IMMIGRANT WAGE AND UNEMPLOYMENT EXPERIENCE IN AUSTRALIA

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DISCUSSION PAPER NO. 200

December 1988

G.P.O. Box 4, Canberra 2601, Australia
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ISBN: 0 7315 0185 3
ISBN: 0725 430X

* An earlier version of this paper was presented at the National Bureau of Economic Research (NBER, Cambridge, Massachusetts) Summer Institute Programme on Immigration, August 1988.

An abridged version is published as "The International Transferability of Human Capital: Immigrant Labour Market Outcomes in Australia", in Lyle Baker and Paul Miller (eds), The Economics of Immigration, AGPS, Canberra 1988.

Paul Cheung was a great research assistant for this project. Catherine Baird, Eileen Berry, Marti Pascall and Winnie Pradella helped in production. Funding for the exercise was provided by the NBER. Bob Gregory and Richard Freeman were very helpful.
EXECUTIVE SUMMARY

The question of how immigrants fare in their new labour market is of considerable interest to policy makers. It is also an issue of importance for both economic theory and applied econometrics, since implicit in it is the potential for examining the processes of and constraints to the international transference of human capital.

Much of the research in this area models inadequately the role of education as a determinant of immigrant success. The major contribution of this paper is to allow the effects of education to vary, with some intriguing results for Australia.

Through the use of non-parametric regression techniques in wage determination and probit analysis of unemployment probabilities, the following major result emerges. This is that as the measured level of schooling increases, the wage and unemployment experience of immigrants systematically deteriorates, compared to like-natives. It follows that empirical analysis of immigrants' success in the labour market that doesn't allow effects to vary by education misses a big part of the story: the relative position of highly educated immigrants is poor.

We interpret this finding in four ways. Possibly in order of importance, it is a consequence of the restricted accreditation of immigrants' qualifications, the increased lack of international transferability of human capital as schooling increases, the negative association between motivation and ability, on the one hand, and immigrant education on the other, or that Australian school quality is relatively high. No attempt is made to test the efficacy of these explanations, the important point being that a restriction of the role of education to be identical between individuals differing in schooling levels hides a fundamental aspect of immigrant labour market success.
I. INTRODUCTION AND SUMMARY

The question of how immigrants fare in their new labour markets is of considerable interest to policy-makers. It is also an issue of importance for both economic theory and applied econometrics, since implicit in it is the potential for examining the processes of and constraints to human capital transference and human capital investment. The Australian labour market, characterised as it is by a relatively high proportion of non-native workers, is an ideal testing ground for such an inquiry.

This paper analyses the relative labour market success of immigrants using the 1 per cent sample of the 1981 Australian Census, data which have previously been exploited for this purpose. Our major contribution lies in the adoption of flexible estimation techniques. This allows two fundamental insights into the operation of the Australian labour market, both of which are related to the role of education as a determinant of immigrant success. Neither has been recognised in previous research.

The first is that it is important to allow the wage effects of labour market experience and ethnicity to differ by education levels. As well, it is clear the role of schooling in the determination of unemployment can only be adequately understood by estimating relationships in a disaggregated way. The clear and consistent result from our methods is that, relative to similarly educated natives, immigrants with the highest levels of education receive the lowest wages and experience the highest unemployment. We do not explore fully the reasons for these outcomes, but touch on some possibilities.

Apart from the insights allowed through disaggregated estimation of the role of schooling, the paper offers the following technical innovation. For one of the first times, the results of non-parametric estimations of wage functions are presented. The major benefit of this approach is the flexibility afforded, but the method is not unambiguously superior to OLS regression analysis. It is at least clear that useful (graphical) interpretation of causal mechanisms may be highlighted through the use of non-parametric techniques.

The data used are cross-sectional and, consequently, estimations could be contaminated by important problems associated with the unobserved ability of immigrants. Because this possibility is highly relevant to understanding results, some effort is directed to understanding the empirical significance of this potential. It is to the role of unobserved ability in cross-sectional data that we turn first.

II. EXAMINING THE USEFULNESS OF CROSS-SECTION DATA

Several difficulties arise in analysis of relative immigrant labour market outcomes using cross-sectional data. Essentially the problem is that it is difficult to believe that the usual ceteris paribus assumptions hold. In particular, the concern is that immigrant cohorts
differing in length of residency are also dissimilar in terms of unobserved ability or motivation. If this is the case some parameters of major interest, such as the elasticities found between length of residency and both wages and unemployment, cannot be estimated without bias.

There are two obvious dimensions to the unobserved ability issue noted above. The first is that differences in economic conditions or government policy will undoubtedly affect the average quality of the entering immigrant pool in particular years. Secondly, the act of migration is not irreversible, and a sizeable (but variable) proportion of immigrants from different countries eventually leave their new countries. If the probability of remigration is correlated with (unobserved) immigrant quality, cross-sectional data will misrepresent underlying relationships, at least as indicators of expected immigrant success.

These issues have been examined with US data by both Borjas (1985) and Chiswick (1986). The former argues that considerable variation exists in the ability of immigrant cohorts, suggesting bias in the interpretation of the effect of period of residence on wage growth. Chiswick's study implies that remigration does not markedly affect wage estimates.

Since the wage and unemployment analyses reported in sections III and IV use a single cross-section of data, the one per cent sample of the 1981 Australian Census, it is pertinent to attempt to establish the empirical significance of the unobserved quality issue in the Australian context. Both the quality of entering cohorts and the effects of remigration are reported below using wage data. It is important to stress, however, that the unobserved ability issue applies as much to unemployment as it does to wages, the focus on the latter being a consequence only of data availability.

The methodology suggested by Borjas (1985) to examine immigrant quality may be applied to Australian data. The approach compares predicted wages of different and similar immigrant cohorts relative to natives, and can be used to gain insight into both the returns to local experience for a particular cohort of immigrants, and the differences between immigrant cohorts in unmeasured wage ability.

The data available allowing a similar investigation to that of Borjas were drawn from the (ANU) 1973 Social Sciences survey of Australian male residents aged 30-64, which includes a sample of about 1800 wage or salary-earning individuals, and the 1981 1/100 Census tapes. The results of the analysis are reported in Beggs and Chapman (1988b). They imply that the likelihood of cross-sectional data being markedly contaminated by significant changes over time in unobserved variables is small.

The other major possibility rendering questionable cross-sectional analysis concerns the effects of re-migration on the average unobserved ability of remaining cohorts. In Australia this issue is potentially much more than trivial, particularly if the question concerns the
differential relative labour market outcomes of immigrants from English-speaking countries (ESM) and immigrants from non English-speaking countries (NESM). This is because marked differences exist between these groups in the probability of re-migration, as suggested by the data of Table 1.

**TABLE 1**  
**Arrivals and Departures of Male Immigrants, 1959-82**

<table>
<thead>
<tr>
<th>Country of Birth</th>
<th>Arrivals</th>
<th>Departures</th>
<th>Departures/Arrivals</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK &amp; Ireland</td>
<td>1086054</td>
<td>231810</td>
<td>0.213</td>
</tr>
<tr>
<td>New Zealand</td>
<td>118157</td>
<td>33878</td>
<td>0.287</td>
</tr>
<tr>
<td>Italy</td>
<td>187368</td>
<td>10660</td>
<td>0.0569</td>
</tr>
<tr>
<td>Greece</td>
<td>159763</td>
<td>5374</td>
<td>0.0336</td>
</tr>
</tbody>
</table>

Source: Obtained from the Department of Immigration and Ethnic Affairs.

These data, while not ideal as reflections of re-migration probabilities over 1959-82 (since both some of the arrivals may still depart, and some of the departures may yet return), are useful as broad indications of the empirical dimensions of the process. They suggest that about 20-30 per cent of ESM are likely to leave, but only 3-6 per cent of NESM do likewise. The two salient points are: one, that the proportion of the former group leaving is high, implying that if a relationship exists between unobserved ability and re-migration the use of cross-sectional data for this group is suspect; and, two, that the problem is much less likely to be the case for NESM.

The biases introduced by re-migration could go either way, but they are usually believed to have the following pattern: the least successful immigrants eventually return home or seek economic success elsewhere. Thus the average ability of identified immigrants could be expected to increase with period of residency, and the coefficient on this variable is thus biased upwards in absolute size in both wage and unemployment estimations. But alternatively, successful immigrants are more capable of moving because they have accumulated sufficient wealth. It follows that from theory an unambiguous prediction of the direction of bias is not forthcoming.

Related to the above is the following general issue. Immigrants' decision to remain in or leave new countries cannot be analysed only on the basis of economic performance in the host country, since what will be of importance is expected income in alternative countries. Even if success has been relatively low in the new country this does not necessarily imply an increased incentive to return.
The above point is analogous to that analysed by Beggs and Chapman (1988a) concerning Australian Public Service workers’ incentives to quit given poor performance. Their model predicts that the choice depended on the variance of inside compared to outside wages. For their sample it appeared that relatively poor workers had disincentives to quit, the opposite being true for relatively able workers. For immigrants similar forces may be in operation, the important point being that host country performance per se tells us little about the likelihood of return migration. This complexity renders questionable one of Chiswick’s (1986) tests of the return migration proposition. He argues that if immigrants from countries with relatively high period of residency coefficients are also those immigrants who from other evidence are less likely to return, the self-selection process is empirically unimportant. The indications are that this is the case (Cubans, for example, have very high rates of return to residency, but few returns), but the noted theoretical ambiguity casts doubt on the result.

Insight into an indirect test of the importance of return migration is to be found in Beggs and Chapman (1985), where the focus is on identifying attrition bias in the Australian Public Service. In particular, the argument is that the residuals of the wage equation should exhibit skewness related to job tenure, the direction of which will be determined by whether or not high or low ability persons eventually quit. Negative skewness implies that the top part of the intangible ability distribution (the residual) shortens with tenure, that is, that the more able increasingly have left the sample. The opposite is the case if lower ability persons are more likely to leave as tenure increases.

The analogous proposition is illustrated in Figure 1. It shows that as the highest ability immigrants leave, the residuals become increasingly positively skewed.

FIGURE 1

![Diagram showing wage versus period of residence with shaded area indicating self-selected out of sample.](image-url)
Given the aggregate data, systematic biases from attrition imply the following. If lower ability immigrants are generally more likely to return, skewness of the residuals with period of residency (PER) should be positive for both ESM and NESM, and greater for the former group. On the other hand, if higher ability immigrants are generally more likely to return, skewness of the residuals with PER should be negative for both ESM and NESM, and absolutely greater for the former group. The finding that skewness does not exist implies that the attrition process is unrelated to unmeasured ability, at least as reflected by the residual of the wage equation.

The test took the form of estimating the following equation:

\[ \text{RES3} = a + b\text{PER} + c\text{PER}^2 + d\text{YOS} + \epsilon_R \]  \hspace{1cm} (1)

where RES3 is the cube of the OLS residuals obtained from the 1981 cross-sectional estimations reported in Beggs and Chapman (1986) and YOS is years of schooling, included as a control. The results are presented in Table 2.

**TABLE 2**

<table>
<thead>
<tr>
<th>Skewness Tests of the Return Migration Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESM: 0.120 - 0.00311 PER + 0.0000143 PER$^2$ - 0.00554 YOS</td>
</tr>
<tr>
<td>( (0.50) ) ( (0.25) ) ( (0.048) ) ( (0.34) )</td>
</tr>
<tr>
<td>( R^2 = -0.0015 )</td>
</tr>
<tr>
<td>NESM: 0.206 - 0.0106 PER + 0.000103 PER$^2$ - 0.00345 YOS</td>
</tr>
<tr>
<td>( (1.08) ) ( (0.74) ) ( (0.27) ) ( (0.31) )</td>
</tr>
<tr>
<td>( R^2 = -0.0002 )</td>
</tr>
</tbody>
</table>

*Absolute t-statistics in parentheses.*

The results of Table 2 imply that there is no evidence from the wage data of the 1981 Census of an important relationship between unmeasured ability and the likelihood of re-migration of either ESM or NESM. The nature of the tests suggests that this cannot be taken as strong confirmation of the randomness of the ability re-migration process. The appropriate conclusion is that the test has not uncovered any information with respect to re-migration that places in question the validity of the usual estimations based on cross-section data.

In summary, the above data and tests on wage relationships reveal that, for Australia, there is no compelling evidence that major differences in the unobserved ability of immigrant cohorts significantly undermine the value of wage and unemployment analyses based on cross-sectional data, a point more obviously true for ESM than NESM. If either immigrants entering in particular years are of considerably different quality than others, or persons re-
migrating come from either end of the ability distribution, we have not been able to uncover powerful evidence for these effects. This could imply problems with the methods used, a possibility that cannot be tested easily. Given this as background we proceed now to an examination of immigrant wage and unemployment outcomes as documented in the 1981 Australian Census under the assumption that tests based on such a cross-section are at least moderately sound.

III. IMMIGRANT RELATIVE WAGE EXPERIENCE IN AUSTRALIA

Analysis of immigrant relative wages in Australia typically use cross-sectional data and conventional earnings functions. This literature, and the consensus emerging from it, are examined below.

The first multiple regression analysis of immigrant earnings in Australia was conducted by Haig (1980) who used cross-sectional data collected by the Australian Bureau of Statistics for the Henderson Inquiry into Poverty in August 1973. The study attempted to determine the role of endowments and discrimination as explainers of immigrants' relative earnings with a conventional application of the methodology popularised by Oaxaca (1973) and Blinder (1974). Control variables used were, among others, age, hours, education, sex, and country of origin. Because he restricted slope coefficients to be identical for men and women, assumed hours worked to be exogenous, and used age as an experience proxy, the results should be treated with caution. Nevertheless, for the purposes of the present investigation it is of interest to note his finding that immigrants generally, and immigrants from Southern Europe in particular, had relatively flat age-earnings profiles in 1973. Period of residency was apparently an insignificant earnings determinant.

More disaggregated approaches have been adopted by Stromback (1984), Chiswick and Miller (1985) and Beggs and Chapman (1986) using the 1 per cent household sample of the 1981 Australian Census. The analyses used similar specifications and, thus unsurprisingly, drew similar conclusions. They were that ESM experienced wage structures similar to the Australian-born, but other immigrants received relatively low returns to schooling and experience. The data reveal no catch-up for NESM.

These results could be interpreted only imperfectly in the context of the transferability of further investment in human capital: while they imply that skills acquired in like-countries are rewarded more highly than skills acquired in dissimilar countries (non-English speaking countries), they also imply that those immigrants starting with a wage disadvantage relative to the native-born remain with a wage disadvantage over their Australian working lives. This finding is at variance with US and Canadian conclusions derived from cross-sectional analyses.
While it is important to acknowledge that cross-sectional analyses such as these implicitly impose the assumption that unobserved ability is uncorrelated with immigrant length of residency, the estimations presented in section II above suggest that for Australia this point is not of great empirical significance. What is, perhaps, of much more importance in an understanding of immigrant wage adjustment processes is the role of education, but due to functional form inflexibilities the Australian research so far has allowed only very limited insights into the part played by schooling. In particular, the above-noted approaches have typically imposed the restriction that wage returns to length of residency and labour market experience do not vary with education. The major contribution here is to relax this assumption, an approached revealing quite different insights into immigrant wage outcomes in Australia to those reported above.

As well as allowing experience effects to vary with schooling, an innovation of our approach is the use of non-parametric techniques to estimate the wage functions. The choice of the kernel smoothing (non-parametric) technique was motivated by the following issue. The approach obviates the need to pre-specify the precise analytic functional relationship between the explanatory variables and the wage rate, and it is this major benefit we have taken advantage of. As well, the technique is ideally suited to large samples because of the coverage properties (Bierens, 1985), and is ill-suited to small data sets.

The non-parametric approach is not, however, without costs. Specifically, the approach lacks the familiar summary of a model as a small number of estimated parameters, nor is there easy access to the usual test statistics, although point-wise confidence intervals may be computed. As well, for reasons of presentation, it is inappropriate to estimate the expected wage rate given values of more than just a few of the regressor variables of interest. In short, the approach trades-off flexibility and complexity, and in its adoption we have chosen more of the former.

The basic model is that hourly income depends on individuals' human capital characteristics. In the analysis reported below we allow for the effect of years of schooling (YOS), potential years in the labour market (GEXP), years of Australian schooling (AYOS), and years of potential labour market experience before migrating to Australia (ALMX). As well, there is a separation of the sample according to country of origin. Three groups are distinguished: Australian born males (AUST), ESM and NESM.

The wage equations are:

\[ W_{\text{AUST}} = f_{\text{AUST}} (\text{YOS}, \text{LMX}) \]  
\[ W_{\text{ESM}} = f_{\text{ESM}} (\text{YOS}, \text{LMX}, \text{AYOS}, \text{ALMX}) \]  
\[ W_{\text{NESM}} = f_{\text{NESM}} (\text{YOS}, \text{LMX}, \text{AYOS}, \text{ALMX}) \]
and the statistical characteristics of the data are reported in Appendix 1. The results of the non-parametric regressions are presented in graphical form, the interpretation of which is straightforward. The computed confidence intervals are not shown for reasons of clarity, their size being such as to not affect conclusions.

Since a major thrust of the analysis is to investigate the potential of schooling impacting differently on wages for particular groups, we considered four education levels: 8, 10, 12 and 14 years of completed schooling, with the results showing the cross-sectional relationship between wage and age (GEXP + YOS + 5) for natives, ESM and NESM. The immigrants are hypothetically given \( \text{AYOS} = 0 \) and \( \text{ALMX} = \text{GEXP} \). That is, the relationships for these groups should be interpreted as representations of the experience of male individuals entering Australian immediately after completing their schooling abroad. They are shown in Figures 2-5.

The data of Figure 2 reveal the following. First, natives with very low schooling earn, overall, lower hourly incomes than all immigrants, although there is no obvious difference between natives and NESM until about aged 36, after which NESM have higher incomes. Secondly, ESM experience higher incomes at all ages than the other two groups, with the difference being maximised for those in their mid-40s. Thirdly, and related to the above, at relatively young ages the age-earnings profiles are steeper for immigrants than natives, and steeper for ESM than NESM.

For males with 10 years of schooling (Figure 3), the following points are pertinent. One, unlike the situation for the lowest level of schooling, natives earn higher incomes than NESM at all ages. Two, similar to the results for the lowest level of schooling, ESM earn higher incomes than natives at all ages, with the difference being the greatest for persons aged in their late 40s.

From Figure 4, it is apparent that for those with 12 years of schooling native incomes are higher than those of NESM and that this advantage is greater than is the case of persons with 10 years of formal education. As well, apart from those younger than 30 years - where income per hour is about the same - natives earn more than ESM. As is the case with other schooling levels, ESM earn higher incomes than NESM, and the profile of the former is relatively steep, at least until about age 50.

Figure 5 reveals that at high levels of schooling (14 years) natives earn substantially higher incomes than immigrants. Importantly, the relative income advantage of the former group is apparently greater than was the case for those with 12 years of schooling. As is the case with the 10 and 12 years of schooling groups, NESM earn less than ESM and natives at all ages, and have flatter profiles.
Non-parametric Regression Estimates of Average Hourly Wage Rate
10 Years of Schooling

Fig. 3

- NESM
- NATIVES
- ESM
Non-parametric Regression Estimates of Average Hourly Wage Rate
12 Years of Schooling

Fig. 4
Non-parametric Regression Estimates of Average Hourly Wage Rates

14 Years of Schooling

Wage ($/hr)

Age (years)

- NESM
- NATIVES
- ESM
The figures, considered sequentially, reveal a striking pattern: as education increases so too does the relative income advantage of natives. At the lower levels of schooling immigrants earn the same, or more than, natives, but at the highest levels of schooling this situation is reversed. As well, NESM earn lower incomes than ESM for all levels of schooling, and have generally flatter age-earnings profiles. These findings highlight the importance of disaggregated analysis of immigrant relative wage outcomes, in particular as regards education.

Most importantly for Australian analysis the non-parametric approach reveals the importance of flexible estimation, two salient points being clear. One, it is obviously not the case that returns to Australian labour market experience are identical for different schooling levels, the assumption usually imposed in OLS wage estimations. Two, interpretation of which immigrant groups are apparently relatively disadvantaged in wage outcomes is inadequate without considering the impact of schooling. Interestingly the essence of this story is replicated with respect to unemployment, an investigation to which we now turn.

IV IMMIGRANT RELATIVE UNEMPLOYMENT EXPERIENCE IN AUSTRALIA

Analyses of the relative unemployment experience of immigrants in Australia (Miller, 1986; Inglis and Stromback, 1986) have, as with wage determination research, imposed restrictive functional forms on their investigation. In particular, the approaches have not allowed the effect of unemployment determinants to vary between groups, a method which restrict the effects of schooling to be the same irrespective of ethnicity. In the analysis reported below we allow the effects of schooling (and other variables typically associated with unemployment) to vary between natives, ESM and NESM. Although the estimations constrain Australian labour market experience to have the same impact on unemployment for different schooling levels, they nevertheless offer compelling evidence on the effect on relative immigrant labour market outcomes of education entirely consistent with the wage analysis reported above.

Search theory is used to motivate the empirical approach adopted, and we have described the advantages and problems of this framework elsewhere (Beggs and Chapman, 1987). The model only allows one prediction unambiguously, in essence because the distribution of the wage offer curve will not be the same between groups. This is that the relative unemployment rate is lower for unskilled immigrants than unskilled natives. The prediction follows from our critique of the theory, but is not crucial to understanding the results following.

The simple reduced form derived from search theory is:
\[ P(U_1) = \delta_0 + \delta_1 \text{LMX}_i + \delta_2 \text{LMX}_i^2 + \delta_3 \text{YOS}_i + \delta_4 \text{YOS}_i + \delta_5 \text{ALMX}_i \]
\[ + \delta_6 \text{ALMX}_i^2 + \delta_7 \text{MAR}_i + \delta_8 \text{LANGD}_i + \epsilon_6 \]  

(5)

where \( P(U_1) \) equals 1 if the individual is unemployed, equals 0 if employed, and the explanatory variables are potential labour market experience (LMX), potential Australian labour market experience (ALMX), a dummy variable equal to 1 if currently married, spouse present, and equal to 0 otherwise, (MAR), and a language dummy variable equal to 1 if the respondent has English language problems, equal to 0 otherwise (LANGD).

The probit estimations were run separately for natives, ESM and NESM, a procedure allowing important insights into the role played by education. Statistical characteristics of the data, random samples from the 1 per cent of males in the 1981 Census, and the results are reported below.

From Table 4 the strongest single effect on unemployment are from schooling and marital status. The potential labour market experience variables exhibit low individual \( t \)-statistics which reflects the fact that LMX, LMX\(^2\), ALMX and ALMX\(^2\) are highly correlated in the sample, implying that it is difficult to distinguish their individual contribution to unemployment. Consistent with this interpretation, the log-likelihood ratio statistics indicate that only the joint test of the null hypothesis \( \beta_{\text{LMX}} = \beta_{\text{LMX}^2} = 0 \) for NESM fails to be rejected by the data.

The highly non-linear form of the probit probability model hampers straightforward comparison of immigrant and native coefficients. Interpretation of the main relationships is facilitated through consideration of Figures 6 to 9. To allow comparisons with the results reported in section III, each of the figures corresponds to a different level of total schooling with the levels chosen being 8, 10, 12 and 14 years. AYOS and LANGD are set equal to zero, and MAR is set equal to 1. Five categories of workers are considered. They are:

(i) \( \text{AUST:} \) Australian born workers
(ii) \( \text{ESM:} \) migrants from English speaking countries with no labour market experience before entering Australia
(iii) \( \text{NESM:} \) migrants from non-English speaking countries with no labour market experience before entering Australia
(iv) \( \text{ESMIO:} \) migrants from English speaking countries with 10 years potential labour market experience before entering Australia
(v) \( \text{NESMIO:} \) migrants from non-English speaking countries with 10 years potential labour market experience before entering Australia.
### TABLE 3*

**Statistical Characteristics of the Data**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Australian Born</th>
<th>English-Speaking Country Born</th>
<th>Non-English Speaking Country Born</th>
</tr>
</thead>
<tbody>
<tr>
<td>YOS</td>
<td>11.65</td>
<td>12.12</td>
<td>11.15</td>
</tr>
<tr>
<td></td>
<td>(2.42)</td>
<td>(2.46)</td>
<td>(3.33)</td>
</tr>
<tr>
<td>LMX</td>
<td>25.54</td>
<td>25.87</td>
<td>27.33</td>
</tr>
<tr>
<td></td>
<td>(12.22)</td>
<td>(11.94)</td>
<td>(11.63)</td>
</tr>
<tr>
<td>MAR</td>
<td>0.78</td>
<td>0.79</td>
<td>0.84</td>
</tr>
<tr>
<td>ALMX</td>
<td>15.68</td>
<td>17.80</td>
<td>(9.53)</td>
</tr>
<tr>
<td></td>
<td>(10.28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AYOS</td>
<td>1.72</td>
<td>1.78</td>
<td>(4.17)</td>
</tr>
<tr>
<td></td>
<td>(4.06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LANGD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggregate Unemployment Rate (per cent)</td>
<td>3.44</td>
<td>4.36</td>
<td>4.60</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>3634</td>
<td>3668</td>
<td>3607</td>
</tr>
</tbody>
</table>

* Means, standard deviations in parentheses.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Australian Born</th>
<th>ESM</th>
<th>NESM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.359</td>
<td>0.397</td>
<td>-0.630</td>
</tr>
<tr>
<td></td>
<td>(0.95)</td>
<td>(1.23)</td>
<td>(2.2)</td>
</tr>
<tr>
<td>LMX</td>
<td>-0.0213</td>
<td>-0.0533</td>
<td>0.00137</td>
</tr>
<tr>
<td></td>
<td>(1.15)</td>
<td>(2.96)</td>
<td>(0.075)</td>
</tr>
<tr>
<td>LMX²</td>
<td>0.000254</td>
<td>0.00104</td>
<td>0.0000770</td>
</tr>
<tr>
<td></td>
<td>(0.76)</td>
<td>(3.30)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>YOS</td>
<td>-0.129</td>
<td>-0.0773</td>
<td>-0.0335</td>
</tr>
<tr>
<td></td>
<td>(5.81)</td>
<td>(4.20)</td>
<td>(2.72)</td>
</tr>
<tr>
<td>AYOS</td>
<td>-0.000104</td>
<td>-0.0134</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00932)</td>
<td>(1.16)</td>
<td></td>
</tr>
<tr>
<td>ALMX</td>
<td>-0.0252</td>
<td>-0.0250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.92)</td>
<td>(1.71)</td>
<td></td>
</tr>
<tr>
<td>ALMX²</td>
<td>0.000299</td>
<td>0.000240</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.96)</td>
<td>(0.61)</td>
<td></td>
</tr>
<tr>
<td>MAR</td>
<td>-0.568</td>
<td>-0.559</td>
<td>-0.468</td>
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<td></td>
<td>(6.38)</td>
<td>(6.67)</td>
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<tr>
<td>LANGID</td>
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| McFadden R² | 0.075 | 0.076 | 0.043 |

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* Absolute t-statistics in parentheses.
Fig 6

UNEMPLOYMENT & LABOUR MARKET EXPERIENCE
8 YEARS SCHOOLING

Probability of Unemployment

Labour market experience
UNEMPLOYMENT & LABOUR MARKET EXPERIENCE
10 YEARS SCHOOLING

Fig 7

[Graph showing the probability of unemployment over labour market experience for different groups: ESM10, NESM10, ESM, NESM, AUST.]
Fig 8

UNEMPLOYMENT & LABOUR MARKET EXPERIENCE
12 YEARS SCHOOLING

Probability of unemployment

Labour market experience

NESM10
NESM
ESM10
ESM
AUST
The figures reveal some important similarities. First, ESM have lower probabilities of unemployment than do NESM, for all levels of schooling and pre-immigration work experience. From theory this implies that the greater search costs of the latter group are outweighed by other factors of job search related to ethnicity. Second, pre-immigration work experience increases the probability of unemployment for both groups (i.e. ESM and NESM have lower unemployment probabilities than ESMIO and NESMIO, respectively), implying higher reservation wages of immigrants with greater home country experience. Thirdly, as period of residence increases the gap between immigrant and native unemployment changes only very slowly. In general over the range of normal life-cycle labour market experience, there is no cross-over.

Most importantly for the theme of this paper, it is clear that as the level of schooling increases so too does the relative immigrant unemployment rate. From Figure 6, immigrants with low levels of schooling (8 years) have lower probabilities of unemployment than native over the life-cycle range of labour market experience. On the other hand, at the highest level of schooling considered (Figure 9) immigrants have higher probabilities of unemployment than like natives over the life-cycle range of labour market experience. Clearly, and interestingly, the story is the same as that revealed for wages: as education increases the labour market position of immigrants relative to natives systematically deteriorates.

The important upshot of these results is that it is not possible to understand influences on relative immigrant unemployment status without distinguishing the differential impacts of schooling. As with Australian wage analysis, existing research has missed an important point by the restriction of education effects. We offer some tentative conjectures on the results below.

V INTERPRETATION

Through a disaggregated analysis of immigrant relative wages and unemployment a distinct phenomenon has been revealed. For these labour market outcomes it is apparent that, relative to like natives, immigrants with low levels of education fare well. However, as years of schooling increase immigrants’ relative labour market success decreases. At the highest level of education considered immigrants both earn less and have a higher probability of unemployment than is the case for natives. Importantly for Australian research, our estimation techniques have highlighted the potential for misinterpretation inherent in existing approaches.

The interesting and difficult challenge is to explain satisfactorily the consistent relationships uncovered between relative educational status and immigrant labour market outcomes. Tentatively, we offer four possibilities, possibly in order of importance.
First, and most obviously, is the issue of accreditation of education qualifications. This could result from two possibilities: one, Australian employers, if risk-averse and with less than full information about the value of overseas schooling, systematically devalue immigrant formal training; two, local employers, trade unions or professional agencies act in such a way as to protect domestic special interest groups. There is considerable anecdotal and other evidence for this perspective (Iredale, 1988).

Secondly, a lower valuation of overseas schooling at high levels of schooling may be because education is less transferable internationally at higher levels. In other words, education is positively correlated with the acquisition of country-specific skills. To take an extreme example consider the transferability of accountancy qualifications relative to the transferability of street-sweeping skills. In the former case there is presumably a high level of country-specific knowledge, such as in the understanding of tax and company law. For the latter, sweeping a Rome street is probably very similar to sweeping a Melbourne street, and such work would require very little understanding of Australian institutions or the legal system.

A third possibility is that of an unobserved variable, motivation or ability, and its relation to immigrant selection procedures. If low education immigrants are more likely to be selected by immigration authorities if they are particularly work-oriented, it follows that relative to the native-born their Australian labour market outcomes would be favourable. In this view immigration authorities are trading-off work orientation or talent for formal qualifications in selection of applicants. This explanation recognises a possible shortcoming of the estimation techniques in that the models may be mis-specified because of omitted variables and their correlation with education. A similar econometric issue motivates the last explanation of results.

This is that the quality of schooling is actually higher in Australia than overseas, or at least is perceived to be so by local employers, a point obviously related to the first possibility offered. Thus, as schooling increases and the quality issue becomes more important, more highly education immigrants will have their overseas credentials increasingly devalued.

As noted, we do not have strong priors as to which possible explanation of results is most compelling, the goal having been to demonstrate the importance of more flexible estimation of immigrant relative labour market outcomes than has so far characterised the Australian literature in this area. The very important finding, unrecognized in the literature, is that Australian immigrant labour market outcomes become more adverse - relative to like natives - as schooling increases. The challenge highlighted is the explanation of the consistency of results found for the role of education.
REFERENCES


______ (1987), "Search Efficiency, Skill Transferability and Immigrant Relative Unemployment Rates in Australia", mimeo, Research School of Social Sciences, Australian National University.


