



Nativity, duration of residence and chronic health conditions in Australia: Do trends converge towards the native-born population?



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ABSTRACT

Using data from waves 3, 7 and 9 of the Household, Income and Labour Dynamics in Australia (HILDA) survey, a group-mean-centred multilevel mixed model and self-reported chronic conditions, this study contributes to the limited longitudinal evidence on the nativity health gap in Australia. We investigated whether differences exist in the reporting of any chronic condition (including cancer, cardiovascular disease (CVD), arthritis, diabetes and respiratory disease), and in the total number of chronic conditions, between foreign-born (FB) from English speaking (ES) and non-English speaking (NES) countries and native-born (NB) Australians. We also investigated differences between these groups in the reporting of any chronic condition, and the total number of chronic conditions, by duration of residence. After adjusting for time varying and time invariant covariates, we found a significant difference by nativity status in the reporting of chronic condition, with immigrants from both ES and NES countries less likely to report a chronic condition and having fewer chronic conditions compared with the NB. Immigrants from both ES and NES countries living in Australia for less than 20 years were significantly less likely to report a chronic condition compared with the NB. However, the health of both these groups converged to that of the NB population in terms of reporting a chronic condition after 20 years of stay in Australia.

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1. Introduction

Examining differences in chronic conditions between immigrants and native born people, and how this difference changes over time, is an important policy issue in countries for whom migrants make up a significant proportion of the population, such as Australia, Canada, New Zealand, the UK and the USA. For example, in Australia an estimated 26% of the total population is born overseas, and net overseas migration is the major contribution to population growth (Australian Bureau of Statistics, 2012a, b). As the number of immigrants in these countries continues to rise, it has become increasingly important to know how health profiles differ between foreign born and native born individuals, and how those health profiles change over time, since this will help identify vulnerable immigrant populations.

A large body of research has acknowledged the presence of a 'healthy immigrant effect' (HIE), whereby foreign-born (FB) people have better health status than their native-born (NB) counterparts upon arrival in the host country, and that this health advantage narrows significantly over time leading to a convergence towards the health of the host population (see Anikeeva et al., 2010; Argeseanu Cunningham et al., 2008; De Maio, 2010; Friis et al., 1998; Hyman, 2007; Lassetter and Callister, 2009; McKay et al., 2003; Messias and Rubio, 2004 for a review of the HIE in various continents).

However, there is little consensus about the universality of the HIE and the effect of duration of residence across all health measures and immigrant groups (Razum et al., 1998). There is some evidence to suggest that these effects are sensitive to how health is measured, which immigrant group is considered and where they migrate from or to (McKay et al., 2003). For example, McDonald and Kennedy (2004) and Newbold (2005) found mixed or no evidence for the HIE in terms of the probability that an individual rates his or her health as 'fair' or 'poor'. In contrast, Newbold (2006) found strong evidence of the HIE with respect to chronic conditions in a cross-sectional analysis, but no significant difference between the NB and FB with respect to the risk of developing a chronic condition

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post-migration in a longitudinal analysis using a proportional hazards model. Further, researchers have also observed that immigrants of non-European origin (Ng et al., 2005) and visible minority immigrants are most likely to experience a decline in self-reported health status (De Maio and Kemp, 2010), thus emphasizing the importance of heterogeneity within immigrant groups. Additionally, some studies have shown that immigrants come to their host countries with a health disadvantage compared to the majority population in the host country, implying a higher risk of disease in their country of origin and the absence of any healthy migrant effect (Albin et al., 2005; Gadd et al., 2003; Harding et al., 2008; Jamrozik et al., 2001). On the whole, previous research found a considerable variation in the association between nativity, duration of residence (DoR), and health.

A limitation of much of the published work on immigrant health is that until very recently, the literature has been dominated by studies based on a single (or repeated) cross-sectional dataset(s) which provide only snapshot(s) in time of differences in the outcome between migrants and non-migrants (Abraido-Lanza et al., 2006; Biddle et al., 2003; McDonald and Kennedy, 2004; McKay et al., 2006). While such studies are informative and have made an important contribution to the health inequality literature, it has been shown that interpretation of their findings is problematic because of confounding by time and cohort effects (Beiser, 2005). Developing a better understanding of differences in health between immigrants and non-immigrants requires detailed data on both migration and health events over time at an individual level. Longitudinal studies provide data rich enough to improve understanding of immigrant health trajectories.

A growing body of literature has started using longitudinal data to determine the health dynamics of immigrants (Chiswick et al., 2004, 2008; De Maio and Kemp, 2010; Fuller-Thomson et al., 2011; Kennedy and McDonald, 2006; Kim et al., 2013; Newbold, 2005, 2009; Setia et al., 2011, 2009, 2012; So and Quan, 2012). However, these longitudinal studies of the determinants of migrant health also have methodological limitations. First, most of the existing studies have used balanced panels and have ignored potential biases caused by panel attrition. Second, most longitudinal studies have focused on health transitions within various immigrant groups and do not compare changes in the health of immigrants relative to native-born people (Chiswick et al., 2004, 2008; De Maio and Kemp, 2010; Fuller-Thomson et al., 2011; Kennedy and McDonald, 2006; Kim et al., 2013; Newbold, 2009; Setia et al., 2011). Without this comparison, the different immigrant health trajectories cannot be attributed to immigrant status. Moreover, the follow-up period of these analyses ranges between 3 and 3.5 years and may not be long enough for health changes to fully emerge.

Third, studies that compared immigrants and the native-born using longitudinal data with few exceptions (So and Quan, 2012) have focussed on transitions to poor health status (by selecting a cohort of 'healthy' respondents) and evaluated the risk of transitioning from good health to poor health utilising the Cox proportional hazards model (Newbold, 2005, 2006; Ng et al., 2005). However these regression techniques have limited ability to handle the complexity of longitudinal dynamics, and selecting only healthy individuals may considerably reduce sample size. Additionally, the selected 'healthy' individuals may have different health risk behaviours than the discarded 'unhealthy' individuals, which may lead to inconsistent and biased results.

Fourth, while some studies such as those by Setia et al. (2009) have advanced the field by using mixed effects models for health outcomes in several waves of panel data (Setia et al., 2009, 2012), those mixed effects models can be significantly biased since they do not account for unmeasured confounding or mediation. Moreover, Setia et al. compared white and non-white immigrants with the

Canadian-born population, and the effect of time since immigration for immigrants only, but did not measure the change in health over time of various immigrant groups vis-à-vis the Canadian born. Fifth, most of the existing research examines immigrant health based upon subjective measurement of health such as self-reported health. Researchers have questioned the validity (De Maio, 2007) and reliability (Crossley and Kennedy, 2002) of self-reported health status measures. Newbold (2006) suggested that the use of self-reported health as a 'gold standard' metric for need of care may be misleading, and that chronic conditions may be a better indicator of health within the immigrant population.

The present study overcomes some of these data and methodological limitations by (i) using longitudinal data with six years of follow-up (ii) reducing bias from loss to follow up (iii) using native-born people as a reference group to ensure differences in health are related to migration effects (iv) using longitudinal methods that can reduce bias from unmeasured confounding (v) using a more objective measure of health. It provides the first estimates of the nativity health gap (changes in the health of migrants vis-à-vis the Australian-born), based on an analysis of a nationally representative longitudinal dataset. Data from waves 3, 7 and 9 of the Household, Income and Labour Dynamics in Australia survey and group-mean-centred multilevel mixed models were used to investigate differences in the reporting of any chronic condition (including cancer, CVD, arthritis, diabetes and respiratory disease), and in the total number of chronic conditions, between NB and FB people from English speaking (ES) and non-English speaking (NES) countries. Differences in the persistence of self-reported chronic conditions post-migration were also examined after adjusting for potentially important covariates.

We address the following specific research questions:

- (1) Do FB people from English speaking and non-English speaking countries have a health advantage relative to the NB in terms of reporting any chronic condition and in terms of the total number of chronic conditions reported?
- (2) If the FB have a health advantage in terms of reporting any chronic condition, and total number of chronic conditions reported, does it decline as DoR increases and for all FB groups?

2. Data and methods

The data for this study come from the Household, Income and Labour Dynamics in Australia (HILDA) survey, a nationally representative panel survey of Australian people occupying private dwellings. The survey commenced in 2001 with a large sample of 7682 households having at least one eligible person aged 15 years and above. All members of these households aged 15 years and over form the basis of the panel to be interviewed in subsequent waves. In addition, some non-respondents in wave 1 were successfully interviewed and followed in later waves. New individuals that resulted from the structural changes of households (for example all those who turned 15 years old, or occupants of new households that "split" from households covered in previous HILDA waves) were also included and followed in subsequent waves.

Information on chronic condition was collected in waves 3 (2003), 7 (2007) and 9 (2009). Following Newbold (2006), we further restricted our sample to individuals aged 35 years or above to focus on ages when chronic conditions become increasingly prevalent. The flow of study respondents between waves is depicted in Fig. 1. This study uses data on 6321 individuals aged 35 years or over, who responded in wave 3 and in either or both of waves 7 and 9. Altogether, 17,939 responses from these 6321 respondents

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