ORIGINAL RESEARCH

Has the decline in the intensity of internal migration been accompanied by changes in reasons for migration?

Sunganani V. Kalemba[1] · Aude Bernard[1] · Jonathan Corcoran[1] · Elin Charles-Edwards[1]

Abstract

The last few decades have seen the intensity of internal migration decline in Australia and other advanced economies including the United States. Recent evidence suggests that changes in the composition of the population alone do not account for this persistent downward trend. This has led migration scholars to suspect that more profound behavioural changes driven by social, economic, and technological transformations are at play and that shifts in migration behaviour are likely to be reflected in changes in reasons for migration. We use data from the Household, Income and Labour Dynamics in Australia survey to shed new light on the factors driving the decline in internal migration in Australia between 2002 and 2018. This is done by examining annual trends in self-reported reasons for intrastate and interstate migration and applying a series of pooled logistic regressions. Results reveal a decline across all reasons for migration, and not only employment-related migration contrary to explanations proposed in the extant literature. The decline in employment-related migration does not appear to be the result of a rise in alternative forms of mobility such as teleworking or substitution with inter-industry or occupation mobility. Furthermore, we also find that the negative effect of duration of residence has increased for family-related migration. Collectively, these findings suggest that behavioural change, particularly increased place attachment, may have contributed to the decline in internal migration.

Keywords Internal migration · Reasons for migration · Place attachment · Australia · Internal migration decline · Rootedness · HILDA

✉ Sunganani V. Kalemba
  uqskalem@uq.edu.au

Extended author information available on the last page of the article

Introduction

Over the last 40 years, the intensity of internal migration—that is the proportion of individuals permanently changing their place of residence within national borders (Rees et al., 2000; Van Imhoff & Keilman, 1991)—has declined in a number of high-income countries, particularly so in the United States (Frey, 2009; Molloy & Smith, 2019) and Australia (Bell, Charles-Edward, et al., 2018), but also in some European countries (Bell, Wilson, et al., 2018). It is paramount to understand the drivers of this decline since internal migration plays an important role in population and labour market adjustments as well as in the realisation of personal aspirations. Given that migration intensity declines with age after peaking in young adulthood (Bernard et al., 2014; Rogers & Castro, 1981), early studies focused on the effects of large birth cohort sizes in limiting mobility due to stiffer competition in the housing and labour markets (Rogerson, 1987), while subsequent studies emphasised the role of population ageing particularly in the United States (Fischer, 2002; Sharma, 1995). Other explanations include an increase in the proportion of dual income households, which makes it difficult for partnered individuals to migrate to areas with opportunities for both (Cooke, 2011). However, recent decomposition regression analyses indicate that the downward effect of (1) population ageing and (2) the growing share of dual income couples on internal migration has been fully compensated by an increase in the relative share of mobile groups, including the tertiary-educated, singles, immigrants, and renters (Coate & Mangum, 2019; Cooke, 2011; Foster, 2017a; Kalemba et al., 2020). This means that the downward trend in intensity of internal migration is not solely the result of a change in population composition but rather the result of more profound behavioural and structural shifts (Cooke, 2011).

While factors driving the decline in the intensity of internal migration are yet to be fully theoretically and empirically established, a series of explanations have been proposed in the extant scholarship. These include: (1) a general shift towards secular rootedness (Cooke, 2011; Frey, 2009), which is a deep unconscious form of place attachment through positive bonds that individuals form with their meaningful environments (Scannell & Gifford, 2010), (2) entrapment of some socio-economic groups who are 'stuck in place' due to structural impediments such as weak bargaining power in the labour and housing markets despite having clear intentions to migrate (Foster, 2017b; Molloy & Smith, 2019) and increasingly expensive housing in high productivity areas (Modestino & Dennett, 2013; Schleicher, 2018), (3) diminishing areal differences in terms of employment opportunities (Kaplan & Schulhofer-Wohl, 2017) and economic returns to migration (Haan & Cardoso, 2020; Long, 1988) linked to maturation of the economy, (4) technological advances that have improved knowledge of alternate locations, reducing the need for exploratory migration (Kaplan & Schulhofer-Wohl, 2017), and (5) a rise in alternate forms of mobility such as long-distance commuting and teleworking as viable substitutes for internal migration (Cooke & Shuttleworth, 2017, 2018; Cooke et al., 2018). If these various factors are indeed at play, we argue that they should be imprinted in changes in reasons for migration. For example, if technological advances have made working remotely

or long-distance commuting more readily accessible, we expect this to translate into a decline in work-related migration alongside an increase in lifestyle and family-related migration. Similarly, increasing place attachment as a function of deepening place and social ties is likely to result in a decline in most reasons for migration.

Despite a growing collection of cross-sectional studies on reasons for migration within countries (Clark & Maas, 2015; Coulter & Scott, 2015; Foster, 2017b; Geist & McManus, 2012; Gillespie & Mulder, 2020; Long, 1988; Molloy & Smith, 2019; Morrison & Clark, 2011; Thomas, 2019; Thomas et al., 2019), trends in reasons-specific migration are yet to be fully examined. As a result, it remains unclear whether and to what extent some or all reasons for migration have experienced a downward trend. To this end, the focus of this paper is to shed new light on the behavioural and structural factors underpinning the decline in internal migration by addressing two sets of questions: (1) How have reasons for migration evolved over time? Do all reasons for migration follow the same downward trend? Have some reasons for migration decreased to a greater extent than others? Which reason or reasons for migration underpin the decline in internal migration? (2) Can the downward trend in specific reasons for migration be explained by changes in the drivers of internal migration? For example, has employment-related migration declined for particular income groups, or has it affected the whole population?

To answer these questions, we adopt a case study approach by focusing on Australia, a highly mobile country (Bell et al., 2015) that has experienced a pronounced and sustained decline in the intensity of internal migration over a 40-year period (Bell, Wilson, et al., 2018). Specifically, intrastate and interstate migration intensities have declined by 30 and 20 percent since the early 1980s and 1990s, respectively (Bell, Charles-Edward, et al., 2018; Kalemba et al., 2020). Secondly, although unique in its population distribution (Hugo, 2002), Australia bears some socio-economic and demographic characteristics common to other highly developed countries that have also experienced a mobility decline. Most of these countries have faced ageing populations, smaller households and have seen a dramatic increase in participation of women in paid employment over the last few decades. In addition, the annual collection of reasons for migration has taken place since 2002 through the Household, Income and Labour Dynamics in Australia (HILDA) survey and presents a unique opportunity to examine behavioural changes through trends in reasons for migration internally.

The empirical component of the paper commences with descriptive analyses of trends in reason-specific migration intensities before moving to a series of regression models to capture intrastate movements and interstate migration, which are known to be motivated by different reasons (Coulter & Scott, 2015). The models account for time trends, age, sex, housing tenure, education, income quantile, family structure, labour force and occupation, duration of residence, dual-income/career status, and recent life-course events (marriage, divorce/separation, birth/adoption, starting a new job and retirement). We hypothesise that changes in behavioural and structural factors influence shifts in reasons for migration, which can be understood by analysing changes in the drivers of internal migration. In so doing, we seek to

identify key behavioural and structural factors underpinning the decline in internal migration in Australia.

The rest of the paper is organised as follows: Section 2 formulates a set of testable hypotheses derived from four migration theories (human capital, prospect theory, the theory of cumulative inertia and mobility substitution), to illuminate how various explanations for the decline in internal migration should be reflected in the evolution of reasons for migration. Section 3 presents the data from the HILDA survey and specifies the regression models. Section 4 presents descriptive statistics for trends in reasons for migration and Sect. 5 discusses results from the regression analyses on how the effect of some drivers of reason-specific migration intensities have changed. Section 6 concludes by discussing implications and avenues for future research.

Conceptualising the structural and behavioural factors driving the internal migration decline

This section reviews existing theoretical and empirical evidence, drawing on particular advances to explain the observed decline in internal migration. Based on this review, we point out some conflicting results and untested generalisations, which we propose to test using a set of hypotheses that are highlighted at the conclusion of each sub-section.

Migrating to improve economic outcomes

From an economic perspective, migration is often viewed as a utility maximisation strategy, with neoclassical models conceptualising migration as a wage equalising mechanism across regions (Harris & Todaro, 1970) and an investment in human capital (Sjaastad, 1962), with individuals and households (Mincer, 1978) migrating to maximise utility by weighing the benefits and costs of moving. We would therefore expect a net out-migration from economically depressed areas towards high-income areas, but this is not always the case (Long, 1988; Molloy & Smith, 2019). Consequently, part of the decline in internal migration, particularly in the United States (Kaplan & Schulhofer-Wohl, 2017) and Canada (Haan & Cardoso, 2020), is thought to be a result of the maturation of the spatial economy, i.e., the unification of wages and increasing similarities in occupation and industries across space such that one does not need to migrate to maximise income opportunities. However, some evidence suggests that the decline in the United States interstate migration is not driven by a decline in regional earning differentials (Hyatt et al., 2018; Molloy & Smith, 2019) but rather increasing structural restrictions in the labour and housing supply market that impose a cost on possible migration, particularly for low skilled workers (Ganong & Shoag, 2017). In Australia, the decline in the intensity of internal migration has persisted despite widening GDP per capita across states (Bernard et al., 2020). These income disparities between states and regions seem to increase with strong economic growth in part due to deep-rooted structural differences between metropolitan and regional areas (Corliss & Lewis, 2014). If the decline in internal

migration in Australia has been driven by a convergence in regional incomes, then we should observe a general decline not only in employment but also housing and lifestyle-related migration as place-specific amenities tend to be factored in housing prices (Partridge et al., 2012).

Hypothesis 1 The spatial maturation of the economy through a reduction in regional disparities in wages and incomes reduced the need to migrate, which should result in a decline in employment, housing, and lifestyle-related migration by reducing the lure of alternate locations.

The human capital model further assumes that long-distance migration is more closely tied to economic motives such as employment and education, as the net expected benefit from these activities justifies the disruption caused by the severance of social ties (Coulter & Scott, 2015), while short-distance movement is often driven by housing adjustments. However, long-distance migration is not solely motivated by economic gain and there is mounting evidence that internal migration does not always result in pecuniary gains (Clark & Maas, 2015; Korpi & Clark, 2017; Morrison & Clark, 2011). Contrary to the United States (Kaplan & Schulhofer-Wohl, 2017; Molloy & Smith, 2019), Sweden and the United Kingdom (Thomas, 2019), long-distance migration in Australia (Thomas et al., 2019), New Zealand (Morrison & Clark, 2011) and Finland (Ghosh et al., 2019) is driven by family considerations more so than employment and education reasons. This highlights the importance of non-monetary barriers to migration such as "psychic" costs (Sjaastad, 1962) and the role of location specific factors such as climate, local taxes, and the role of local amenities (Lee, 1966), as suggested by early theorists. More generally, there is growing recognition that migration should not be viewed solely as a utility maximisation strategy (Carling & Schewel, 2018; De Jong et al., 2002), but more broadly as an attempt to meet personal needs and aspirations. It therefore unclear whether reduction in regional disparities alone is sufficient to drive internal migration down.

Place attachment

In explaining non-economic drivers of migration, we draw from prospect theory, which states that individuals are risk averse in respect to losses and less so with respect to gains (Kahneman & Tversky, 1979). As a result, they will tend to value what they already have beyond its actual economic value resulting in what is called the endowment effect (Kahneman & Tversky, 1979). This is because as individuals become rooted or "moored" to places that meet some of their ideals and expectations they can accommodate some level of discomfort if it is rectifiable from other existing location specific ties such as work, family or friendships (Moon, 1995). Similarly, the theory of cumulative inertia stipulates that the strength of location specific ties tend to increase with duration of stay (Thomas et al., 2016), which creates a resistance to moving (Huff & Clark, 1978). These ties are multidimensional and hard to quantify as they refer to a subjective valuation of location-specific social, institutional and geographical capital (Ghosh et al., 2019; Thomas & Dommermuth,

2020; Thomas et al., 2017) that moor individuals in place by imposing a significant tax on any potential move (Moon, 1995). In addition, these spatially embedded endowments explain in part why many people choose (Zabek, 2019) or are compelled (Foster, 2017b) to remain in economically depressed areas despite prospects for higher returns elsewhere (Schewel, 2020). Coupled with the realisation that the decline in internal migration cannot be fully explained by changes in population composition, recent studies (Champion & Shuttleworth, 2018; Foster, 2017a; Hyatt et al., 2018; Kalemba et al., 2020) have attributed the decline to an increase in "secular rootedness" or place attachment.

This profound behavioural shift towards an increasing sense of place attachment is believed to be one of the key drivers of the secular decline in internal migration (Champion & Shuttleworth, 2018; Cooke, 2011; Fischer, 2002; Foster, 2017a; Frey, 2009; Kalemba et al., 2020). It has been argued that place attachment can be strengthened even in mobile societies (Gustafson, 2001). Increasing place attachment has not been robustly tested but it has been used to account for the unexplained component of decomposition analyses, i.e., the constant (Champion & Shuttleworth, 2018; Cooke, 2011; Foster, 2017a; Kalemba et al., 2020). However, the mechanisms through which place attachment operates remain to be established. Coate and Mangum (2019) contend that for the United States place attachment has increased due to the convergence in regional population growth in the past decades, which has resulted in an increased proportion of people living in their state of birth including states that used to gain interstate migrants. These individuals tend to have stronger place-based connections that are self-perpetuating as with rooted individuals tend to adjust their housing needs in and around their locality in order to take advantage of spatially embedded endowments (Ermisch & Mulder, 2019). For those employed, occupation and industry mobility offer viable alternatives to regional mobility (Reichelt & Abraham, 2017), which should in turn be manifested in a decline in employment-related migration.

Place attachment comprises a broad range of factors such as social, institutional, and environmental capital for which data may not always be readily available (Schellenberg et al., 2018). Nonetheless, empirical evidence indicates that at least one dimension of place attachment, namely, local family ties are associated with a decreased probability for migrating in the United States (Lei & South, 2020), Germany (Hünteler & Mulder, 2020), Norway (Thomas & Dommermuth, 2020) and the United Kingdom (Ermisch & Mulder, 2019). For Australia, Clark and Lisowski (2019) conduct a multinomial logit regression analysis using the HILDA survey to test the importance of social capital, the endowment effect measured by duration of residence and tenure type as proxies for place attachment in long-and-short distance migration decisions. Their results show that endowment and social capital decreases the probability of moving and their inclusion improved the explanatory power of the model by 30 percent. Clark and Lisowski (2019), however, do not proceed to quantify the effects of these factors on declining internal migration. This is achieved by Coate and Mangum (2019), who using a dynamic spatial discrete logistic choice model, attributed two-thirds of the internal migration decline in the United States between 1980–2017 to increasing place attachment. In this paper, we set out to shed new light on the connection between increasing secular rootedness and the decline

in migration behaviour by analysing the shifts in reasons for migration, particularly employment-related migration.

Hypothesis 2 Increased place attachment should be manifested in a decline in all reasons for migration, but proportionally more for employment-related migration because long-distance migration is substituted with local job, inter-industry, and occupational mobility in order to maintain proximity to relevant place-based endowments.

Entrapment

While place attachment refers to remaining in place by choice, entrapment refers to the inability to migrate despite having clear intentions to do so. Modestino and Dennett (2013), Foster (2017b) and Schleicher (2018) have attributed the decline in the intensity of internal migration to an increase in potential migrants trapped or stuck in place despite having clear intentions to move (entrapment). Evidence from this body of work is drawn mainly from the United States and attributes entrapment to increasing costs of migrating between regions, mainly for low-income and low-skilled workers alongside home-equity constrained households especially in the aftermath of the 2008 Global Financial Crisis (GFC). In the United States, rising housing prices and restrictive land laws have increased the cost for low-skilled and low-wage workers to migrate for jobs and acquire property in wealthier states (Ganong & Shoag, 2017). Just as with secular place attachment, entrapped individuals will limit the geography of their job search by opting for lower-level positions across industries or occupations to avoid relocation (Brown & Matsa, 2020; Modestino & Dennett, 2013). Evidence from Australia indicates lower internal migration intensities among low-skilled and low-paid workers (Kalemba et al., 2020). As with secular rootedness, entrapment should therefore manifest in the decline of all reasons for migration, particularly employment-related migration over longer distances.

Hypothesis 3 Entrapment should be manifested in the decline of all reasons for migration, particularly housing and employment (new job and job seeking) related reasons, especially for lower skilled and low-income groups.

The role of technological advances

Advances in Information and Communications Technology (ICT) and transportation are together thought to have enhanced place attachment by improving information about current and alternative locations for would-be migrants without the need to change their region of residence (Cooke & Shuttleworth, 2017; Kaplan & Schulhofer-Wohl, 2017). It has also been suggested that communication advances have also increased place elasticity (Barcus & Brunn, 2010) by enabling individuals to maintain personal as well as professional connections remotely. For example, access to the internet has made it easier to identify and interview for jobs remotely reducing the need to migrate solely for the purpose of employment search. Technological

advances are believed to have also facilitated alternative forms of mobility such as long-distance commuting by allowing individuals to maintain residences away from particularly remote workstations (Nicholas & Welters, 2017). Similarly, teleworking has reduced the need for internal migration especially for activities that can be carried out remotely such as online learning and teaching (Cooke & Shuttleworth, 2017, 2018). Nonetheless, recent evidence from Australia indicates teleworking has only had a marginal effect (1 to 4 percent) on the decline in migration in the period 2001–2016 (Kalemba et al., 2020). However, findings based on United States seem to suggest that overall ICT advancements have had migration reducing effects (Cooke & Shuttleworth, 2017).

Hypothesis 4 All reasons for migration especially employment-related migration are expected to decline as a result of progress in ICT, which reduces the need for exploratory migration.

Hypothesis 5 Mobility substitution is made possible by the rise in alternate forms of mobility such as long-distance commuting and teleworking, which reduce the need to migrate particularly for employment reasons.

Table 1 lists in summary form each of the hypotheses, from which it transpires that a decline in employment-related migration is a recurring proposition that cuts across all the processes discussed above, including the spatial maturation of the economy, increased place attachment, entrapment, improved information communication technologies and mobility substitution. We, therefore, expect the decline in employment-related migration to be more pronounced than for other reasons, particularly for interstate migration which is more likely to be associated with employment decisions than short-distance migration (Clark & Maas, 2015; Thomas, 2019; Thomas et al., 2019).

Data and methods

Household, Income and Labour Dynamics in Australia Survey

To establish trends in reason-specific migration intensities, we draw on 18 annual waves of the Household, Income and Labour Dynamics in Australia (HILDA) survey a nationally-representative, longitudinal survey that has tracked about 17,000 individuals aged 15 years and above in private households since 2001. As the HILDA survey is collected annually, it uniquely permits us to capture and trace the dynamics of internal migration and relate them to shifts in self-reported reasons for migration. We also use one-year migration transition data from the national census of population and households for comparison.

We measure migration as a one-year migration transition by comparing place of residence between two successive annual waves. This is measured at two spatial

Table 1 Research hypotheses linking behavioural and structural dimensions of the decline in the intensity of internal migration to changes in the reason-specific migration intensities

Explanation	Mechanism	References	Research Hypothesis
Spatial maturation of the economy	Reduction in regional disparities in wages and incomes have reduced the need to migrate	Kaplan and Schulhofer-Wohl (2017), Haan and Cardoso (2020); Long (1988)	*Hypothesis 1*: A decline in employment, housing, and lifestyle-related migration
Increased place attachment/Secular rootedness	Moving has become increasingly taxing due to the potential loss of place specific social, institutional, and environmental capitals	Thomas et al. (2018), Gillespie and Mulder (2020), Hünteler and Mulder (2020), Reichelt and Abraham (2017)	*Hypothesis 2*: All reasons for migration to decline, but work-related migration proportionally more because regional moves are substituted with local job, inter-industry, and occupations mobility in order to maintain proximity to relevant social and environmental endowments
Entrapment	Willing individuals increasingly unable to migrate due to increasing costs associated with moving to areas with housing supply constraints and diminishing returns for low skilled personnel	Foster (2017b), Modestino and Dennett (2013), Brown and Matsa (2020)	*Hypothesis 3*: A reduction in all reasons, particularly housing and employment (new job and job seeking) related reasons, particularly for lower-skilled and low-income groups
Improvement in ICT and transports	Cheaper and easier communicating has advanced the acquisition of knowledge about alternate destinations, reducing the need for exploratory migration. It has also made it possible to maintain relevant relationships remotely (place elasticity)	Cooke and Shuttleworth (2017, 2018), Kaplan and Schulhofer-Wohl (2017), Barcus and Brunn (2010)	*Hypothesis 4*: A decline in employment-related migration
Mobility substitution	Rise in alternate forms of mobility such as long-distance commuting and teleworking, which reduces the need to migrate	Cooke et al. (2018); Cooke and Shuttleworth (2017)	*Hypothesis 5*: A decline in employment-related migration

scales, distinguishing intrastate movement (changes of address within Australia's eight states and territories) from interstate migration.[1] HILDA has been consistently collecting self-reported reasons for migration since 2002. However, there are some methodological and conceptual challenges in measuring reasons for migration (Gillespie et al., 2021). To limit problems of ex-post rationalisation, respondents in HILDA can select multiple reasons from a list of 30 possible reasons for migration, which permits a more nuanced understanding of migration behaviour than a single reason choice. For ease of interpretation, we collapse reported reasons into eight categories namely work, housing, areal/amenities, education, family, lifestyle, health, and involuntary reasons as shown in Table 2. From 2002 to 2018, on average 15 percent of respondents changed address in any given 12-month period of whom 98.7 percent reported at least one reasons for migration. On average 81 percent of the movers gave one reason for migration, 14 percent gave two reasons for migration and the remaining 5 percent reported three or more reasons, which highlights the complexity of the migration decision-making process.

Additional merits of using the HILDA survey to study internal migration dynamics include low attrition and high response rates. Prior to the top-up sample that was added as part of the 11th wave in 2012, HILDA had a sample attrition of around 10 percent, representing high sample stability similar to other major panel surveys such as the German Socio-Economic Panel (SOEP) and the British Household Panel Survey (BHPS) (Watson, 2012). We exclude the top-up sample as its inclusion would have artificially affected internal migration trends. This exclusion necessitates omitting immigration status in our model because immigrants were underrepresented in the original sample (Watson, 2006). Immigrants tend to be more mobile than natives although they display varying levels of internal migration, with New Zealand and Indian-born migrants migrating internally proportionally more than Chinese born migrants (Raymer & Baffour, 2018). However, recent decomposition analysis suggests that the growth in the share of the overseas-born population has had only a minor counter-acting effect on the overall downward trend of internal migration (Kalemba et al., 2020). We also exclude individuals aged 18 years and younger whose migration patterns are likely to closely mirror those of the parents.

Methods

We first analyse trends in reason-specific migration intensities, which we calculate as the number of individuals who moved for a particular reason divided by the resident population at the start of the migration period (Population at Risk (PAR)), expressed as a percentage. We use cross-sectional weights to obtain trends that are representative of the Australian population each year. To analyse how the drivers for migration have shifted over time, we deploy a series of logistic models for each reason for migration. Although ideal, a Multinomial Logistic

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[1] Due to the design of the HILDA survey and limited by a very small sample size, we are not able to observe migration at lower levels of geography such as moves between and within labour markets (Statistical Area level 4 referred to as SA4s).

Table 2 Distribution of self-reported reasons for migration. Source: Data from HILDA waves 2–18

Category	Reasons for migration	Intrastate movers (%)	Interstate migrants (%)
Work	To start a new job with a new employer	2.1	13.5
	Work transfer	0.8	8.1
	To look for work	0.6	2.7
	To be nearer place of work	5.1	6.3
	To start own business	0.4	0.9
	Decided to relocate own business	0.2	0.9
	Other work reasons	0.1	0.0
Subtotal- work		**9.3**	**32.4**
Housing	To get larger, better place	15.2	1.8
	To get smaller/less expensive place	7.4	2.7
	To get a place of my own/our own	16.7	3.6
Subtotal—Housing		**39.3**	**8.1**
Areal/amenities	To be closer to amenities/services/public transport	2.0	0.9
	Housing/neighbourhood reason	1.2	0.0
	To live in a better neighbourhood	4.7	1.8
Subtotal-Areal/amenities		**6.8**	**2.7**
Education	To be close to place of study	1.7	3.6
Family	To get married/moved in with partner	6.7	4.5
	Marital breakdown	4.9	3.6
	To be close to family and friends	5.5	18.0
	To follow a spouse or parent/whole family moved	2.6	6.3
	Personal/family reasons	1.1	0.9
Subtotal-Family		**20.7**	**33.3**
Lifestyle	Seeking change of lifestyle	**6.7**	**15.3**
Health	Health reasons	**2.6**	**1.8**
Involuntary	Property no longer available	10.1	1.8
	Evicted	0.6	0.0
	Government housing (no choice)	0.1	0.0
	Temporary relocation	2.1	0.9
Subtotal-Involuntary		**12.9**	**2.7**

Total percentage exceeds 100% as responders can select more than one reason for migration. $N = 27,633$

Model (MLM) could not be used because reasons for migration are not mutually exclusive resulting from respondents being able to report more than one reason for migration in each response. Our pooled logistic regression models therefore estimate the probability of migrating for each ith reasons for migration i.e., P (*Reasons for migration$_i$ = 1*) between any two successive waves compared with non-movers in the reference category.[2] We include controls for well-established

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[2] We ran a separate set of regressions in which we include both non-movers and movers for other reasons in the reference category. The results were broadly similar.

drivers for migration such as age, sex, duration of residence (less than 5 years, 5–10 years and more than 10 years), housing tenure (homeowners, renters and free tenure), education level (tertiary education and not), income quantiles, partnership status (married/cohabiting and unmarried), the presence of children (children aged 15 years and younger and no dependent children), employment status (employed part time or full time, unemployed and not in the labour force), dual income status (no dual income, dual income and power couples (i.e. tertiary educated dual-income couples) and recent life course events (in the last 12 months). We also include state and remoteness fixed effects to control for the uneven distribution of the Australian population, which is highly concentrated in capital cities on the eastern seaborn. In addition, previous findings report relative stability in the spatial patterns of internal migration in Australia (1) across the urban hierarchy with a continuation of net losses from the metropolitan cores and compensating gains in the metro rest and metro near and (2) between states with a long-standing attraction of Queensland and corresponding losses for New South Wales and Victoria (Bell, Charles-Edward, et al., 2018; Bell, Wilson, et al., 2018; Kalemba et al., 2020).

We follow Clark and Lisowski (2019) by including duration of residence and tenure type as proxies for social capital (the longer one stays in one place, the higher the likelihood that the person will build relationships and connections to place that make it harder to move) and endowment effect (the intrinsic value derived from home ownership can generate attachment to place). We do not, however, include measures of social capital as additional proxies for place attachment since they are not available for every wave, which would have introduced breaks in the trends. We include teleworkers calculated as the proportion of employees who worked at home for at least 50 percent of their total work hours, to examine possible substitution with migration. We are, however, unable to control for long-distance commuting as the variable measuring distance to work is only available from wave 17. All variables are categorical and lagged by one year to approximate the status of the individuals prior to making a move. Since teleworking and life-course events were first collected in 2002, our regression modelling covers the period 2003 to 2018. The summary statistics of these explanatory variables are presented in Table 4 in the Appendix. Overall, the changes in the composition of the population are as expected with an ageing population and rising incomes, education levels, divorce rates and part-time workers.

Since the primary objective is to understand changes in trends in reasons for migration, we include a trend term ($t = 2003, 2004… 2018$) that captures the effect of the survey year on the probability of migrating for each reason for migration. To control for correlation across waves, we report robust standard errors clustered by household membership. In the second set of regressions, we include interactions terms between explanatory variables and the trend term and report only interactions that are statistically significant. The interactions allow us to estimate the change in the effect of the regressors over time.

a: Intrastate movement   **b**: Interstate migration
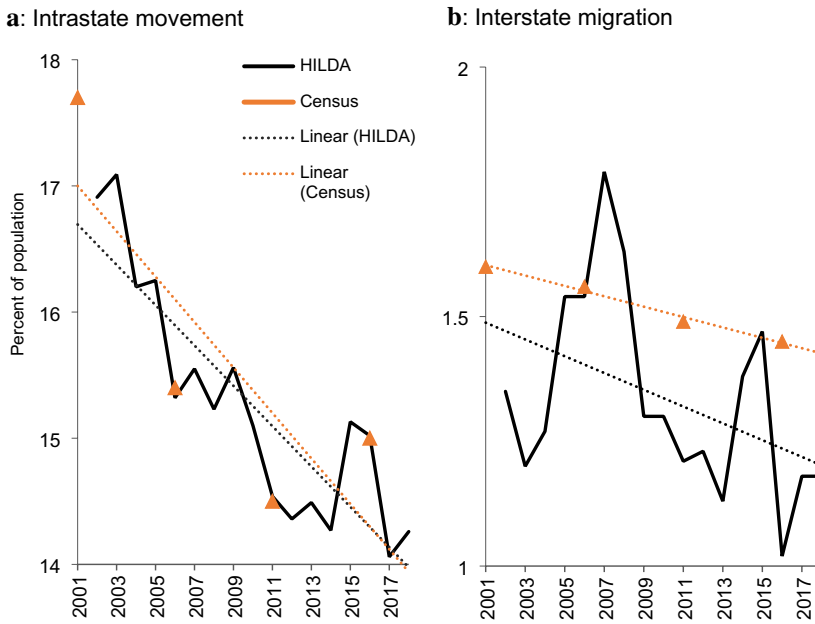
Source: Calculation based on waves 2-18 HILDA (2018) and Housing Population and Census from the Australian Bureau of Statistics (ABS, 2001, 2006, 2011 and 2016). Notes: Intrastate movement is a permanent change of address that took place within state boundaries, while interstate migration is permanent change of address across state borders.

Fig. 1 One-year crude migration intensity. Source: Calculation based on waves 2–18 HILDA (2018) and Housing Population and Census data from the Australian Bureau of Statistics (2001, 2006, 2011 and 2016). Notes: Intrastate movement is a permanent change of address that took place within state boundaries, while interstate migration is permanent change of address across state borders.

Descriptive statistics

Crude migration intensity

Figure 1 compares the Crude Migration Intensities (CMIs) for intrastate movement and interstate migration. Over the 2002–2018 period, the proportion of intrastate movers declined by 13.7 percent from 16.9 percent in 2002 to 14.3 percent in 2018 and that of interstate migrants fell by 11.5 percent from 1.4 percent in 2002 to 1.2 percent in 2018. Most of the decline in interstate migration occurred after the Global Financial Crisis (GFC) of 2007–2009, with a 44 percent decline from 2007 to 2018. While HILDA linear trends are comparable with those of the census, there are some differences in the intensity of interstate migration, which could be the result of small sample sizes (Watson, 2020).
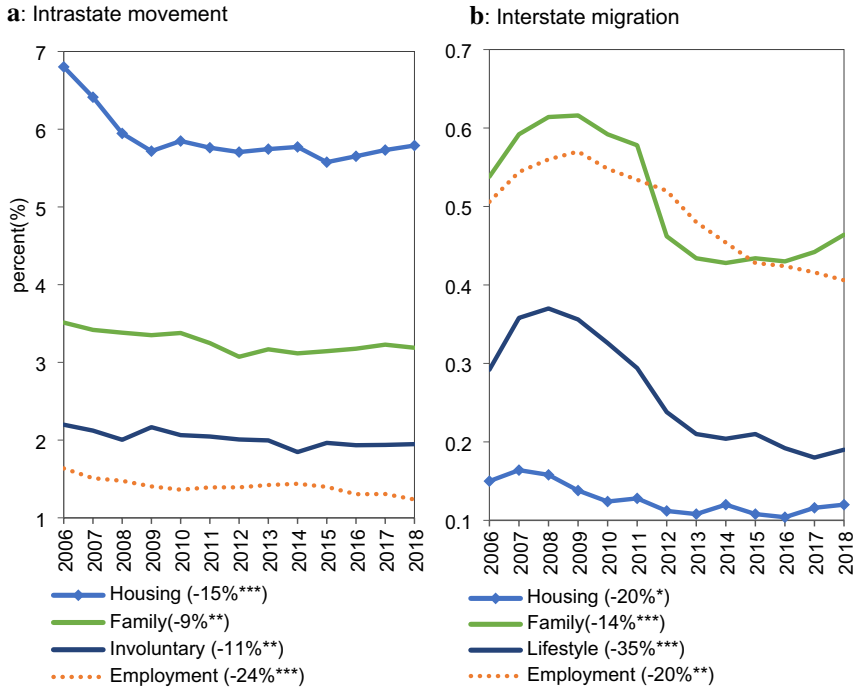
a:Intrastate movement
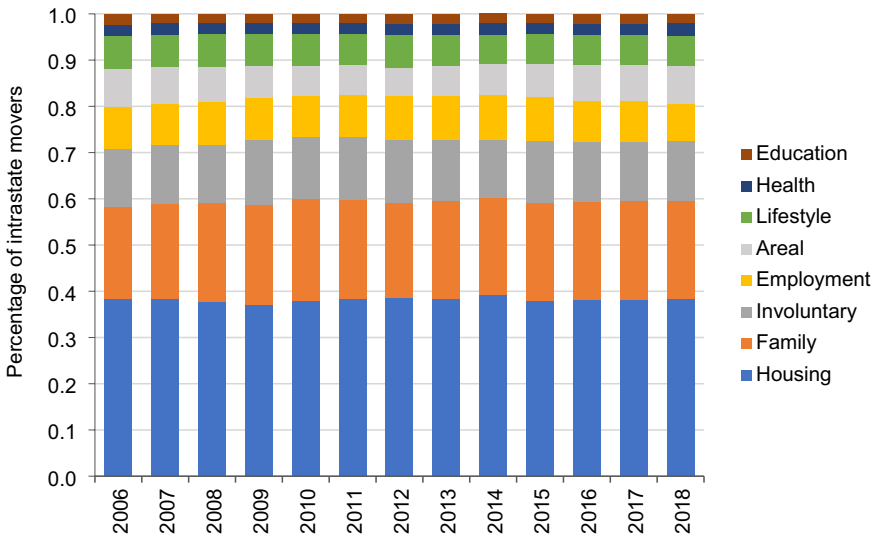
b: Interstate migration
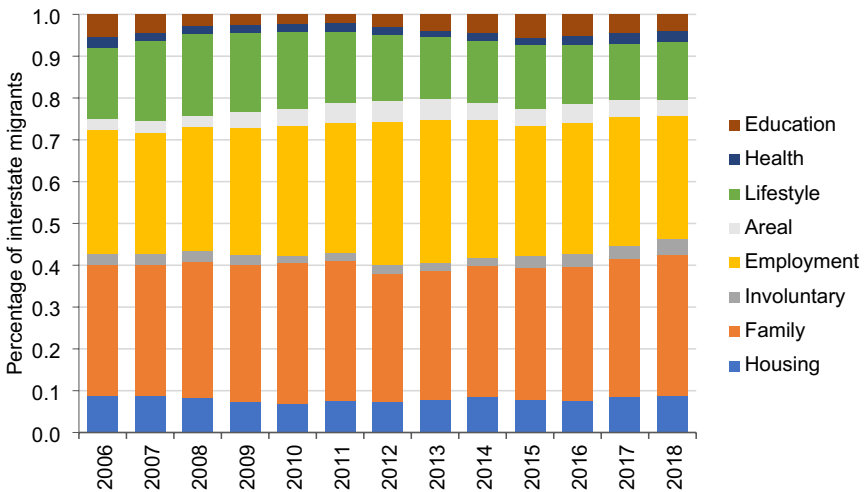
Source: HILDA waves 2-18. Notes: N=190,595.

Fig. 2 Percentage distribution of migrants by reasons for migration. Source: HILDA waves 2–18. Notes: N = 190,595

a: Intrastate movement   **b**: Interstate migration

Source: HILDA waves 2-18. Notes: Five year moving averages. Percentage change between 2002-2006 and 2014-2018 in reason-specific migration intensities in parantheses. The statistical significance of the trend term (*>0.10%, **>0.5% and ***>0.01%) is derived from a bivariate model of each reason for migrating on the trend term. N= 195,091.

Fig. 3 Trends in reason-specific migration intensities, five-year moving averages. Source: HILDA waves 2–18. Notes: Five year moving averages. Percentage change between 2002–2006 and 2014–2018 in reason-specific migration intensities in parantheses. The statistical significance of the trend term (*> 0.10%, **> 0.5% and ***> 0.01%) is derived from a bivariate model of each reason for migrating on the trend term. N = 195,091

Trends in reason for migrating

Figure 2 shows the trends in the percentage distribution of migrants by reason for migrating. In line with previous findings (Clark & Maas, 2015; Rolfe et al., 2020; Thomas et al., 2019), the results indicate the dominance of social reasons for both intrastate movement and interstate migration. From 2002 to 2018, housing accounted on average for 40 percent of all intrastate movement and, together with family reasons, drove almost two-thirds of all intrastate movement. Family reasons are an important driver of long-distance moves and account for an average of 33 percent of all interstate migration, on par with employment-related migration. More importantly, despite small year-on-year variations, the relative importance of reasons for migration has remained largely stable during the entire period, with no

notable shifts in the proportion of any particular reasons for migration. These results suggest that not one specific reason for migrating underpins the decline in migration at both spatial scales.

We now turn our attention to the trends in reasons-specific migration intensities. To minimise random variation caused by a small sample size, we smooth annual trends using a 5-year moving average and concentrate on the top four reasons for migration at each spatial scale. The results are presented in Fig. 3, with the percentage change for each reason for migration. While there has been a decline in the migration intensities for all four reasons at both spatial scales, the decline is more pronounced for interstate migration, with lifestyle migration falling by a third. All reasons for interstate migration, including employment, peaked before the GFC. They all experienced a steep decline in subsequent years before stabilising for housing-related reasons, while family-related migration recovered only after 2014. Yet, all reasons for interstate migration remain well below pre-GFC levels, which mirrors patterns observed in the United States (Cooke, 2011; Foster, 2017a) and goes to highlight the importance of economic factors in driving both economic and social reason of migrating.

On the other hand, the decline in intrastate movement has been more gradual, declining in a broadly linear fashion and seemingly less responsive to the GFC although housing-related moves fell sharply by 15 percent from 6.8 percent in 2006 to 5.7 percent in 2009 before stabilising at around that level for the rest of the period. Contrary to our hypotheses linking the migration decline to a fall in economic returns to migration across regions (hypothesis 1), the rise in ICTs (hypothesis 4) and alternate forms of mobility (hypothesis 5), the decline in internal migration does not appear to be solely driven by a drop in employment-related migration. This suggests other behavioural transformation, such as increased place attachment (hypothesis 2) and entrapment (hypothesis 3) that cut across many demographic profiles and should thus affect all reasons for migration, may be at play.

Employment-related migration

Economic theories of migration highlight the importance of employment in the decision to migrate. We recognise that employment migration is complex and, in order to understand its role in the migration decline, this section examines the trends in employment-related migration and its sub-components. Due to small sample sizes, we conduct this analysis for all changes of address. The results presented in Fig. 4 show that employment-related migration is dominated by moving nearer to place of work (46 percent) followed by moves to start a new job (28 percent). The trend indicates a decline in all subcategories for employment-related migration. In particular, there has been a decline in moving for new jobs (-22 percent) and work transfers (-14 percent), a trend that aligns with the hypothesis of increasing regional wages convergence (hypothesis 1). There has also been a 32 percent decline in the proportion of people moving to look for work during this period when communication technologies have become both widely available and cheaper (hypothesis 4).
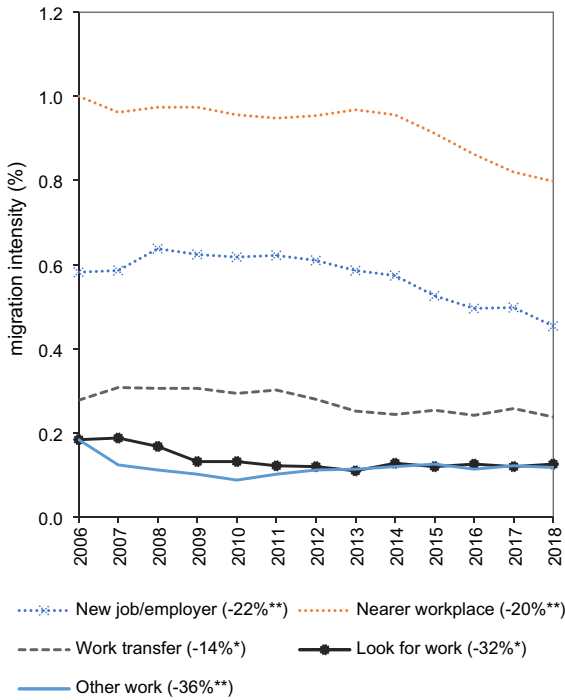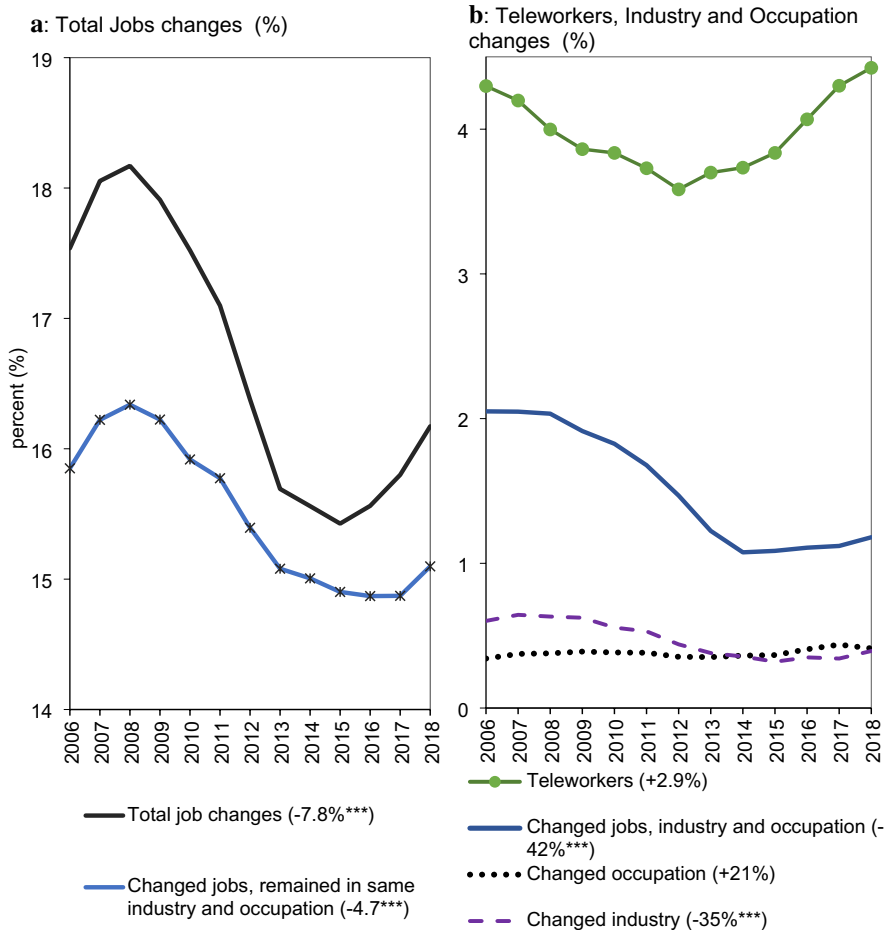
Source: HILDA waves 2-18. Notes:Five year moving averages. Percentage change between 2002-2006 and 2014-2018 in reason-specific migration intensities in parantheses . The statistical significance of the trend term (*>0.10%, **>0.5% and ***>0.01%) is derived from a bivariate model of each reason for migration on the trend term. N=195,091.

Fig. 4 Trends in employment-related moves, all changes of address, five-year moving average. Source: HILDA waves 2–18. Notes:Five-year moving averages. Percentage change between 2002–2006 and 2014–2018 in reason-specific migration intensities in parantheses. The statistical significance of the trend term (*>0.10%, **>0.5% and ***>0.01%) is derived from a bivariate model of each reason for migration on the trend term. N=195,091

Similarly, moving nearer to a workplace fell by 20 percent, which could be linked to a rise in alternate forms of mobility such as long-distance commuting and teleworking (hypothesis 4).

We also examine the extent to which the decline in internal migration has been accompanied by an increase in the number of individuals changing jobs locally by switching industry or occupation. An increase in labour market switching would suggest a possible substitution effect with migration as individuals seek to preserve social ties or location-specific capital by limiting changes in their physical location if they are rooted (hypothesis 2) or simply not able to move i.e., entrapment (hypothesis 3). We limit this analysis to individuals in continuous employment for at least two successive periods and calculate the proportion of individuals who changed jobs without moving industry or occupation and those that switched either the industry or occupation. Results in Fig. 5 indicate that the percentage of employees changing

a: Total Jobs changes (%)

b: Teleworkers, Industry and Occupation changes (%)

Source: HILDA waves 2-18, Notes: Five-year moving averages. Percentage change between 2002-2006 and 2014-2018 in reason-specific migration intensities in parantheses . The statistical significance of the trend term (*>0.10%, **>0.5% and ***>0.01%) derived from a bivariate model. N= 114,210.

Fig. 5 Trends in job, industry and occupation switching (all employees). Source: HILDA waves 2–18, Notes: Five year moving averages. Percentage change between 2002–2006 and 2014–2018 in reason specific migration intensities in parantheses. The statistical significance of the trend term (*>0.10%, **>0.5% and ***>0.01%) derived from a bivariate model. N = 114,210

jobs declined by 7.8 percent over the 2002–2018 period, with most of the decline taking place after the GFC. From 2002 to 2018, there was a 35-percent decrease in the proportion of employees changing industries, a 42-percent decline in the proportion of employees changing both occupation and industries, and a modest decline (4.7 percent) in the proportion of employees that changed jobs but remained in the same occupations and industry. The proportion of teleworkers declined in the first
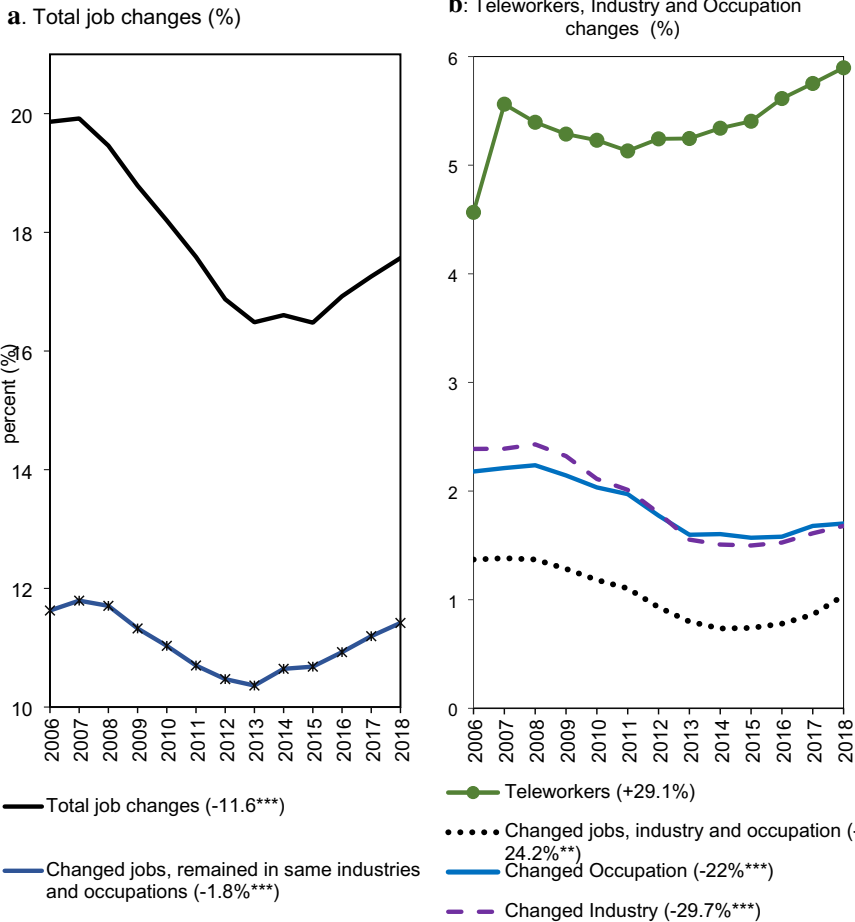
a. Total job changes (%)

b: Teleworkers, Industry and Occupation changes (%)

Source: HILDA waves 2-18. Notes: Five-year moving averages. Percentage change between 2002-2006 and 2014-2018 in reason-specific migration intensities in parantheses. The statistical significance of the trend term (*>0.10%, **>0.5% and ***>0.01%) is derived from a bivariate model, N= 114,210.

Fig. 6 Trends in job, industry and occupation switching (non-movers), five-year moving averages. Source: HILDA waves 2–18. Notes: Five-year moving averages. Percentage change between 2002–2006 and 2014–2018 in reason-specific migration intensities in parantheses. The statistical significance of the trend term (*>0.10%, **>0.5% and ***>0.01%) is derived from a bivariate model, N=114,210

half of the period before bouncing back. As a result, there has not been a significant increase in the proportion of teleworkers in the study period.

We replicate the analysis for the population who did not migrate between two consecutive waves. The results in Fig. 6 mirrors the trends in labour market switching for the whole population depicted in Fig. 5, although the decline is less pronounced. While we expected an increase in intra-labour market switching as indicative of the substitution with internal migration, the substantive decline in employment change,

especially among non-movers, indicates that the process of increasing place attachment and entrapment is not substituted by an increase in labour market dynamism. This suggests perhaps that the process of staying in place is taking place regardless of well-known coping mechanisms. In addition, the increase in teleworkers accompanying the decline in work-related moves is statistically insignificant even for non-movers, which invalidates our hypothesis regarding a substitution between internal migration and tele-working (hypothesis 5).

Collectively, our descriptive results suggest that the decline in internal migration cuts across all reasons for migration and is thus not driven by a single reason. In addition, the decline accelerated after the GFC, particularly for interstate migration. Unlike the United States, where the decline in migration has been attributed only to falling employment and housing motives (Molloy, 2019), in Australia employment-related migration has declined but not to a greater extent than other reasons. Of particular interest, this decline does not appear to have been compensated for by an increase in teleworking or in individuals changing industry or occupation. More generally, these results are like those reported in the United States (Hyatt et al., 2018; Molloy & Smith, 2019) that point to a relationship with an increasingly less dynamic labour market.

Modelling the drivers of reason-specific migration

Table 3 reports the odds ratios of the pooled logistic regression for each of the main reasons for migrating.   Our variable of interest is the trend term (year), which is a continous variable. While the term trend was statistically significant for family and involuntary-related migration in the bivariate model (Fig. 3), the inclusion of the control variables renders it insignificant. As the inclusion of these variables improves the model fit, as suggested by F-tests and Pseudo R-squared, it implies that their exclusion had over-estimated the effect of the trend terms for family and involuntary intrastate movement as well as family interstate migration in the bivariate models.

The results indicate some drivers whose effect is common for all reasons for migration. For instance, in comparison to the 18–24-year age group, almost all other age groups migrated significantly less for all reasons. Duration spent at current residence and home-ownership are both associated with lower odds for migrating for all types of reasons for both intrastate movement and interstate migration. Apart from these, the effects of explanatory variables vary depending on the reason for migration. For example, compared to males, females have lower odds of migrating for employment at both spatial scales but higher odds of migrating for family-related reasons at both spatial scales. Changing jobs is associated with increased odds for all types of moves except for involuntary intrastate movement. Recent retirees have higher odds of moving intrastate for housing and migrating interstate for lifestyle reasons. In addition, part-time work increases the odds of employment-related intrastate movement but limits family-related interstate migration. In line with previous findings from Australia (Kalemba et al., 2020), we find that teleworking has no effect on any of the reasons for migration in our model, including employment.

Table 3 Drivers for reasons for migration (Odds Ratios). Source: HILDA waves 3–18

	Intrastate movement				Interstate migration			
	Employment	Housing	Family	Involuntary	Employment	Housing	Family	Lifestyle
Year	0.979***	0.989***	0.993	0.990	0.977*	0.957*	0.988	0.950***
18–24 yrs. old (Ref)								
25–34 yrs. old	0.745***	0.854***	0.785***	0.748***	0.960	0.999	1.164	1.121
35–44 yrs. old	0.492***	0.532***	0.516***	0.765***	0.540***	0.753	0.801	0.750
45–54 yrs. old	0.291***	0.352***	0.343***	0.866*	0.476***	0.656	0.618**	0.599*
55–64 yrs. old	0.201***	0.367***	0.223***	0.716***	0.201***	0.545	0.657**	0.531***
65 + yrs. old	0.035***	0.295***	0.197***	0.438***	0.026***	0.386*	0.574**	0.297***
Male (ref)								
Female	0.828***	1.101***	1.163***	0.923**	0.707***	1.053	1.483***	1.006
Duration of residence (<5 yrs. (Ref)								
5–10 yrs	0.695***	0.713***	0.781***	0.625***	0.589***	0.443**	0.668**	0.700*
More than 10 yrs	0.619***	0.582***	0.612***	0.397***	0.317***	0.558*	0.336***	0.480***
Renters (Ref)								
Homeowners	0.420***	0.307***	0.588***	0.107***	0.442***	0.430***	0.447***	0.617**
Recent life course events (Ref=0)								
Marital change	1.158	1.225***	1.772***	1.127	1.167	1.246	1.274	1.201
Birth/adoption	1.367*	1.247***	0.893	1.089	1.392	1.016	0.777	0.891
Changed jobs	1.697***	1.167***	1.150***	1.077	1.389***	2.021***	1.287**	1.437*
Retired	0.455**	1.258**	1.015	1.144	3.101	1.856	1.137	2.464***
Not in the labour force (Ref)								
FT employees	1.625***	1.236***	1.169**	0.996	1.261	0.742	0.777*	0.850
PT employees	1.343**	1.051	1.074	1.019	1.120	0.752	0.694***	0.754
Unemployed	1.572***	1.098	1.123	0.973	0.813	0.967	1.114	1.162

Table 3 (continued)

	Intrastate movement				Interstate migration			
	Employment	Housing	Family	Involuntary	Employment	Housing	Family	Lifestyle
No telework (Ref)								
Teleworks	1.189	0.938	0.877	1.084	1.344	0.959	0.784	1.136
Not studying (Ref)								
Studying	1.382***	0.993	0.981	1.027	1.440***	0.886	1.167	0.894
Single (Ref)								
Married/cohabiting	0.683***	0.882***	0.548***	0.925	0.782*	1.303	1.030	1.006
No tertiary education (Ref)								
Tertiary educated	1.866***	1.057	0.995	0.905	1.902***	0.762	1.611***	1.003
No children (Ref)								
Dependent Children	0.623***	0.947	0.767***	1.134*	0.707**	1.142	0.885	0.714
Middle income quantile (Ref)								
0_20%	0.823*	0.787***	0.943	0.925	0.396***	1.011	0.751	0.639*
20_40%	0.864	0.897**	1.065	1.091	0.602***	1.376	0.904	0.773
60_80%	1.148	1.114**	1.045	0.991	1.115	0.787	0.986	0.652
80_100%	1.177	1.367***	1.215***	1.115	1.017	1.118	0.753	0.668
No dual income (Ref)								
Dual income	1.108	1.036	0.919	0.997	0.932	0.745	0.970	1.191
Power couple	0.637***	0.990	0.652***	1.147	0.657**	1.930	1.053	1.183
City (Ref)								
Regional	2.390***	1.039	1.240***	0.845***	1.712***	0.797	1.204	1.188
Remote	4.594***	0.866	1.384**	0.746	1.620	0.475	0.446*	1.473
NSW (Ref)								
VIC	0.860	1.053	0.838***	1.122	0.880	0.420**	0.777*	0.843

Table 3 (continued)

	Intrastate movement				Interstate migration			
	Employment	Housing	Family	Involuntary	Employment	Housing	Family	Lifestyle
QLD	1.228**	1.238***	1.049	1.215**	0.866	0.640	1.104	0.676*
SA	0.869	0.965	0.981	0.965	1.307	0.339***	1.326	1.864
WA	0.844	1.240***	1.020	0.986	1.444*	0.367**	1.053	0.664
TAS	0.524***	1.003	0.740**	1.165	2.317**	0.084***	2.092***	1.623
NT	0.406**	0.875	0.681	0.683	2.398***	3.584***	2.305***	3.386**
ACT	0.256***	1.001	0.676**	0.887	2.355***	3.035***	2.559***	3.767***
Log-Likelihood Full Model	−1.020e+07	−3.460e+07	−2.140e+07	−1.370e+07	−4.462e+06	−1.527e+06	−5.126e+06	−3.147e+06
Chi-square test	1671	3689	2558	1704	690.7	331.2	506.1	308.8
AIC	133.4	451.9	279.5	179.5	58.28	19.94	66.95	41.10
BIC	1.860e+07	6.740e+07	4.100e+07	2.570e+07	7.097e+06	1.226e+06	8.425e+06	4.466e+06
Pseudo R2	0.151	0.115	0.0979	0.163	0.127	0.0832	0.0740	0.0626

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Observations (N) = 153,136. Individuals clustered by household (n) = 19,513

This result suggests that the decline in internal migration is not related to a substitution with teleworking.

Moving to social determinants, income status is found to limit the odds of moving intrastate for housing reasons and of migrating interstate for employment reason for the bottom 40 percentile. At the same time, income status increases the odds for housing (intrastate) moves for the top 40 percentile and family-related interstate migration for the top 20 percentile. On the other hand, dual income status has no significant effect on migration but being in a 'power-couple' household limits the odds for employment migration at both spatial scales, as well as for family reasons if moving intrastate.

We move on to establish whether the effect of these drivers has changed over time. One way of doing this is to check for statistical interaction of these drivers with the trend term (Hosmer et al., 2013). We interact all independent variables with the trend term and use an iteration process to determine and maintain the variables whose effect on each reason for migration was modified over time as determined by statistical significance and improvements model fit using an F-test. We present only those variables whose interactions with the trend term is statistically significant in Tables 5i and 5ii in the Appendix. For conciseness, we have presented results for the trend at 3-year intervals. We follow the four-step method proposed by Hosmer et al. (2013) that involves taking the difference in the logistic function for the trend interaction term and trend without the interaction thereby obtaining the discrete change from the base category due to changes in the trend. This is operationalised in STATA (StataCorp, 2019) using the average marginal effects command.

Our results indicate that most drivers have been stable over time. This means that the decline in the reason-specific migration has not been driven by a change in the association between a specific driver and internal migration. Contrary to our hypothesis, the negative effect of low-income and part-time work has not increased, neither has teleworking. This result suggests that entrapment and mobility substitution are not underpinning the decline in the intensity of internal migration in Australia. On the other hand, despite a less dynamic job market, individuals who changed jobs and young adults appear to be more likely to move interstate than in the past, but the effect is small.

One of the few exceptions is duration of residence of 5 to 10 years, whose restricting effect has marginally increased for family-related intrastate movement but has declined for family-related interstate migration. While cumulative inertia suggests that generally longer duration of residence increases the probability of staying, our results indicate that this effect depends on the reason for migration and type of migration. This is an important finding considering that the proportion of individuals who spent 5 to 10 years in a residence had not changed significantly in the 16-year period (results not reported). In Australia, therefore the growing effect of duration of residence suggests that place attachment may be playing an increasing role in the decline of family-related intrastate movement. Collectively these results, suggest that the decline in internal migration is not driven by a change in behaviour of a particular group but a rather a behavioural change that cut across sub-population groups.

Conclusion

This paper has contributed to the growing search for explanations for the decline in internal migration in advanced economies. Recent findings indicate the importance of considering both behavioural and structural factors to explain the decline (Clark & Lisowski, 2019; Coate & Mangum, 2019; Foster, 2017a; Kalemba et al., 2020; Kaplan & Schulhofer‑Wohl, 2017; Molloy & Smith, 2019; Shuttleworth et al., 2019). A range of explanations have been proposed, including convergence in regional wages and incomes, increasing place attachment, entrapment, effects of enhanced ICTs and substitution with alternative forms of mobility such as teleworking and long-distance commuting. To shed new light on these processes, this paper has examined trends in self-reported reasons for migration in Australia, distinguishing between employment, housing, family, involuntary and lifestyle-related migration. We have found no changes in the relative importance of any specific reasons for migration over the study period (2002 and 2018) for both intrastate movement and interstate migration. After controlling for socio-economic and demographic characteristics, we find a substantial decline in the rate of employment and housing-related intrastate movement and employment, housing, and lifestyle interstate migration. This means that no single reason underpins the overall decline in internal migration. In other words, the decline is not due solely to a fall in employment-related migration, which accounts for only a third of interstate migration in Australia.

We have unveiled that the decline in employment-related migration in Australia parallels a decrease in the labour market dynamism with fewer people changing jobs in general as in the United States (Hyatt et al., 2018; Molloy & Smith, 2019). However, we did not find evidence that internal migration has been substituted by intra-labour market mobility. Our findings indicate that occupation and industry switching fell in tandem with the decline in internal migration even among non-movers. While this indicates that the decline in internal migration has been accompanied by a slowdown in labour market fluidity, the decline in the intensity of internal migration can therefore not be attributed to rising intra-labour market mobility, which invalidates hypotheses 2. In addition, some groups (young adults, retirees, those changing jobs and the unemployed) have been migrating more for employment but the effect is small. More importantly, teleworking has no effect on all reasons for migration and its effect has not changed with time. This suggests that mobility substitution has not been a driving force behind the decline in the intensity of internal migration in Australia in opposition with hypothesis 5.

We have also found that most migration drivers have remained constant over time. In particular, while low-income individuals (bottom 40 percent) and part-time employees are less likely to migrate than the general population, the effect of these variables has been stable over time, invalidating the entrapment explanation (hypothesis 3). The fact that the decline in migration is not driven by a single reason and cannot be explained by the behavioural change of any groups suggest other factors such as increasing place attachment could be at play (hypothesis 2). This is further supported by the growing effect of duration of residence in depressing migration, particularly for intrastate family-related movement.

The work presented in this paper is not without limitations. Firstly, limited by data availability we could not observe longer-term trends to capture known declines in internal

migration in Australia that date back to the early 1980s. In addition, we could not account for long-distance commuting, which is believed to have been a substituted for internal migration in countries such as Britain (Green et al., 1999). This is especially problematic if long-distance commuting is systematically related to any of the variables contained in our model. Low representation of immigrants in HILDA is also a limitation particularly given that the volume and composition of the immigrant population to Australia have changed in the last decades, as well as the fact that immigrants from different countries report different levels of internal migration (Raymer & Baffour, 2018). As more data become available, such as the Multi-Agency Data Integration Project (MADIP), a longitudinal linked administrative dataset, the role of immigrant populations could be explored in more details. However, recent decomposition analysis has shown than the growth in the share of the immigrant population and changes in its internal migration behaviour only accounts for a small share of the decline in internal migration in Australia (Kalemba et al., 2020). Despite these limitations, our findings suggest that accumulated place-based capital may have contributed to the decline in the intensity of internal migration in Australia and offers some important evidence concerning the relevance of behavioural factors in shaping and explaining the decline in internal migration. However, place attachment is typically measured as a residual (Champion & Shuttleworth, 2018; Cooke, 2011; Foster, 2017a; Kalemba et al., 2020).

Further research should therefore endeavour to unpack what constitutes place attachment to robustly quantify its role in the decline of internal migration in Australia and beyond. This requires refining the concept of place attachment, which encompasses a broad range of connections to family, community, and locality (Diemer, 2020). Depending on data availability, a range of indicators have been used in existing literature, including nativity (i.e., region of birth), proximity to family (Coate & Mangum, 2019; Mulder et al., 2020), homeownership (endowment), duration of residence (Clark & Lisowski, 2019), agreeableness of local and social norms, (Kosar et al., 2020), the level of neighbourhood interactions (Clark & Lisowski, 2019) and voter turnout and religious participation (Diemer, 2020). HILDA offers a unique opportunity to jointly analyse these different dimensions, particularly satisfaction with housing, neighbourhood, and community interactions as well as duration of residence and distance to non-resident family members. Doing so would help to develop a more comprehensive understanding of place attachment and its impact on internal migration behaviour. Another avenue that warrants further research is understanding the impact of changes in the housing market on internal migration, particularly given the unprecedented increase in housing prices in Australian major cities since the 1990s (Kohler & van der Merwe, 2015). Recent evidence from Germany (Stawarz et al., 2020) and the United States (Molloy et al., 2020) has confirmed a link between internal migration and housing supply and affordability. However, the extent to which the rising cost of housing has impacted internal migration trends in Australia remains to be ascertained.

Appendix

See 4, 5 .

Table 4 Summary Statistics (2003-2018)

Variable	%
Age groups in years	
18–24 yrs. old (Ref)	13.1
25–34 yrs. old	18.0
35–44 yrs. old	18.6
45–54 yrs. old	18.4
55–64 yrs. old	14.7
65+ yrs. old	17.2
Sex	
Male (Ref)	47.0
Female	53.0
Recent Events (Ref=no)	
Got Married	2.5
Separated/Divorced	3.0
Birth /Adoption	3.9
Changed Job	12.8
Retired	2.6
Student Status	
Not Studying (Ref)	89.8
Studying	10.2
Marital Status	
Single (Ref)	32.5
Married/Cohabiting	67.5
Tertiary Education	
No Tertiary educ (Ref)	76.4
Tertiary educated	23.6
No Telework (Ref)	35.4
Teleworks	3.7
Family structure	
No Children <15yrs (Ref)	70.2
Children Under 15	29.8
House Tenure	
Renters *(Ref)*	71.9
Owner	28.1
Income Quantile	
40–60% (Ref)	20.0
0–20%	20.0
20–40%	20.1
60–80%	20.1
80–100%	19.8
Dual Income	
No dual income (Ref)	83.3
Dual income	10.9

Table 4 (continued)

Variable	%
Power couple	5.8
Occupation	
Not in Labour force (Ref)	32.3
Full time employment	45.6
Part time employment	19.9
Unemployment	2.2
Year at residence	
< 5yrs. (Ref)	47.0
5–10 yrs.	17.7
10+ yrs.	35.4
State	
NSW (Ref)	29.7
VIC	24.9
Qld	20.9
SA	9.3
WA	9.3
Tas	3.1
NT	0.7
ACT	2.0
Remoteness	
City *(Ref)*	61.5
Regional	36.6
Remote	1.9

$N = 190{,}595$

Table 5 Marginal effects at the representative values of the trend term

Variables	Housing		Family	
	Tertiary educated (Ref: No tertiary education)	Recently retired (Ref: Not recently retired)	5–10 yrs. at address (Ref: <5 yrs. at address)	10+ yrs. at address (Ref: <5 yrs. at address)
i. Intrastate movement[a]				
2003	−0.002	−0.018**	−0.001	−0.012***
	(0.004)	(0.009)	(0.004)	(0 .003)
2004	−0.002	−0.014*	−0.002	−0.012***
	(0.003)	(0.009)	(0.004)	(0 .002)
2005	−0.001	−0.011	−0.003	−0.012***
	(0.003)	(0.008)	(0.003)	(0 .002)
2006	−0.000	−0.007	−0.004	−0.012***
	(0.002)	(0.008)	(0.003)	(0 .002)
2007	0.001	−0.003	−0.005*	−0.012***
	(0.002)	(0.007)	(0.003)	(0 .002)
2008	0.001	0.001	−0.005**	−0.012***
	(0.002)	(0.007)	(0.002)	(0 .002)
2009	0.002	0.005	−0.006***	−0.012***
	(0.002)	(0.007)	(0.002)	(0 .002)
2010	0.003	0.010	−0.007***	−0.012***
	(0.002)	(0.007)	(0.002)	(0 .002)
2011	0.003	0.015**	−0.008***	−0.013***
	(0.002)	(0.007)	(0.002)	(0 .002)
2012	0.004*	0.020***	−0.009***	−0.013***
	(0.002)	(0.007)	(0.002)	(0 .001)
2013	0.004**	0.025***	−0.009***	−0.013***
	(0.003)	(0.008)	(0.002)	(0 .002)
2014	0.005**	0.030***	−0.010***	−0.013***
	(0.002)	(0.008)	(0.002)	(0 .002)
2015	0.006**	0.036***	−0.011***	−0.013***
	(0.003)	(0.010)	(0.002)	(0 .002)
2016	0.006**	0.042***	−0.011***	−0.013***
	(0.003)	(0.012)	(0.002)	(0 .002)
2017	0.007**	0.048***	−0.012***	−0.013***
	(0.003)	(0.014)	(0.003)	(0 .002)
2018	0.008**	0.055***	−0.013***	−0.013***
	(0.003)	(0.016)	(0.003)	(0 .002)
Average marginal effect	0.0026	0.0136**	−0.0070***	−0.0125***
	(0.002)	(0.006)	(0.002)	(0.001)
Pseudo R2	0.115		0.0981	

Table 5 (continued)

Variables	Employment	Family			
	Changed jobs (Ref: No recent job changes)	5–10 yrs. at address (Ref: < 5 yrs. at address)	10 + yrs. at address (Ref: < 5 yrs. at address)	Birth/adoption (Ref: No recent births/adoption)	Dependent Children (Ref: No dependent children)
ii. Interstate migration[b]					
2003	− 0.001	− 0.005***	− 0.005***	− 0.004***	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
2004	− 0.000	− 0.005***	− 0.005***	− 0.004***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
2005	0.000	− 0.004***	− 0.005***	− 0.004***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
2006	0.000	− 0.004***	− 0.005***	− 0.003***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
2007	0.001	− 0.003***	− 0.004***	− 0.003***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
2008	0.001	− 0.003***	− 0.004***	− 0.002**	− 0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
2009	0.001**	− 0.003***	− 0.004***	− 0.002*	− 0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
2010	0.002***	− 0.002***	− 0.004***	− 0.001	− 0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
2011	0.002***	− 0.002**	− 0.004***	− 0.001	− 0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
2012	0.002***	− 0.001*	− 0.004***	0.000	− 0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
2013	0.002***	− 0.001	− 0.004***	0.001	− 0.002**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
2014	0.003***	− 0.001	− 0.004***	0.002	− 0.002**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
2015	0.003***	− 0.000	− 0.004***	0.003	− 0.002**
	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)
2016	0.003***	0.000	− 0.004***	0.004	− 0.002***
	(0.001)	(0.002)	(0.001)	(0.004)	(0.001)
2017	0.003***	0.001	− 0.004***	0.006	− 0.003***
	(0.001)	(0.002)	(0.001)	(0.005)	(0.001)
2018	0.004***	0.001	− 0.004***	0.007	− 0.003***
	(0.001)	(0.002)	(0.001)	(0.006)	(0.001)
Average marginal effect	0.002***	− 0.002**	− 0.0040***	− 0.0002	− 0.0001***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Pseudo R2	0.128	0.0778			

[a]These estimates measure how the effect of the drivers (e.g., tertiary education or recently retired) on each reason (e.g., housing) for migrating differs by year when compared to the reference category (see Williams 2012). For example, on average the probability for family-related intrastate movement for those living at the same address for 5 to 10 years is 0.7% percent lower than the reference category (< 5 years) and this marginal effect has increased with time from less than 1 percent in 2007 to 1.3 percent in 2018. Standard errors in paratheses, statistical significance*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, N = 153,136

[b]Standard errors in paratheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$, N = 153,136

Declarations

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Authors and Affiliations

Sunganani V. Kalemba[1] · **Aude Bernard[1]** · **Jonathan Corcoran[1]** · **Elin Charles-Edwards[1]**

Aude Bernard
a.bernard@uq.edu.au

Jonathan Corcoran
jj.corcoran@uq.edu.au

Elin Charles-Edwards
e.charles-edwards@uq.edu.au

[1]   School of Earth and Environmental Sciences, University of Queensland, Saint Lucia, QLD, Australia