Residential mobility in Australia and the United States: a retrospective study
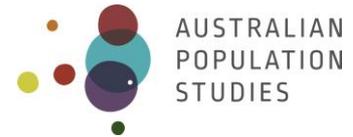
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Abstract

Background

Levels of internal migration vary significantly between countries. Australia and the United States consistently record among the highest levels of migration anywhere in the world. Very little is known, however, about the factors underlying mobility differentials. We argue that this is because existing evidence is almost exclusively based on period measures applied to cross-sectional data.

Aims

We seek to advance understanding of cross-national variations in levels of residential mobility by drawing on a newly proposed suite of cohort migration measures, coupled with the recent release of internationally comparable retrospective residential history data.

Data and methods

Focusing on the early cohort of baby boomers born between 1947 and 1951, the paper examines residential mobility levels and patterns in early and mid-adulthood in Australia and the United States and compares them with 14 European countries. Differences in completed levels of residential mobility are assessed in terms of four components: the proportion of a cohort who moved at least once; mean age at first move; mean age at last move; and average interval between moves.

Results

While cohort analysis confirms high levels of mobility in Australia and the United States, it does not support the notion of a common 'new world' mobility regime distinct from other advanced economies.

Conclusion

A cohort perspective offers refined insights into population mobility. The increasing availability of retrospective survey data means that researchers can now apply cohort measures to a wide range of countries.

Key words

Retrospective life histories; residential mobility; cohort migration; completed migration rate; completed migration distribution; migration progression ratio; Australia; United States.

1. Introduction

'New World' countries such as Australia, Canada, New Zealand and the United States are firmly established as some of the most mobile countries in the world with 40 to 55 per cent of their populations changing residence over a five-year period (Bell et al. 2017). In a seminal cross-national comparison, Long (1991) attributed this high mobility to institutional frameworks, flexible housing and labour markets and peripatetic traditions inherited from immigrant forbears. More recently, in a comparison of 23 Organisation for Economic Co-operation and Development (OECD) countries, Sánchez and Andrews (2011) showed that Australia ranked second after Iceland, and the United States fourth after Sweden in terms of the proportion of households changing residence over a two-year period. Similar variations in levels of internal migration were found in a global comparison of 139 countries (Esipova, Pugliese and Ray 2013). These movements have occurred against a background of globalisation, urbanisation and population ageing (McDonald 2017). In most countries, internal migration has become a leading agent of demographic change, shaping patterns of human settlement and affecting the age distribution of populations.

This paper adopts a cohort perspective to advance understanding of levels and patterns of residential mobility in Australia and the United States. A cohort approach provides distinct advantages over existing studies, which use period measures applied to cross-sectional data. First, by following individuals over their entire life course, a cohort perspective provides detailed information about the migration trajectories of different birth cohorts (Bogue 1950; Shyrock and Larmon 1965). This can reveal how moves are distributed in the population, which cannot be achieved with the dichotomy between movers and non-movers commonly used in national censuses and surveys (Xu-Doeve 2006). Thus, because it views migration as an incremental process where individuals progress from one move to the next, a cohort approach allows the association between the timing of migration and the number of lifetime moves to be explored, which can shed light on the demographic mechanisms underlying differences in migration levels (Bernard 2017b).

Second, a cohort perspective has the advantage of eliminating any potential tempo effects, which inflate or deflate the period measure of a demographic event due to a rise or fall in the mean age at which the event occurs (Bongaarts and Feeney 2008). Cohort migration is free of this interpretive difficulty. If cohort migration falls, it is a pure quantum effect: people are moving less. Third, because individuals may live through periods of high and low migration, a cohort approach has the advantage of smoothing out temporal variations in migration levels. This is particularly important when comparing countries because the economic cycles, housing market conditions and government policy regimes that underpin short-term variations in migration level are unlikely to be in phase in different national contexts (Bell et al. 2002). Finally, comparing the migration trajectories of successive cohorts can reveal the influence of social change on the evolution of migration behaviour, while comparisons between countries can shed light on the effects of national economic, social and policy developments (Kendig and Nazroo 2016).

To facilitate a structured approach to the cohort analysis of migration and residential mobility, Bernard (2017a) has recently proposed a comprehensive suite of robust cohort measures that capture the level and distribution of completed migration and the timing and spacing of moves. Application to European countries (Bernard 2017b) has revealed that differences in cohort migration levels are attributable to variations in the extent of repeat movement, which is underpinned by differences in mean ages at first and last move.

We now examine the demographic mechanisms underpinning variations in residential mobility levels in two 'New World' countries. We draw retrospective residential history data from the Life Histories and Health (LHH) survey in Australia and the Life History Mail Survey (LHMS) in the United States. While the LHMS surveyed a nationally representative sample of Americans born before 1966, the LHH survey focused on early baby boomers born between 1947 and 1951 and living in New South Wales at the time of the survey. The latter may therefore not be representative of all Australians. The surveys collected retrospective lifetime residential mobility histories in 2011–2012 and 2015–2016, respectively, using life-history grids. This approach involves showing respondents a schematic form that depicts the year in their life, from birth to present, alongside national and world events to help them recall past moves (Belli 1998; Blane 1996). While the life-history calendar only took the form of a mail survey in the United States, it was complemented in Australia by computer-assisted telephone interviews to assist recall (Kendig et al. 2014). Despite these differences, response rates were similar in the two countries, sitting at 45 per cent in Australia and 48 per cent in the United States.

To position Australia and the United States internationally, we complement these datasets with retrospective residential histories from the English Longitudinal Study of Ageing (ELSA) and the Survey of Health, Ageing and Retirement in Europe (SHARE). Together these provide directly comparable residential histories for 14 European countries (Börsch-Supan 2010; Marmot et al. 2016). The paper explores variations in levels and patterns of residential mobility for the cohort of baby-boomers born in each case study country between 1947 and 1951 by comparing completed migration rates, completed migration distribution and the cumulative distribution of movers by age and move order.

2.   Cohort measures of migration: methods and data

The analysis presented here is confined to a subset of six measures recommended by Bernard (2017a) to compare migration between cohorts and countries. While we apply these measures to residential mobility (i.e. changes of address), we use the term 'cohort migration' proposed by Bernard (2017a). Table 1 lists each measure in summary form, providing a definition and an algebraic representation, where M corresponds to the number of moves, P to the number of individuals and X to the age at move. Subscript i refers to the order of each move (first, second, etc.) and n to an individual. Thus, P_i refers to the number of individuals who have moved i times, M_i to the number of moves of order i for all *i>0*, and X_n corresponds to the age at move of individual n.

Multiple measures are required to comprehensively quantify cohort migration:

- The first of these measures is the *completed migration rate* (CMR), which represents the average number of moves undertaken by members of a given cohort over the course of their lives, as defined by equation (1) in Table 1. It is readily comparable across countries and indicates whether the overall level of migration is high or low.
- Because the actual migration behaviour of individuals is more heterogeneous than this summary statistic suggests, the *completed migration distribution* (CMD) decomposes the population according to the number of moves individuals have made, as indicated in equation (2), and hence reveals the proportion of lifetime non-movers, infrequent movers and frequent movers.
- *Migration progression ratios* (MPRs) depict the underlying, incremental process of moving by measuring the proportion of individuals who, having made a given number of moves, proceed to move at least one more time, as shown in equation (3). Underpinning MPRs is the idea that variation in migration behaviour depends on the number of times individuals have moved.

- *Mean migration age (MMA)* summarises migration age patterns by showing whether populations are moving early or late in life. It can be computed for all moves, as indicated by equation (4), or by move order, as shown by equation (5). Of particular importance are (a) the *mean age at first move*, because it captures the start of the migration career of successive cohorts and (b) the mean *age at last move*, which indicates how early or late in life different populations stop moving.

- The final measure, *mean migration spacing* (MMS), relates to spacing between consecutive moves, which indicates the extent to which moves are close to each other or spaced further apart, as shown by equation (6). Further information and worked examples can be found in Bernard (2017a).

Table 1: Cohort measures of migration

Measures	Definition	Method	Equation
Completed migration rate (CMR)	Average number of moves per individual by the end of their migratory life	$CMR = M/P$	(1)
Completed migration distribution (CMD)	Proportion of cohort who have moved exactly *i* times	$CMD_{(0,i)} = \dfrac{P_i}{P}$	(2)
Migration progression ratios (MPRs)	Proportion of individuals who moved *i* times and who went on to move at least once more	$MPR_{(i,i+1)} = \dfrac{M_{i+1}}{M_i}$	(3)
Migration mean age (MMA)	Mean age at which individuals in cohort moved	$MMA = \sum_{n=1}^{N} \sum_{i=1}^{I} X_{n,i}/M$	(4)
Order-specific migration mean age (MMA)	Mean age at which individuals in cohort moved for the ith time	$MMA_i = \sum_{n=1}^{N} X_{n.i}/M_i$	(5)
Mean migration spacing (MMS)	Average interval between all moves for individuals who have moved at least twice	$MMS = \sum_{i=1}^{I} (MMA_{i+1} - MMA_i) \Big/ \sum_{i=2}^{I} M_i$	(6)

Source: Bernard (2017a). *Notes: M* is the number of moves; *P* is the number of individuals; *X* is the age at move; *i* refers to the order of the move; *n* refers to an individual.

To maximise comparability between LHH and LHMS and avoid censoring bias, the analysis is confined to individuals born between 1947 and 1951 in each case study country. To ensure that migration careers are of comparable lengths for different birth years, the paper focuses on moves undertaken during early and middle adulthood, between the ages of 17 and 50 years (inclusive), and excludes tied moves in childhood that are qualitatively different to moves made as independent adults. In both surveys, respondents were asked to report the start and end years of residence for dwellings in which they had lived for more than six months since birth (up to 29 dwellings in LHH and up to 18 dwellings in the LHMS). The postcode was collected in both surveys but, to ensure confidentiality, an annual indicator of change of residence and change of state was constructed for the LHMS, whereas geographic information was released at city level for the LHH. To ensure comparability, the analysis in this paper makes use of data for up to 18 moves and uses all changes of postcodes, independent of administrative units, in measuring migration. While this means that the distinction between short- and long-distance moves cannot be made, the results have the advantage of not being affected by differences across countries and over time in the number and shape of spatial units, which can bias cross-national comparisons (Courgeau 1973).

3.   Cohort residential mobility in Australia and the United States

Figure 1 ranks Australia and the United States alongside 14 European countries from the highest to lowest completed migration rate (CMR). While both countries display a CMR well above the European mean of 2.9 moves, Australia reports the highest level of residential mobility among the 16 countries, with an average of 5.1 moves per individual. The United States ranks fifth after Australia, Denmark, England and Sweden, with one less move on average than Australia.
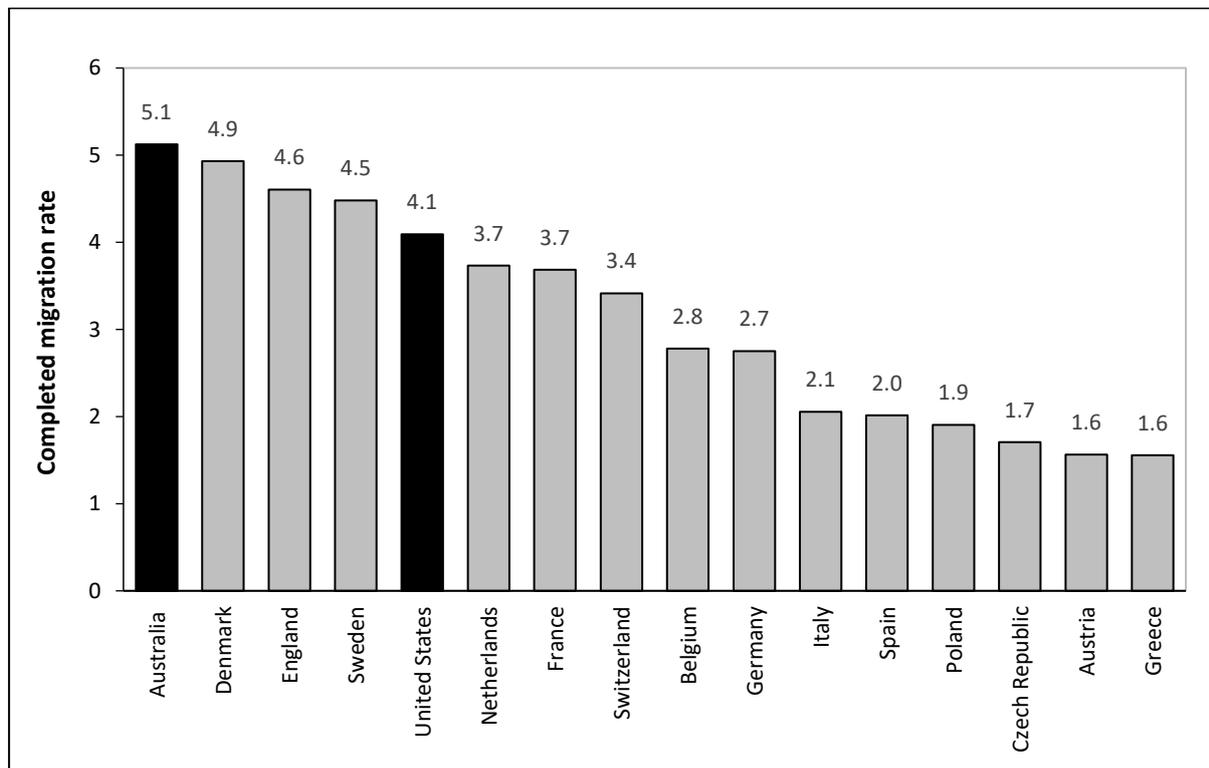
Figure 1: Completed migration rates: Australia, United States and select European countries
Source: Authors' calculations from ELSA, SHARE, LHH and LHMS data. *Note*: Changes of address between ages 17 to 50 years.

To describe the actual range of mobility behaviours in each country, Figure 2 (next page) reports the completed migration distribution (CMD), which decomposes populations according to the exact number of times people moved in their lives. The proportion of non-movers, infrequent movers and frequent movers in Australia and the United States is compared to the European mean. The United States stands out for its significant proportion of non-movers. Fully 15 per cent of American respondents reported having never changed residence in adulthood, which is more than twice the average proportion in Europe and the second highest level after Austria (Bernard 2017b). In contrast, immobility in Australia is very rare, with less than 2 per cent of respondents reporting no change of postcode, which is the third lowest level after Denmark and Sweden.

Both Australia and the United States, however, display a high level of repeat movement. Approximately five in 10 Australians and four in 10 Americans moved at least five times between the ages of 17 and 50, compared to an average of three in 10 people in Europe. Very frequent movers are especially characteristic of the Australian mobility landscape, with 20 per cent of respondents reporting eight moves or more, compared with 13 per cent in the United States and a mean of 9 per cent in Europe.
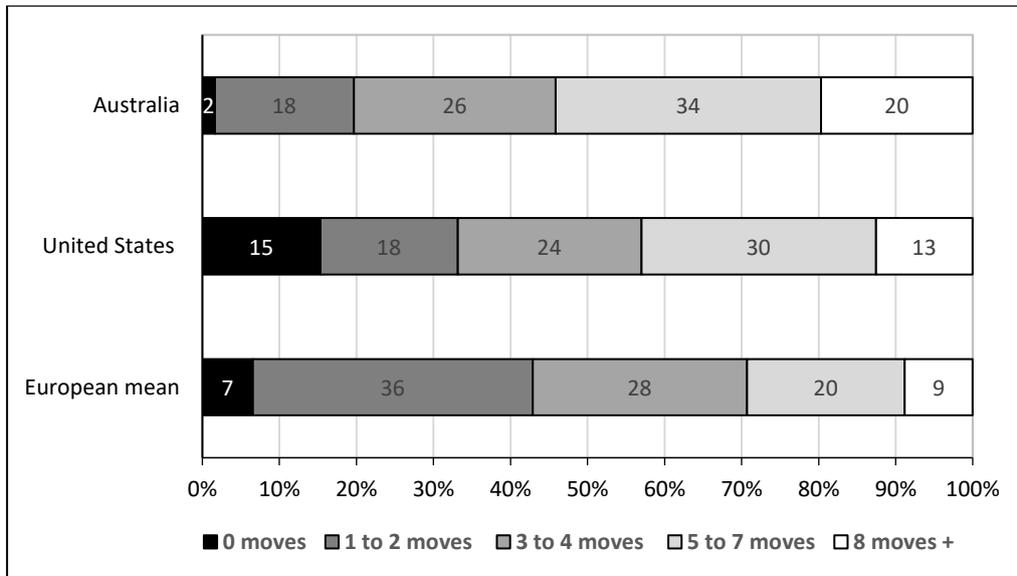
Figure 2: Completed migration distribution: Australia, United States and European mean

Source: Authors' calculations from ELSA, SHARE, LHH and LHMS data. *Notes*: Changes of address between ages 17 to 50 years; European mean obtained from the 14 countries in ELSA and SHARE.

Bernard (2017b) showed that variations in the extent of repeat movement are underpinned by differences in mean ages at first and last moves that together delineate the average length of migration careers. Age at first move signals the start of an individual's migratory life and is of particular importance because it influences the probability of subsequent moves. In countries where young adults first move early (i.e. early twenties), they subsequently move at younger ages than in countries where first-time movers are older (i.e. mid-twenties). In addition, younger adult movers are more likely to proceed to a subsequent move and consequently report higher numbers of moves throughout adulthood than late starters. We test this proportion for Australia and the United States by plotting age at first move against the CMR.
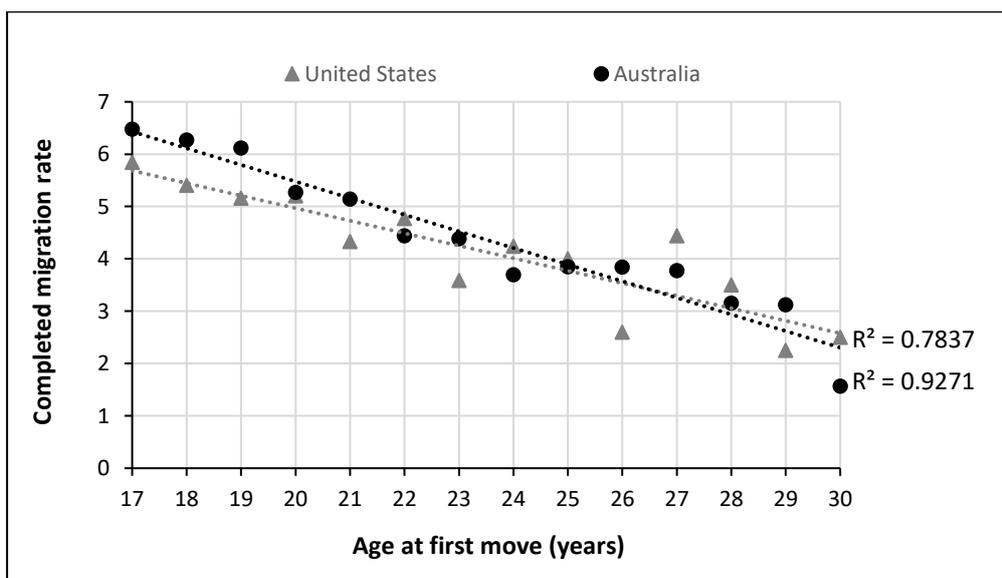
Figure 3: Age at first move by completed migration rate: Australia and United States

Source: Authors' calculations from LHH and LHMS data. *Note*: Changes of address between ages 17 to 50 years.

Figure 3 reveals for both countries a clear negative association, confirming that later ages at first move in adulthood are associated with reduced lifetime mobility. The strength of this association is supported by a Pearson's correlation coefficient of -0.89 for the United States and -0.96 for Australia. Individuals who first moved at age 17 changed place or residence on average 5.9 times in the United States and 6.5 times in Australia, compared with four times or less for individuals who first moved at age 25 or later in both countries.

We further explore age differentials by reporting the cumulative distribution of movers by age and move order. We first analyse results for Australia separately in Figure 4, before comparing Australia with the United States in Figure 5. The results for Australia show that the first and second moves are strongly concentrated in early adulthood, which conforms to the well-established age patterns of migration peaking in the mid-to-late twenties (Bernard, Bell and Charles-Edwards 2014a, 2014b; Rogers and Castro 1981). Half the cohort have moved at least once by age 20 and more than 80 per cent by age 23. A year later, the same proportions have moved at least a second time. For both moves, the proportion of movers starts plateauing after age 30, which indicates that individuals who have not moved by that age never went on to move. The third and fourth moves occur a bit later in life and are spread across a broader age range. It is not until age 30 that 80 per cent of individuals who have moved twice proceed to a third move and it is not until age 36 than 80 per cent of individuals who have already moved three times undertook their fourth move. The curve for the third move plateaus around age 35, while the curve for the fourth move continues to increase at a slow rate, indicating a broader dispersion of the fourth move across the age spectrum.
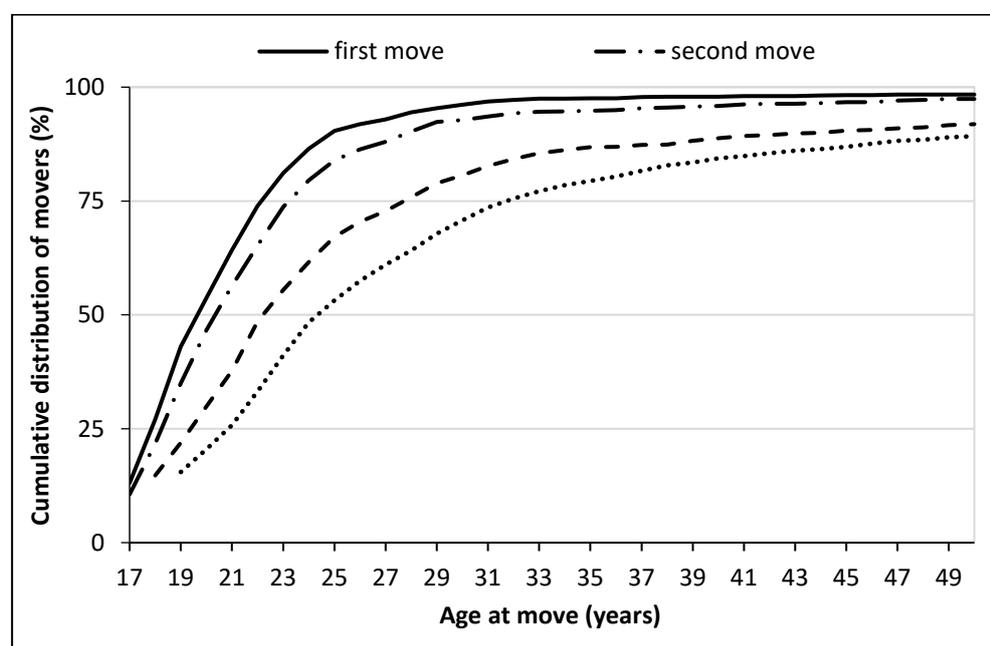
Figure 4: Cumulative distribution of movers by age and move order in Australia
Source: Authors' calculations from LHH and LHMS data. *Note*: Migration between ages 17 to 50 years.

The cumulative proportion of movers at age 50 corresponds to the migration progression ratio (MPR). That is, the proportion of the cohort who having moved *i* times went on to move at least *i +1* more times. While MPRs decrease with move order, they remain high for all moves: as many as 89 per cent of individuals who moved three times moved at least one more time. This pattern underpins the high level of repeat movement identified in Australia in Figures 1 and 2.

We now compare age patterns between Australia and the United States. Figure 5 reveals that the key difference is in the progression to the first move. While the two countries first follow a similar progression in early adulthood, in the United States the proportion of first-time movers starts to plateau at around 80 per cent from age 25 onward. Thus, Americans who have not moved by age 25 never proceed to a move. Conversely, in Australia the proportion of first-time movers continues, increasing to 98 per cent by age 40. On the other hand, second-, third- and fourth-time movers display very similar age patterns in the two countries and comparable proportions of movers by age 40. These results confirm that it is the proportion of non-movers that is the key factor underpinning differences in completed migration rates in Australia and the United States.
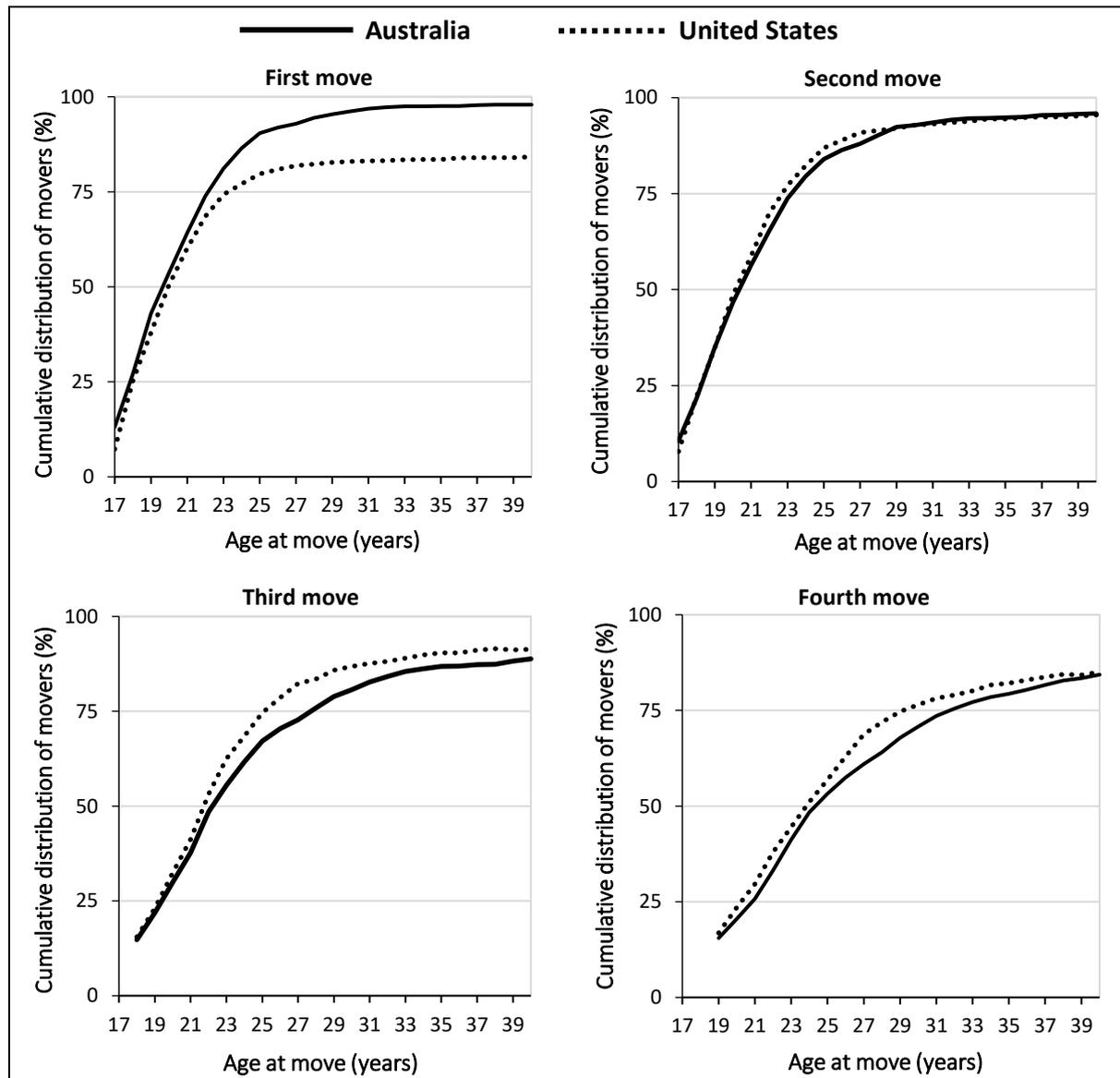
Figure 5: Cumulative distribution of movers by age and move order: Australia and United States
Source: Authors' calculations from LHH and LHMS data. *Note*: Migration between ages 17 to 40 years.

We now seek to quantify the relative contribution of immobility to differences in completed migration rates. Following Jain and McDonald's (1997) approach to fertility analysis, Bernard (2017a) demonstrated that the CMR can be expressed mathematically as a function of four components,

$$CMR = Mo[1 + (\frac{L-F}{I})]$$ (7)

where Mo is the proportion of individuals who moved at least once, F is the mean age at first move, L is the mean age at last move and I is the mean length of all intervals between consecutive moves for individuals who moved at least twice.

Table 2: Components of completed migration rate: Australia and United States

	Proportion of movers (Mo)	Mean age at first move (F)	Mean age at last move (L)	Mean length of migration interval (I)	Completed migration rate (CMR)
Australia	99.0	20.9	37.2	4.0	5.1
United States	84.7	20.6	36.7	4.5	4.1
% difference in CMR attributed to each component in United States compared to Australia	-16.9	1.4	-2.7	-3.8	-22.4

Source: Authors' calculations from LHH and LHMS data. *Note*: Migration between ages 17 to 50 years.

Table 2 reports each component of equation (7) for Australia and the United States and shows the estimated percentage differences in CMR in the United States compared to Australia. It reveals that the lower proportion of movers in the United States is overwhelmingly the main factor underpinning migration differentials between the two countries. Of the 22.4 per cent different in CMR with Australia, the proportion of movers accounts for 16.9 per cent. The impact of longer mean migration intervals on the CMR is much smaller, less than 4 per cent, as is the impact of the mean age at last move. The slightly younger mean age at first move has a small counteracting effect on CMR in the United States. Measured as the difference between the mean ages at first and last move, the average length of migration careers is about 16 years in both Australia and the United States. This is relatively long compared to that in other countries. In southern and eastern Europe, for example, individuals are mobile on average for about seven years (Bernard 2017b).
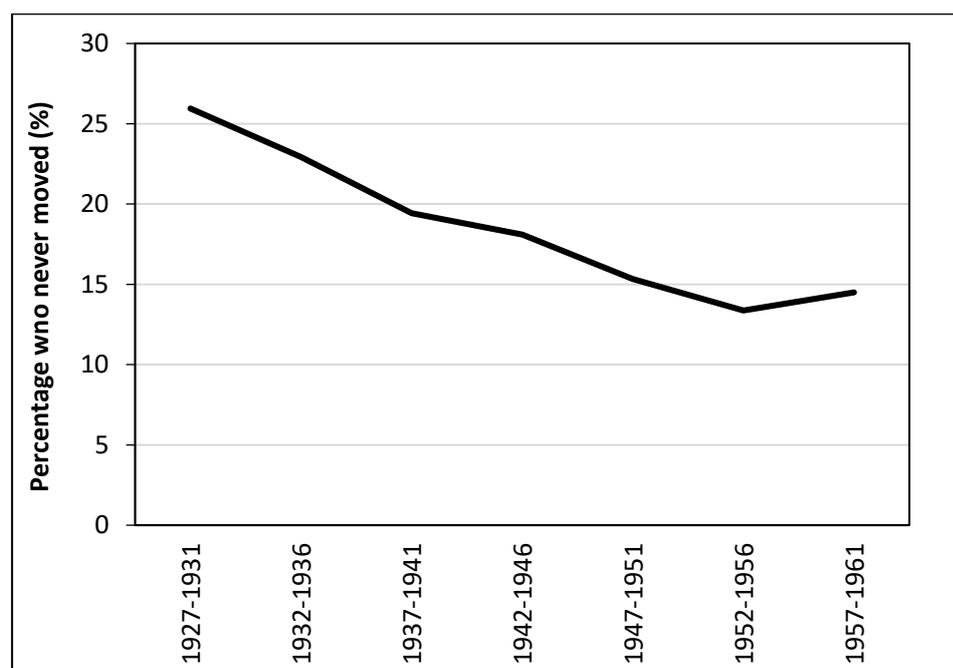
Figure 6: Proportion of adult non-movers by birth cohort in the United States
Source: Authors' calculations from LHMS data. *Note*: Migration between ages 17 to 50 years.

Is the relatively high level of adult immobility a long-standing feature of the American landscape or a characteristic of the cohort born between 1947 and 1951? To answer that this question, Figure 6 (previous page) examines trends in immobility between ages 17 to 50 for seven successive cohorts born between 1927–1931 and 1957–1961. It shows that immobility among the early cohort of baby boomers (born 1947–1951) forms part of a declining trend of high immobility. The proportion of adult non-movers was at its highest level for individuals born 1927–1931 (26%). It then fell for successive cohorts, reaching a low of 13 per cent for the cohort born 1952–1956, before increasing again for the 1957–1961 cohort.

4.   Conclusion

Despite wide and enduring variations in migration levels between countries around the world, explanation for the relatively high mobility observed in 'New World' countries remains tentative. This can be traced in part to the limitations inherent in application of cross-national data to period measures, which fail to account for heterogeneity in migration behaviour or for cohort differentials. This paper has drawn on a series of robust cohort measures of migration, coupled with internationally comparable retrospective migration histories, to compare residential mobility levels and patterns in Australia and the United States and identify key differences compared with 14 European countries for early baby-boomers born between 1947 and 1951.

The results have confirmed a high level of residential mobility in Australia and the United States, with the former reporting the highest level of residential mobility among the 16 OECD countries in our sample and the latter ranking fifth after Denmark, England and Sweden. High levels of mobility in both countries are attributable to the high incidence of repeat moves. Approximately five in 10 Australians and four in 10 Americans moved at least five times in adulthood, compared with an average of three in 10 people in the 14 European countries. Very frequent moves were especially characteristic of Australia, where 20 per cent of respondents reported eight moves or more.

Compared with Australia, the United States combines a high level of repeat moves with a substantial rate of immobility. While less than 2 per cent of Australians never moved in adulthood, as many as 15 per cent of Americans remained immobile. This is more than twice the average proportion of non-movers in Europe and is the second highest level among the 16 OECD countries. Immobility appears to be an enduring characteristic of the United States that has persisted across successive cohorts born between 1927 and 1961. Although its incidence has progressively diminished, it remains close to 15 per cent for the most recent cohort.

Cohort analysis does not support the notion of a common 'New World' mobility regime distinct from other advanced economies. While Australia's very high level of mobility may be inflated as a result of the LHH sample being drawn exclusively from the state of New South Wales, its mobility level and patterns correspond to the mobility regime of Northern and Western European countries. In these countries, high mobility is the product of the extremely low incidence of immobility and a high level of repeat movement. This, in turn, is underpinned by an early mean age at first move and a late mean age at last move, which together support long migration careers (Bernard 2017b). Because of its high level of immobility, the United States departs from this mobility regime and does not conform to the patterns identified in OECD countries with intermediate levels of residential mobility, such as the Netherlands, France, Switzerland and Belgium, where immobility is very low and the level of repeat

movement moderate. This suggests that the United States has a distinct mobility regime characterised by a unique combination of a high level of repeat movement and a high rate of immobility.

As with any retrospective data, residential histories face issues of recall and are based on survivors only. Although survivor bias is expected to be small, the completed migration rate should, strictly speaking, be interpreted as the average number of moves undertaken by members of a cohort conditional on survival to the date of the survey. Bearing these limitations in mind, a cohort perspective offers a step forward in the comparative analysis of residential mobility by revealing new insights into mobility behaviour. It provides a robust foundation for exploring the demographic mechanisms underpinning migration differentials that parallel methods long used in fertility and mortality analysis. This paper has shown that moving beyond population-level averages and considering the distribution of moves provides a realistic description of the mobility experience of each cohort and offers refined insights into mobility behaviour. Of particular importance is the negative association between age at first move and completed migration, which indicates that late starters in Australia and the United States move less throughout the course of their adult lives.

Bernard (2017a, 2017b) showed that age at first move operates to affect completed migration by influencing the likelihood of progressing to moves of higher orders and that, in turn, variations in mean age at first move underpin differences in completed migration over time and between countries. The association between age at first move and completed migration may also result from a selection effect whereby individuals who view mobility more positively choose to start moving at younger adult ages, or that the experience gained from a previous move may facilitate subsequent migrations (Van Arsdol, Sabagh and Butler 1968). In this paper, we have shown that age also matters because individuals who have not moved by the age 25 in the United States and age 30 in Australia remained immobile through their adult lives. Thus, moves in early adulthood seem to have a lifelong imprint on mobility behaviour.

Differences in population composition are likely to account for some of the variation in residential mobility observed in this paper. The cohort measures employed here can be readily applied to specific groups to explore within and between country differences, differences between socioeconomic and ethnic groups and differences between native- and foreign-born populations. Better understanding of the role of population heterogeneity would represent an important step forward in the comparative analysis and understanding of migration and residential mobility. The distinctively high proportion of non-movers in the United States also invites investigation into reasons for immobility in that country and in other national settings to identify the underpinning factors. Attention to the determinants of repeat movement, which accounts for most of the differences in completed migration between the 16 OECD countries, is needed also to establish the individual-level characteristics associated with repeat movement at a range of spatial scales and in different countries.

Key messages

- Cohort migration measures facilitate a structured and systematic analysis of retrospective residential history data
- Application of these measures to residential histories collected in Australia and the United States has shown a high level of repeat movement in both countries, and a much a higher proportion of immobility in the United States.

- Individuals who had not moved by age 25 in the United States and age 30 in Australia remained immobile through their adult lives. This suggests that moves in early adulthood have a lifelong imprint on mobility behaviour.

Acknowledgments

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