



# DISCUSSION PAPER SERIES

*Economics and business statistics*

## **Australian immigrants' labour market success: Does occupation matter?**

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2018-05

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## Abstract

This paper utilises the occupational attainment approach to investigate immigrant labour market assimilation, complementing other assimilation approaches such as employability, earnings, skills-match and job satisfaction. While immigrants from English speaking backgrounds attain occupations similar to that of the native-born, this is not true for those from non-English speaking backgrounds. Worryingly for the latter, no 'catch-up' over time is evident - even when disaggregated to reflect different cultures and backgrounds. Nor is there much evidence that younger arrivals can 'catch-up', despite being immersed in local mores and institutions while undertaking schooling in Australia. Newer cohorts of immigrants (those who arrived between 2000 and 2013) are also more prone to suffering an occupational penalty. We recommend policymakers subsidise bridging courses to aid recognition of overseas-obtained qualifications and encourage immigrants to obtain local qualifications that can complement their overseas-obtained work experience. This will increase their 'Australian-ready' skill-set and occupational attainment in their new host country.

*Key words:* occupational attainment, immigration, panel data

*JEL Codes:* C23, F22, J15, J24, J62

## 1. Introduction

There is a distinct lack of consensus on the extent to which immigrants are able to assimilate into the labour markets of their host countries, with both sides of the political and ideological divide willingly providing ‘evidence’ of the success (or otherwise) of immigrant integration. Within the literature on immigrant labour market assimilation, questions remain as to which measure of assimilation best encapsulates the true story. Rather than posit the merits and demerits of various approaches, this paper takes the view that all approaches matter, and that no one approach is necessarily preferable. What is more important is that we gain a holistic and effective understanding of immigrants’ labour market assimilation by investigating a broad range of measures (Corbi and Freguglia, 2008). To date, within an Australian context, these include employability (Miller and Neo, 1997) earnings differentials (Chiswick *et al.*, 2005; Chiswick and Miller, 2008), skill utilisation (via the study of overeducation) (Green *et al.*, 2007; Kler, 2006, 2006a, 2007) and job satisfaction (Kifle *et al.*, 2016). These studies have enhanced our understanding of Australian immigrants’ labour market assimilation and arguably fostered the development of improved policies to more effectively utilise the human capital contained within the immigrant community, which makes up 28% of the populace and currently contributes towards more than 50 percent of total population growth (Australian Bureau of Statistics, 2017).

## 2. The occupational attainment approach

This study attempts to further our knowledge of the assimilation of immigrants into the Australian labour market by utilising a relatively under-researched measure, we refer to as the ‘occupational attainment approach’. We posit the following question:

After controlling for a whole host of personal and labour market characteristics, is the occupational distribution of immigrants at arrival significantly different from that of the native-born, and, if so, does the immigrants’ occupational distribution change over time to more closely reflect that of the native-born?

There are benefits to investigating occupational attainment insofar as it is possible that labour market (dis)advantage stretches beyond the usually concentrated areas of employment and earnings. Occupational attainment matters as it may be an indicator of an individual's economic and social well-being, as well as their relative status in society (Dex *et al.*, 2007; Kostenko *et al.*, 2012; Nickel, 1982). Occupational attainment can also be considered a proxy for socioeconomic assimilation (Burgard *et al.*, 2003); we cannot ignore the fact that labour market assimilation or success also aids in societal assimilation and overall wellbeing (Ambrey and Fleming, 2014). More specifically, occupational attainment can be considered a pillar of socioeconomic status, as it potentially summarises the power, income and educational requirements associated with various positions within a given occupational structure. Further, occupational attainment has

several advantages over other measures of assimilation. First, it is multi-dimensional and indicates the outcome of education qualifications, provides information on skills and credentials required to gain work, and the associated monetary and other rewards. For example, technical workers and labourers are separated by educational qualifications that have an impact on earnings. Second, occupational attainment is a good indicator of long-term earnings relative to earnings information collected at a single point in time, as short-term earnings information can suffer from volatility (Williams and Collins, 1995). Third, occupational attainment can highlight data on job characteristics such as environmental and working conditions, decision-making latitude and the psychological demands of the job.

To date there has been little direct research into the occupational attainment of immigrants in Australia. Nevertheless, two papers have done so utilising the Longitudinal Survey in Australia (LSIA) panel dataset, which was unfortunately discontinued in 2000. In the first, Junankar and Mahuteau (2005) investigate whether male immigrants manage to maintain their home country occupations. They find a significant depreciation in occupational status, particularly among Non-English Speaking Background (NESB) immigrants and those who arrived after unemployment benefit waiting times were increased. This result for both males and females is confirmed by Kostenko *et al.* (2012) despite these authors using slightly different occupational definitions.

The earnings literature has used occupation to gauge immigrant assimilation into the Australian labour market. Using cross-sectional data (the 2001 Census), Chiswick and Miller (2008) report that limited human capital transferability across borders results in male immigrants entering lower status occupations, which then impacts on their earnings. When studying the returns to education controlling for occupation, they find that the payoff to NESB immigrants' is significantly lower relative to the native-born, whilst for English Speaking Background (ESB) immigrants the outcome is much closer to that of the native-born. This is irrespective of whether occupational categories are aggregated (9 categories) or disaggregated (44 categories). Disaggregation, however, lowers the payoff for all groups, once again disproportionately penalising NESB immigrants who suffer a 66% fall in the returns to education relative to ESB immigrants and the native-born. In other words, a mismatch between educational qualifications and occupation (i.e. indirectly overeducation) lowers the return to schooling. The fact that immigrants possess greater educational qualifications and tend to obtain 'lower' quality jobs (Chiswick and Miller, 2008; Junankar and Mahuteau, 2005; Kostenko *et al.*, 2012) suggests that their educational investment is heavily discounted by Australian employers. This is confirmed by Green *et al.* (2007), Kler (2006, 2006a, 2007) who find higher rates of overeducation

for immigrants relative to the native-born, particularly for Asian NESB immigrants with university qualifications.<sup>1</sup>

Fleming *et al.* (2016), using the 2001-2011 Household, Income and Labour Dynamics in Australia (HILDA) panel dataset, rank broad occupation groups (8 categories) by average hourly earnings and test for immigrant assimilation over time. They find that upon arrival, NESB immigrants are more (less) prone to be in lower (higher) ranked occupations while ESB immigrants are in similar occupations to the native-born. Breaking up the NESB immigrants further, ‘catch-up’ to higher ranked occupations is found only for those from Europe, who are also over time less likely to be in lower ranked occupations. Further, the authors report that age at arrival matters; Asian NESB immigrants who arrived prior to their fifteenth birthday enjoy occupational ranks equivalent to other immigrants and the native-born, suggesting that those from a significantly different culture to Australia can assimilate into the labour market should they pick up Australian norms and behaviours early in life. Older NESB immigrants, including those from Europe, largely continue to suffer a disadvantage in occupational attainment, with little evidence of ‘catch-up’ over time.

### **3. Raison d’etre and hypotheses**

This paper seeks to contribute to the wider debate on immigrant labour market assimilation by studying immigrant occupational attainment upon arrival in Australia and looking for evidence of subsequent ‘catch-up’ over time should they be found (on arrival) to be in lower status occupations, after controlling for personal and labour market characteristics. This varies from Fleming *et al.* (2016) in that we utilise an objective, skills-based occupational classification following the Australian and New Zealand Standard Classification of Occupations (ANZSCO) codes, similar to that employed by Chiswick and Miller (2008), Green *et al.* (2007), Junankar and Mahuteau (2005), Kler (2006, 2006a, 2007) and Kostenko *et al.* (2012).<sup>2</sup> Further, given Chiswick and Miller’s (2008) finding that more disaggregated occupations matter, we also eschew broad categorisations and instead use the more detailed 2-digit ANZSCO codes, thus producing 43 occupational classification categories, similar to Chiswick and Miller’s (2008) 44 and far greater than the 8-9 occupational groups used by the other authors. Using this expertly defined skills-based measure will, we posit, put greater emphasis on the education-skill nexus contained within educational qualifications. In other words, in the spirit of Chiswick and Miller (2008), we can isolate and see the contribution of various immigrant

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<sup>1</sup> Though this may not be the case if looking just at female immigrants (Fleming and Kler, 2014).

<sup>2</sup> Nevertheless these studies are not directly comparable as these authors employ an older coding system that has since been superseded.

characteristics to their occupational rank upon arrival.<sup>3</sup> As far as we are aware, this exact method of assessing the labour market assimilation of immigrants is yet to be undertaken.

Our *a priori* expectations of this study are as follows:

- (1) Given the findings of Junankar and Mahuteau (2005), Chiswick and Miller (2008) and Kostenko et al. (2012), we hypothesise that, even after controlling for a whole host of personal and labour force characteristics, immigrants, upon arrival, will possess lower occupational attainment relative to Australian Born Residents (ABRs).<sup>4</sup> We further hypothesise that those from more similar cultures to Australia, specifically those immigrants from ESBs and from continental Europe, will, upon arrival, have similar occupational attainments relative to ABRs. Thus, merely looking at immigrants as a whole will produce results that hide significant variation within immigrant sub-groups (Fleming *et al.*, 2016; Green *et al.*, 2007; Kifle *et al.*, 2016; Kler, 2006, 2006a, 2007). Accordingly, we further divide NESB immigrants into culturally similar groups (European, Asian and ‘other’).
- (2) Immigrant with relatively low occupational attainment upon arrival will achieve an occupational ‘catch-up’ to those of native-born over time as they close their ‘socioeconomic and cultural distance’ between their background and that of ABRs (Flatau *et al.*, 1995; Fleming *et al.*, 2016).<sup>5</sup> This should be easier to achieve for those who arrive at a younger age, hence we also posit that age at arrival matters; those who arrive earlier in life will ‘assimilate’ faster than those who arrive later in life. This is especially true for those who arrive young enough to attend Australian schools and thus possess no foreign work experience that may be discounted by employers.
- (3) Finally, given the increase in the human capital stock of more recent arrivals (Cobb-Clark, 2003; Cobb-Clark, 2001; Junankar and Mahuteau, 2005; Kostenko *et al.*, 2012) we hypothesis that this group should achieve higher initial occupational status than older cohorts, who arrived when skills requirements and English language proficiency were given less weight in immigration applications.

This paper proceeds as follows. The next section describes data, methodology and preliminary evidence, followed by a discussion of results. We conclude with an

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<sup>3</sup> Note that we are, however, not replicating the work of Chiswick and Miller (2008). They use occupational rankings to explain earnings and the returns to education. This study instead employs a plethora of personal and labour force characteristics (see Table 1 and the Appendix) to explain immigrant occupational rank on arrival relative to the native-born.

<sup>4</sup> While it would have been preferable to also investigate the immigrants’ last occupation in their home country, there is no currently available Australian dataset that provide this information.

<sup>5</sup> This is done in this paper and many previous studies by looking at years since arrival (YSA). It is a well-established fact that longer YSA is almost always associated with greater labour market assimilation.

elucidation of possible policy options in order to better maximise the utilisation of the human capital embodied within the immigrant community.

#### 4. Data and method

Data are obtained from the first thirteen waves (2001–2013) of the HILDA survey. The survey provides a rich source of information on labour market outcomes and performance. There is information on occupation and industry type, qualification levels attained and, of particular interest to this paper, years since arrival and the age at arrival of immigrants to Australia.<sup>6</sup> After checking for inconsistencies, removing individuals with incomplete answers, and restricting the sample to those employed and aged 16-64, a sample of 63,138 person-year observations remain. 12,096 (19.16%) are immigrants, of which 5,812 (48.05%) are from an ESB, with the remaining 6,284 (51.95%) from a NESB, with further NESB disaggregation showing that 28.63% of observations represent those from continental Europe, 48.66% from Asia and the remainder (22.71%) from other NESB regions.

Table 1 shows that the current occupational attainment of ESB and European NESB immigrants is significantly higher than that of ABRs, with Asian NESB immigrants the sole group with lower occupational attainment levels, despite clearly possessing the highest education qualifications among all groups, including the native-born. We note that this situation can be partially explained by their lower level of English language proficiency, their qualifications and work experience obtained overseas being less recognised by Australian employers (Chiswick and Miller, 2008; Green *et al.*, 2007; Junankar and Mahuteau, 2005; Kler, 2006, 2006a, 2007; Kostenko *et al.*, 2012), and lower levels of tenure with their current employer and in their current occupation. In addition, Asian NESB immigrants possess less work experience, and have spent more time in unemployment and out of the labour force. European NESBs, based on these preliminary results, tend to have the ‘best’ labour force outcomes.

On average, ESB and European immigrants arrived in Australia at a much younger age than Asian and Other NESB immigrants. Both also have a higher average number of years since arrival, suggesting that they have had more time to obtain knowledge of local mores and institutions, above and beyond our assertion that, on arrival, they already possess a closer ‘cultural proximity’ to ABRs. In sum, the bifurcated outcomes between immigrant groups when compared to the native-born justifies the immigrant sample split, as clearly

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<sup>6</sup> A common problem with panel data is attrition. Panel attrition may bias the estimation results if the probability of leaving the sample is systematically related to labour market outcomes (Fertig and Schurer, 2007). For the data employed in this study, Breunig *et al.* (2013) compare education levels between those who stay in the survey and those who drop out of the survey, and find that the differences are fairly small with likely minor implications. Further, there are claims that in a regression attrition is likely to affect intercept terms, but has relatively little impact on the slopes of key coefficients (Fitzgerald *et al.*, 1998).

looking at immigrants as a whole hides a degree of heterogeneity between immigrant groups. As such, further results in this paper will eschew the aggregated immigrant results and concentrate on the ESB/NESB split (Table 2) as well as the NESB immigrant split (Table 3).<sup>7</sup>

[INSERT TABLE 1]

To empirically investigate the occupational assimilation of immigrants relative to the Australian-born, we use a random effects generalised least square (GLS) model, thereby treating occupational attainment as a cardinal construct. This is consistent with a number of other studies of occupational status (Alonso-Villar and Del Río, 2010; Del Rio and Alonso-Villar, 2010) and is in keeping with evidence that cardinal and ordinal analyses generally yield similar results (Ferrer-i-Carbonell and Frijters, 2004; Frey and Stutzer, 2000).

The basic econometric model used in this study can be expressed as follows:

$$\text{Occ}_{it} = \alpha + \beta X_{it} + \gamma_1 \text{ESB}_i + \gamma_2 \text{NESB}_i + \gamma_3 \text{YSA}_{it} + \gamma_4 \text{YSA}_{it}^2 + \varepsilon_{it}, \quad i = 1, \dots, N, \quad t = 1, \dots, 13$$

where  $i$  denotes individuals (employees) and  $t$  time. The  $i$  subscript, therefore, denotes the cross-sectional dimension whereas  $t$  denotes the time-series dimension. The dependent variable,  $\text{Occ}_{it}$ , is occupational attainment of employee  $i$  at time  $t$ ;  $\alpha$  is a scalar,  $\beta$  is  $K \times 1$  and  $X_{it}$  is the  $i$ th observation on  $K$  explanatory variables containing individual and work-related characteristics.  $\text{ESB}_i$  is a dummy variable, equalling 1 if the immigrant is from an ESB and 0 otherwise;  $\text{NESB}_i$  is a dummy variable, equalling 1 if the immigrant is from a NESB and 0 otherwise;  $\text{YSA}_{it}$  captures the effect of number of years since arrival ( $\text{YSA} = 0$  for Australian-born workers); and the  $\text{YSA}^2$  term is necessary to capture changing effects to  $\text{YSA}$ .

In the above model,  $\gamma_1$  ( $\gamma_2$ ) measures the differences in occupational attainment between ESB (NESB) immigrants and the Australian-born upon arrival, and  $\gamma_3$  measures how immigrant occupational attainment varies with the length of time spent in Australia. Recognising that the random effects estimators are inconsistent if the assumption of independence between the explanatory variables and the unobservable individual-specific effect does not hold, we apply Mundlak (1978) corrections by including the individual means for each of the time-varying explanatory variables.<sup>8</sup>

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<sup>7</sup> Results of the aggregated immigrant sample are available on request.

<sup>8</sup> A fixed effects approach is considered a more convincing estimation tool because it allows arbitrary correlation between the unobserved individual-specific effect and the explanatory variables. However, a fixed effects approach is inconsistent when  $t$  (in our case, the number of waves) is not large. Further, in this paper some of our key explanatory variables are constant



Noting that occupational attainment of immigrants may vary by cultural proximity, age at arrival or arrival cohort, we further disaggregate the immigrant variables. As noted above, cultural proximity is captured by disaggregating NESB immigrants into European NESBs, Asian NESBs and Other NESBs. To capture the impact that immigrant age at arrival has on occupational attainment, a series of dummy variables are included. Similarly, immigrant arrival-cohort dummy variables are included to see if differences across arrival cohort influence the occupational attainment of ESB and/or NESB immigrants.

## 5. Results

This section presents the results of estimating a random effects GLS model. In column (1) of Table 2, after controlling for gender, wages, education level, English language proficiency, and family and work-related variables, our results indicate that, upon arrival, ESB immigrants do not suffer from lower occupational attainment relative to ABRs, whereas NESB immigrants do. Specifically, NESB immigrants' average occupational attainment is around 5 points lower than that of ABRs. This suggests that a 'cultural distance' may well be evident between NESB immigrants and the Australian labour market which discounts educational qualifications obtained overseas and home-country work experience. It seems plausible that this disadvantage may be ameliorated should immigrants' personal and labour market characteristics more closely mirror Australian circumstances over time, however the results in column (1) do not support this assertion (the years since arrival co-efficient is insignificant).

Column (2) segments the sample in order to investigate whether the initial occupational attainment of immigrants differs by age at arrival. For ESB immigrants we can now qualify our initial findings. Older arrivals (aged 25 and above) receive no initial disadvantage in occupational attainment, while those who arrive aged below 25 do. This potentially goes back to Green *et al.* (2007) who find that qualifications and labour force characteristics earned by ESB immigrants in their home countries matter; Australian employers do not just recognise their experience, but actually value them quite highly, unlike that of NESB immigrants. This result does, however, undermine our hypothesis that younger arrivals would not face disadvantage in occupational attainment, or face less disadvantage. Rather, this suggests that for ESB immigrants, possessing closer cultural links coupled with home-country qualifications and work experience are an asset; whereas those with just cultural links without any (or minimal) home-country qualifications and work experience suffer a disadvantage. The results presented in column (2) also reveal that the initial disadvantage in occupational attainment for NESB immigrants remains in place for all age groups at arrival. Interestingly, however, this

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over time and thus we cannot use fixed effects to estimate their effect on the dependent variable.

relative disadvantage is significantly lower for those who arrived prior to their fifteenth birthday, thus signifying that their absence of home country qualifications and labour force experience, coupled with them picking up more Australian characteristics at a younger age, yields a lower disadvantage in occupational attainment relative to those more likely to possess home country qualifications and labour force characteristics.

The cohort analysis (column 3) rejects the hypothesis that newer cohort arrivals have an initial occupational attainment advantage. Despite facing more rigorous entry requirements based on skills, qualifications and English language requirements, our results show that, upon arrival, newer cohort arrivals continue to face disadvantage in occupational attainment. Indeed, the latest arrivals are the only ESB immigrants in our sample to suffer a marginally significant disadvantage in initial occupational attainment, whilst NESB immigrants suffer the highest magnitude of disadvantage. These findings echo that of Junankar and Mahuteau (2005) and Kostenko *et al.* (2012) who note that newer arrival cohorts did not have improved occupational outcomes despite entering a newer regime that placed greater emphasis on skills. Green *et al.* (2007) also report greater employability, but greater incidences of overeducation, for these arrivals.

[INSERT TABLE 2]

Table 3 further disaggregates the NESB sample.<sup>9</sup> Looking at column (1) we find no difference between the NESB sub-groups in terms of statistical significance; all suffer a disadvantage in occupational attainment upon arrival. Thus, our *a priori* thinking (and statistical findings reported in Table 1) that European NESB immigrants may more closely mirror ESB immigrants, and by default ABRs, is not borne true; nevertheless, we do find that the disadvantage suffered by this sub-group is lower in magnitude (indeed, almost half) relative to Asian NESB immigrants, with Other NESB immigrants falling somewhere in between. Once again, our results fail to provide any evidence of ‘catch-up’ over time. Column (2) reports results by age at arrival in order to test the hypothesis that those who arrived at a younger age are more likely to perform better in the labour market. This certainly appears to be true for European NESB immigrants. Those who arrived prior to turning fifteen have, on average, the same occupational status as the native-born. Disadvantage in occupational attainment, however, is evident for all other age groups. For Asian NESB immigrants, whilst disadvantage in initial occupational attainment applies to all age groups, the average disadvantage for the youngest group (2.8 points below ABRs) is much less severe compared to the other three age groups. Thus there is at least some indication of an amelioration in the severity of the disadvantage for those Asian NESB immigrants who finished their schooling and first entered the labour market

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<sup>9</sup> Table 3 excludes the ESB results for parsimonious purposes. Except for marginal changes in magnitude, there is no tangible difference between the ESB results when comparing the ESB/NESB (Table 2) and ESB/European NESB/Asian NESB/Other NESB split. Full results are available on request.

in Australia. The same applies to Other NESB immigrants, although the magnitude difference between age groups is less pronounced.

Finally, we study cohort effects in column (3). Here we finally see a consistent ‘story’ between European NESB and ESB immigrants; indeed, they are joined by Other NESB immigrants as well. For these three groups, only the newest arrivals suffer a disadvantage in initial occupational attainment vis-à-vis the native-born. This is inconsistent with our hypothesis that favoured the higher qualified and skilled newer immigrants. We note, however, that the disadvantage for the newest cohort is much larger for the average European (Other) NESB immigrants at 3.731 (3.899) points lower than the native-born, whereas for ESB immigrants (see Table 2) the disadvantage in occupational attainment stands at 1.263 points. The situation for Asian NESB immigrants, on the other hand, is uniformly bleak irrespective of cohort. Nevertheless, the level of disadvantage accruing to the newest cohort is the ‘smallest’ among all cohorts, though this is only marginally so.

[INSERT TABLE 3]

In sum, while we find heterogeneity within the NESB immigrant group, further dissection does not really tell us an unambiguous tale. European NESB immigrants clearly do best, but only match the ESB immigrant experience when looking at cohort outcomes. Asian NESB immigrants have the severest adjustment issues, with Other NESB immigrants lying somewhere in between the two.

## **6. Summary and policy recommendations**

This paper has investigated the assimilation of immigrants into Australian labour market via the much underused 2 digit occupation ANZSCO code, within a panel data setting that controls for the impact of omitted variables. We elucidated a series of *ex-ante* statements regarding not only the pace of immigrant labour market assimilation but also how it may differ by ‘cultural distance’ and age. *Ex-post*, we find a series of mixed results. Our hypothesis that ‘cultural distance’ matters is largely confirmed; ESB immigrants, upon arrival, are not in significantly different occupations relative to the native-born, after accounting for a whole host of personal and labour market characteristics, whereas NESB immigrants are in significantly lower level occupations, even after accounting for their greater levels of education. A further disaggregation of NESB immigrants produces ambiguity. While we find all NESB immigrant sub-groups face occupational penalties upon arrival, this gap is smallest for European NESB immigrants; whether this reflects favourably on our ‘cultural distance’ argument is open to interpretation. On one hand, a penalty suggests that European NESB immigrants are not culturally close to the native-born, unlike ESB immigrants. On the other hand, the fact that their penalty is much smaller than the other two NESB immigrant groups points to the possibility that they are culturally more aligned to the native-born.

We also posited that occupational ‘catch-up’ relative to the native-born will occur over time. In no case did we find any significant evidence of this; the occupational penalty suffered by NESB immigrants upon arrival maintains itself in the long-term, unlike the findings in the earnings literature, which generally reports some form of relative, if not absolute ‘catch-up’. This suggests that while immigrants can achieve increased earnings over time, this may be occurring within their current occupation, as opposed to improving their occupational outcome. We propose this as an avenue for future research. ‘Catch-up’ was also hypothesised for younger arrivals. Results are mixed. For ESB immigrants the evidence is actually of divergence for the youngest groups; we posit this to be partially due to a qualification and work experience premium accruing to those arriving from ESB countries; older ESB immigrants do not suffer an occupational penalty (see Green *et al.*, 2007). For NESB immigrants the outcome is again widely interpretable. Whilst all age groups suffer a penalty, it is smallest for the youngest age group that arrived with no foreign qualifications and work experience, and who finish (and perhaps also, start) their education in Australia. This can be optimistically viewed as evidence of some sort of positive outcome (i.e. the smallest penalty accrues), or it can be seen as further evidence that NESB immigrants are uniformly disadvantaged irrespective of age. The disaggregated NESB outcome for Asian and Other NESB immigrants follows the same path; for European NESB immigrants however, we note that the youngest arrivals suffer no occupational penalty. This at the very least suggests that European NESB immigrants are somewhere in between the ‘cultural’ continuum and those early arrivals who obtain greater cultural immersion prior to entering the workforce assimilate relatively painlessly into the labour market. Finally, expectations that newer cohorts, would be better prepared for the Australian labour market were unproven. Uniformly the newest cohorts are penalised in terms of occupation ranking relative to the native-born. Given previous studies utilising the LSIA dataset find similarly and suggest that tighter welfare conditions contributed to this ‘negative’ outcome, this is not so surprising; more worryingly is that there is no evidence of ‘catch up’.

Results pin-point the need for policies to better integrate immigrants from cultures and societies further removed from local mores and institutions into the Australian labour market. Without wanting to underplay the complexity and difficulty of such tasks, we recommend the following: There is a need to increase their ‘Australian ready’ skill sets, especially for those who arrive later in life having completed their schooling elsewhere and/or those with overseas work experience, and for those who arrive from Asia. This is not wholly an NESB immigrant issue; as shown, new arrivals largely irrespective of backgrounds also suffer from occupational penalties relative to the native-born. Such policy action can take two forms, one quantifiable and the other qualitative; in either case both need to be combined to achieve successful labour market success. The quantifiable approach requires intervention to improve the current stock of immigrants’ qualifications, work experience and skills to better meet local employment conditions. Education-wise, providing access to bridging courses to ‘brush-up’ foreign qualifications to better match

local criteria can help ease labour market assimilation. Hitherto unrecognised overseas obtained work experience and skills, probably more at the ‘blue-collared’ level, can also be made ‘Australian ready’ by encouraging immigrants facing these impediments to enrol in professional and trade courses that make use of their overseas obtained work experience and skills. A subsidy will help expedite this process, and given the potential for immigrants, with their higher stock of educational qualifications, to contribute to the domestic economy, this up-front investment can yield a high rate of future returns both to the individual and the economy, as argued by proponents of positive externalities (Parkin and Bade, 2015). This is in addition to the usual recommendation found in similar papers; that English proficiency courses be provided to ease integration.

Second, policymakers need to understand that the qualitative characteristics possessed by immigrants can affect labour market assimilation. Early intervention in the form of consultations and workshops with newly arrived immigrants on the ‘Australian way of life’ and ensuring immigrant and native-born communities pro-actively get involved with each other also potentially eases labour market assimilation. There needs to be a greater appreciation that qualitative characteristics matter as much as the quantifiable characteristics. Policymakers must keep in mind that immigrants simply cannot be expected to arrive immediately ready to successfully assimilate into the Australian labour market, as the immigration process does not account for cultural characteristics.

### **Acknowledgements**

This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Social Services (DSS) and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the authors and should not be attributed to either DSS or the Melbourne Institute.

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## Appendix

Table A1. List of variables not otherwise shown in Tables 1-3

<b>Variable name</b>	<b>Description</b>
Personal characteristics	
Kids	Have (a) child(ren) living at home
Workplace characteristics	
Small	Employed in firm with <20 employees
Mid	Employed in firm with 20-99 employees
Big	Employed in firm with 100 or more employees
Geographical location	
City	Lives in an urban area
Regional	Lives in a regional area
Remote Area	Lives in a remote area
Industry	
Agriculture	Agriculture, forestry and fishing industry
Mining	Mining industry
Manufacturing	Manufacturing industry
Power	Electricity, gas, water and waste industry
Construction	Construction industry
Wholesale trade	Wholesale trade industry
Retail trade	Retail trade industry
Hospitality	Accommodation and foodservices industry
Transport	Transport, postal and warehousing industry
Communication services	Information media and telecommunications industry
Finance	Finance and insurance industry
Property	Rental, hiring and real estate industry
Technical	Professional, technical and scientific services
Administration	Administrative and support services
Public services	Public administration and safety industry
Education	Education and training industry
Health	Health care and social assistance industry
Arts	Arts and recreation services
Other services	Other services
Occupation	
Managerial	Manager (4 two-digit categories)
Professional	Professional (7 two-digit categories)
Technical trade	Technical or trade work (7 two-digit categories)
Personal services	Community or personal service work (5 two-digit categories)
Clerical	Clerical or administrative work (7 two-digit categories)
Sales	Sales work (3 two-digit categories)
Machinery	Machinery operator or driver (4 two-digit categories)
Labour work	Labour work (6 two-digit categories)



Table 1. Summary statistics

<b>Variables</b>	<b>ABRs</b>	<b>ESB</b>	<b>NESB</b>	<b>NESB-Europe</b>
Current Occupational attainment	24.49	26.17***	24.17*	24.99*
YSA		25.13	21.19	29.26
Mean age at arrival		18.41	21.53	16.51
Proportion arriving aged < 15		0.43	0.31	0.50
Proportion arriving aged 15-24		0.24	0.28	0.17
Proportion arriving aged 25-34		0.24	0.29	0.27
Proportion arriving aged > 34		0.09	0.13	0.06
Proportion arriving before 1980		0.42	0.26	0.52
Proportion arriving between 1980-89		0.30	0.27	0.21
Proportion arriving between 1990-99		0.15	0.31	0.21
Proportion arriving between 2000-13		0.13	0.15	0.06
Hourly wage	21.06	24.01***	22.10***	22.18***
Female	0.49	0.46***	0.50*	0.52***
English – Excellent			0.76	0.84
English – OK			0.19	0.14
English – Poor			0.05	0.02
Couple	0.67	0.78***	0.76***	0.75***
Union	0.31	0.30	0.27***	0.29
Supervisor	0.52	0.53**	0.47***	0.50
Masters or PhD	0.04	0.06***	0.11***	0.09***
Postgraduate Diploma	0.07	0.09***	0.07***	0.07
Degree	0.16	0.18***	0.26***	0.17
Diploma	0.09	0.11***	0.10	0.09
Certificate	0.24	0.22***	0.15***	0.23
Year 12	0.16	0.15**	0.16	0.12***
Year 11	0.24	0.20***	0.14***	0.23
Tenure: occupation	8.93	10.41***	9.07	12.33***
Tenure: employer	6.86	6.84	6.10***	7.21*
Years worked	18.24	23.09***	19.44***	24.01***
Years unemployed	0.50	0.47**	0.67***	0.64**
Years out of labour force	2.21	2.51***	3.09***	3.23***
Observations	51042	5812	6284	1799

Note: \*\*\*, \*\* and \* denote 1%, 5% and 10% level of significance respectively. This significance refers to statistical difference between immigrant, ESB immigrant and NESB immigrant groups relative to the Australian-born.

Table 2. Base model results

Variables	(1)	(2)	(3)
ESB	-0.896 (0.635)		
NESB	-4.988*** (0.593)		
YSA*ESB	-0.070 (0.115)	-0.070 (0.115)	-0.070 (0.115)
YSA <sup>2</sup> *ESB	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
YSA*NESB	0.002 (0.085)	-0.001 (0.085)	0.002 (0.085)
YSA <sup>2</sup> *NESB	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
ESB*<15		-2.396*** (0.895)	
ESB*15-24		-1.372* (0.812)	
ESB*25-34		-0.811 (0.725)	
ESB*>34		-0.776 (0.808)	
NESB*<15		-3.073*** (0.831)	
NESB*15-24		-5.046*** (0.692)	
NESB*25-34		-4.829*** (0.663)	
NESB*>34		-5.019*** (0.789)	
ESB*Pre-1980			-1.979 (2.23)
ESB*1980-89			-2.046 (1.794)
ESB*1990-99			-0.903 (1.183)
ESB*2000-13			-1.263* (0.748)
NESB*Pre-1980			-4.613** (1.883)
NESB*1980-89			-4.776*** (1.455)
NESB*1990-99			-4.677*** (1.051)
NESB*2000-13			-5.021*** (0.660)
Observations		63138	

Note: \*\*\*, \*\* and \* denote 1%, 5% and 10% level of significance respectively. Robust standard errors are in brackets.

Table 3. Base model plus NESB sub-sample status results

Variables	(1)	(2)	(3)
Europe	-3.020** (1.216)		
Asia	-5.853*** (0.868)		
Other	-4.417*** (1.067)		
YSA*Europe	0.154 (0.148)	0.159 (0.148)	0.156 (0.148)
YSA <sup>2</sup> *Europe	-0.001 (0.003)	-0.001 (0.003)	-0.001 (0.003)
YSA*Asia	-0.082 (0.121)	-0.089 (0.121)	-0.082 (0.121)
YSA <sup>2</sup> *Asia	0.002 (0.003)	0.003 (0.003)	0.002 (0.003)
YSA*Other	-0.011 (0.178)	-0.011 (0.178)	-0.010 (0.178)
YSA <sup>2</sup> *Other	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)
Europe*<15		-2.346 (1.614)	
Europe*15-24		-3.697** (1.492)	
Europe*25-34		-2.581* (1.346)	
Europe*>34		-3.610** (1.671)	
Asia*<15		-2.800** (1.182)	
Asia*15-24		-5.659*** (0.960)	
Asia*25-34		-5.895*** (0.957)	
Asia*>34		-5.523*** (1.116)	
Other*<15		-3.514** (1.755)	
Other*15-24		-4.328*** (1.399)	
Other*25-34		-4.243*** (1.267)	
Other*>34		-4.846*** (1.537)	
Europe*1980			-2.913 (3.755)
Europe*1980-89			-0.900 (2.965)
Europe*1990-99			-2.229 (2.125)
Europe*2000-13			-3.731*** (1.390)
Asia*1980			-6.550** (2.579)
Asia*1980-89			-7.955*** (1.950)
Asia*1990-99			-6.840*** (1.468)
Asia*2000-13			-6.328*** (0.948)
Other*1980			-0.252 (4.316)
Other*1980-89			-1.687 (3.446)
Other*1990-99			-3.003 (2.236)
Other*2000-13			-3.899*** (1.236)
Observations		63138	

Note: \*\*\*, \*\* and \* denote 1%, 5% and 10% level of significance respectively. Robust standard errors are in brackets.