	-0.09***	-0.10***
Number of co-residing parents				
0 *(reference)*				
1	0.04	-0.47**	-0.21***	-0.63***

2	-0.05	-0.61***	-0.08*	-0.86***
Survey wave	0.03***	-0.05***	0.02***	-0.01
N (observations)	28,387	28,387	35,811	35,811
N (individuals)	5,534	5,534	6,833	6,833
AIC / BIC	16,174 / 16,529		32,911 / 33,276	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. [a] The coefficients on the dummy variables capturing missing information are omitted for readability. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4-12 Random-effect Heckman selection models of the effect of income poverty on parental wealth transfers by parental SES (full model output)

Variables	Low SES		Middle/High SES	
	S	A	S	A
Income poverty	0.00	0.07	0.04	-0.05
<u>Controls</u>				
Female				
No *(reference)*				
Yes	0.04	0.10	0.11***	0.12
Age	-0.30***	0.03	-0.33***	-0.01
Age square	0.00***		0.00***	
University degree				
No *(reference)*				
Yes	0.10*	0.13	0.07*	0.05
Marital status				
Partnered *(reference)*				
Divorced, separate or widowed	0.10	-0.08	0.08	0.37
Never partnered	0.15***	-0.16	0.16***	0.14
Employment status				
Employed *(reference)*				
Unemployed	0.26***	0.06	0.27***	0.26**
Not in the labour force	0.16***	0.38**	0.17***	0.32***
Country of birth				
Born in Australia *(reference)*				
Main English Speaking	0.30***	-0.25	0.09	0.23
Other	0.26***	0.26	0.22***	1.02***
Disability				
No *(reference)*				
Yes	0.07	-0.22*	0.11***	-0.16*
OECD equivalised household income in 10,000s	0.01	0.09***	0.01***	0.08***
Number of dependent children	-0.07**	-0.07	-0.04*	0.03
Number of siblings	-0.09***	-0.07*	-0.09***	-0.10***
Number of co-residing parents				
0 *(reference)*				
1	0.02	-0.46**	-0.22***	-0.66***

2	-0.08	-0.60***	-0.10**	-0.89***
Survey wave	0.03***	-0.05***	0.02***	-0.01
N (observations)	*28,387*	*28,387*	*35,811*	*35,811*
N (individuals)	*5,534*	*5,534*	*6,833*	*6,833*
AIC / BIC	*16,210 / 16,548*		*33,026 / 33,374*	

Notes: HILDA Survey, 2001-2015. S: selection equation. A: amount equation. Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A5-1 Bank account choices among heterosexual couples in Australia, Hypothesis 1 (full model output)

Hypothesis 1	Joint account vs. no joint account	Account choice (ref. partners have only a joint account)		
		Only man has a separate account	Only woman has a separate account	Both have separate accounts
Total income (IHS)	1.30***	1.19**	1.08	1.09+
Relative resources (ref. similar contribution)				
Women contribute 60%+	0.67**	1.32+	1.64***	1.51***
Men contribute 60%+	1.01	1.14	1.27**	1.06
Controls				
Marital status (ref. *de facto*)				
Legally married	53.92***	0.10***	0.13***	0.026***
Mean couple age	1.06***	0.97***	0.99**	0.97***
Age difference (ref. <5 years)				
Man 5+ years older	0.41***	1.54**	1.22	1.64***
Woman 5+ years older	0.29***	1.49	1.99*	2.78***
Employment status (ref. neither employed)				
Only man employed	3.08***	1.17	1.59**	0.94
Only woman employed	2.36***	1.62**	1.47*	0.94
Both employed	1.28	1.59+	1.90**	1.54*
Education (ref. neither have degree)				
Only man has degree	1.84***	1.87***	1.26	1.70***
Only woman has degree	1.41+	1.40+	1.12	1.43*
Both has degree	1.32	1.33+	0.93	1.10
Ethnicity (ref. neither born in Australia)				
Only man born in Australia	1.67**	1.06	1.53**	1.38*
Only woman born in Australia	1.99**	1.79*	1.81**	1.93**
Both born in Australia	1.93**	1.14	1.44+	1.41+
N (observations)	*15,572*	*15,572*	*15,572*	*15,572*
N (individuals)	*7,094*	*7,094*	*7,094*	*7,094*
AIC / BIC	*11,679 / 11,824*	*33,208 / 33,628*		

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Odds ratios reported. Column 1 displays the results of the random-effect binary logit models, and columns 2-4 display the results of the random-effect multinomial logit models. All models feature robust standard errors. Significance levels: + $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table A5-2 Bank account choices among heterosexual couples in Australia, Hypothesis 2 (full model output)

Hypothesis 2	Joint account vs. no joint account	Account choice (ref. partners have only a joint account)		
		Only man has a separate account	Only woman has a separate account	Both have separate accounts
Number of dependent children	1.33***	0.86***	0.92*	0.77***
Controls				
Marital status (ref. *de facto*)				
Legally married	46.00***	0.11***	0.14***	0.03***
Mean couple age	1.06***	0.97***	0.99**	0.96***
Age difference (ref. <5 years)				
Man 5+ years older	0.38***	1.59**	1.25+	1.73***
Woman 5+ years older	0.29***	1.49	2.01*	2.75***
Employment status (ref. neither employed)				
Only man employed	3.05***	1.20	1.68***	0.98
Only woman employed	2.18***	1.74**	1.62**	1.02
Both employed	1.10	1.69*	2.22***	1.76**
Education (ref. neither have degree)				
Only man has degree	1.90***	1.91***	1.29+	1.72***
Only woman has degree	1.46+	1.44*	1.17	1.44*
Both has degree	1.31	1.33+	0.93	1.12
Ethnicity (ref. neither born in Australia)				
Only man born in Australia	1.68**	1.08	1.57**	1.40*
Only woman born in Australia	2.02**	1.83**	1.87**	1.94**
Both born in Australia	1.95**	1.15	1.46+	1.42+
Total couple income (IHS)	1.27**	1.20**	1.08	1.11*
N (observations)	*15,572*	*15,572*	*15,572*	*15,572*
N (individuals)	*7,094*	*7,094*	*7,094*	*7,094*
AIC / BIC	*11,651 / 11,789*	*33,140 / 33,537*		

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Odds ratios reported. Column 1 displays the results of the random-effect binary logit models, and columns 2-4 display the results of the random-effect multinomial logit models. All models feature robust standard errors. Significance levels: + $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table A5-3 Bank account choices among heterosexual couples in Australia, Hypothesis 3 (full model output)

Hypothesis 3	Joint account vs. no joint account	Account choice (ref. partners have only a joint account)		
		Only man has a separate account	Only woman has a separate account	Both have separate accounts
Relationship history (ref. both 1st relationship)				
Men 1st relationship and women 2nd+	0.23***	1.55+	2.07***	2.12***
Women 1st relationship and men 2nd+	0.33***	1.80*	1.69*	1.96***
Both 2nd+ relationship	0.05***	5.50***	5.90***	14.57***
Relationship duration	1.07***	0.97***	0.97***	0.95***
Controls				
Mean couple age	1.03***	0.99	1.01	1.00
Age difference (ref. <5 years)				
Man 5+ years older	0.73+	1.12	0.91	1.01
Woman 5+ years older	0.61	0.94	1.16	1.36
Employment status (ref. neither employed)				
Only man employed	4.09***	1.12	1.59**	0.77+
Only woman employed	3.39***	1.57**	1.50**	0.73*
Both employed	1.40	1.68+	2.16***	1.56*
Education (ref. neither have degree)				
Only man has degree	1.95***	1.81***	1.25	1.58**
Only woman has degree	1.66*	1.31	1.11	1.30
Both has degree	1.40+	1.24	0.87	0.99
Ethnicity (ref. neither born in Australia)				
Only man born in Australia	1.69**	1.07	1.55**	1.43*
Only woman born in Australia	2.85***	1.52+	1.53*	1.44+
Both born in Australia	2.36***	1.06	1.32	1.27
Total couple income (IHS)	1.39***	1.19**	1.07	1.05
N (observations)	15,449	15,449	15,449	15,449
N (individuals)	7,046	7,046	7,046	7,046
AIC / BIC	11,582 / 11,734	33,089 / 33,533		

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Odds ratios reported. Column 1 displays the results of the random-effect binary logit models, and columns 2-4 display the results of the random-effect multinomial logit models. All models feature robust standard errors. Significance levels: + $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table A5-4 Bank account choices among heterosexual couples in Australia, Hypothesis 4 (full model output)

Hypothesis 4	Joint account vs. no joint account	Account choice (ref. partners have only a joint account)		
		Only man has a separate account	Only woman has a separate account	Both have separate accounts
Gender-role attitudes	1.00	1.00	0.99[+]	0.99[***]
Controls				
Marital status (ref. *de facto*)				
Legally married	53.84[***]	0.10[***]	0.13[***]	0.03[***]
Mean couple age	1.05[***]	0.98[***]	0.99	0.97[***]
Age difference (ref. <5 years)				
Man 5+ years older	0.44[***]	1.53[**]	1.19	1.57[***]
Woman 5+ years older	0.25[***]	1.47	1.96[*]	2.78[**]
Employment status (ref. neither employed)				
Only man employed	2.36[***]	1.68[**]	1.67[**]	0.97
Only woman employed	1.07	1.51	2.10[**]	1.72[*]
Both employed	3.02[***]	1.26	1.66[***]	0.95
Education (ref. neither have degree)				
Only man has degree	1.19	1.49[*]	1.21	1.50[*]
Only woman has degree	1.14	1.40[+]	0.86	1.08
Both has degree	1.56[*]	1.90[***]	1.17	1.54[**]
Ethnicity (ref. neither born in Australia)				
Only man born in Australia	1.78[*]	2.02[**]	1.93[**]	2.02[**]
Only woman born in Australia	1.86[*]	1.30	1.49[+]	1.43[+]
Both born in Australia	1.54[*]	1.17	1.60[**]	1.45[*]
Total couple income (IHS)	1.27[**]	1.27[***]	1.09	1.08
N (observations)	14,243	14,243	14,243	14,243
N (individuals)	6,522	6,522	6,522	6,522
AIC / BIC	10,469 / 10,605	30,709 / 31,095		

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Odds ratios reported. Column 1 displays the results of the random-effect binary logit models, and columns 2-4 display the results of the random-effect multinomial logit models. All models feature robust standard errors. Significance levels: [+] $p<0.1$, [*] $p<0.05$, [**] $p<0.01$, [***] $p<0.001$.

Table A5-5 Bank account choices among heterosexual couples in Australia, Hypothesis 5 (full model output)

Hypothesis 5	Joint account vs. no joint account	Account choice (ref. partners have only a joint account)		
		Only man has a separate account	Only woman has a separate account	Both have separate accounts
Mean parental SES	1.00	1.01	1.00	1.01[+]
Family background (ref. neither from non-traditional family)				
Only man from non-traditional family	0.70	1.33	1.29	1.34
Only woman from non-traditional family	0.83	1.52[+]	1.51[*]	1.42[+]
Both from non-traditional family	0.57[*]	1.29	1.36	1.40[+]
Controls				
Marital status (ref. *de facto*)				
Legally married	53.94[***]	0.10[***]	0.13[***]	0.03[***]
Mean couple age	1.06[***]	0.97[***]	0.99[**]	0.97[***]
Age difference (ref. <5 years)				
Man 5+ years older	0.42[***]	1.55[**]	1.23	1.65[***]
Woman 5+ years older	0.29[***]	1.50	1.99[*]	2.80[***]
Employment status (ref. neither employed)				
Only man employed	2.94[***]	1.20	1.67[***]	0.97
Only woman employed	2.33[***]	1.69[**]	1.60[**]	0.95
Both employed	1.09	1.70[*]	2.20[***]	1.77[**]
Education (ref. neither have degree)				
Only man has degree	1.55[*]	1.74[**]	1.25	1.56[**]
Only woman has degree	1.26	1.37[+]	1.16	1.38[+]
Both has degree	1.13	1.29	0.94	1.08
Ethnicity (ref. neither born in Australia)				
Only man born in Australia	1.66[**]	1.09	1.57[**]	1.42[*]
Only woman born in Australia	1.92[**]	1.85[**]	1.88[**]	1.99[**]
Both born in Australia	1.87[**]	1.16	1.47[*]	1.44[+]
Total couple income (IHS)	1.29[***]	1.18[**]	1.08	1.08
N (observations)	*15,559*	*15,559*	*15,559*	*15,559*
N (individuals)	*7,084*	*7,084*	*7,084*	*7,084*

| AIC / BIC | 11,667 / 11,835 | 33,211 / 33,700 |

Notes: HILDA Survey (2002, 2006, 2010 and 2014). Odds ratios reported. Column 1 displays the results of the random-effect binary logit models, and columns 2-4 display the results of the random-effect multinomial logit models. All models feature robust standard errors. The coefficient of the missing category in non-traditional family background is omitted for readability. Significance levels: $^+$ *p*<0.1, * *p*<0.05, ** *p*<0.01, *** *p*<0.001.