The Employment and Occupational Outcomes of Indian Male Migrants in the Australian Labour Market

Bilal Rafi, University of Canberra

Abstract

This paper builds on the earlier work by Rafi and Lewis (2014) and analyses the employment and occupational outcomes of Indian born male migrants relative to other male cohorts in Australia. The findings indicate that the employment outcomes for Indian born males are similar to that of Australian males and foreign born males from both English speaking and non-English speaking backgrounds. However, as measured by hours worked per week, Indian born male migrants do have a lower engagement with the labour market. The results also indicate that tertiary qualifications make a very modest contribution to increasing the likelihood of an individual being employed. Analysis of the sample data also illustrates that Indian born male migrants in the Australian labour market are correctly matched with occupations relative to their formal training. Taken together with the migrant earnings results presented in Rafi and Lewis (2014) this indicates that while Indian born males do not face difficulty in finding suitable employment, they are still not as successful at generating higher returns to their tertiary education relative to the other male cohorts.

Keywords: Indian migrants, Labour market outcomes, Skilled occupation, Australia

JEL classification: J15, J24, J61

1. Introduction

As a net importer of labour, Australia relies on immigrants, particularly skilled immigrants to maintain its economic momentum. Australia's skilled migration program has attracted skilled overseas migrants and has offered incentives and expedited processing of applicants, especially former international students who possessed skills and locally obtained qualifications that were deemed desirable for the Australian economy. Over the years the composition of Australia's migrant intake has also shifted from migrants originating from English-speaking developed nations

to migrants from Non-English backgrounds originating from developing countries, especially in Asia (Antecol, Cobb-Clark and Trejo, 2003)

In the last few years concerns have been raised about the efficacy of Australia's skilled migration program and the labour market outcomes (in terms of earnings and employment) and integration of skilled Indian migrants in the Australian economy. Baas (2007); Birrell and Healy (2008, 2010) and McCann (2010) offer an overview of this debate. The cited authors highlighted the link between the tertiary sector in Australia and Australia's migration policies, and also voiced concern about the skillset of recent Indian graduates and migrants in the Australian economy and their perceived inability to secure skilled employment. The first labour market outcome (earnings) was discussed in an earlier work by Rafi and Lewis (2014) which analysed the returns to qualifications for migrants in Australia and noted that Indian born male migrants were not as successful as the other male cohorts in terms of leveraging their tertiary qualifications to increase their earnings.

This paper builds on the earlier work by Rafi and Lewis (2014) and assesses the employment and occupational outcomes for an important migrant cohort, namely, Indian males in the Australian economy. As stated by Lane (2012) in recent years India has leapfrogged the United Kingdom and China to become the largest source of permanent migrants to Australia. This fact is supported by data provided by the Australian Bureau of Statistics (ABS); in 2011 there were 295,362 Indian born migrants in Australia, positioning them as the fourth largest aggregate cohort of migrants in Australia behind the United Kingdom (1.1 million), New Zealand (483,400) and China (319,000). ABS (2014) also highlighted that Indian migrants in Australia are the most recently arrived cohort having a median duration of residency of just 5 years, compared to 37 years for immigrants from the UK, 14 years for immigrants from New Zealand and 8 years for immigrants from China. Thus analysing the employment and occupational outcomes for this recently arrived cohort is of academic and social interest. The remainder of the paper will discuss these issues and is structured as follows; section 2 discusses some brief themes from the literature on migrant employment outcomes. Section 3 outlines the methodology and data sources used for this research; this is followed by the presentation and discussion of empirical results in section 4, finally followed by some concluding remarks in section 5.

2. Themes from the Literature

The literature on migrant employment outcomes and earnings was discussed in Rafi and Lewis (2014) and is not repeated in whole for the sake of brevity. In summary the work of authors such as Slater (1079), Maxwell (1988), Cellini (2007) and Bradford (2013) illustrated that migration can provide net benefits to both the home and host country and the decision to migrate and the destination of migration are influenced by the relative wage structure and prospects of employment in the home and host economies. The more robust Australian labour market relative to the Indian labour market therefore helps to explain the migrant flows from India as the literature identifies that the Indian economy is characterised by large scale informal employment, heterogeneous and in some cases quite stagnant wage and productivity growth and increasing income inequality (Kijima, 2006; Glinskaya and Lokshin, 2007; Kumar and Mishra, 2008; Majumdar, 2010; and Sidhu, 2010).

In terms of migrant employment outcomes authors such as Kossudji (1989), Miller and Neo (2003), Chiswick and Miller (2008), and Parasnis, Fausten and Cheo (2008) discussed migrant assimilation in host economies. In the Australian context, Miller and Neo and (2003) and Chiswick and Miller (2008) noted that migrants face initial difficulties in assimilating in the Australian labour market and are more likely to accept menial and low skilled jobs when they first enter the labour market. However migrant outcomes do improve with time in Australia but the rates of convergence are slow due to the inflexibility of the Australian labour market. The findings of these authors and the OECD (2007) also suggested that there is mixed evidence of whether qualifications acquired in Australia assist in migrants securing better paying and high skilled jobs.

3. Methodology and Data Sources

The theoretical framework used for this study draws inspiration from the work of Chiswick and Miller (Miller and Neo, 2003; Chiswick and Miller, 2008) and Parasnis, Fausten and Cheo (2008). This study analyses the impact of educational attainment and other demographic variables on the employment outcome of Indian born males compared to native born males and foreign born males from English speaking backgrounds (ESB) and non-English speaking backgrounds (NESB).

The binary employment outcome (1 for employed, 0 for unemployed) is modelled using a binary logit model of the form

$$p + pr[y = 1 \ [x] = F(x'\beta)]$$

Where $F(x'\beta)$ has the functional form

$$F(x'\beta) = \frac{e^{x'\beta}}{1 + e^{x'\beta}}$$

And the marginal effects for the *j'th* regressor is given by

$$\frac{\partial p}{\partial xj} = F'(x'\beta)\beta_j$$

The employment status of an individual *EMPi* is regressed on a number of educational and demographic variables

$$EMP_i = \beta0 + \beta1Y12_i + \beta2CER_i + \beta3DIP_i + \beta4UG_i + \beta5PG_i + \beta6EXP_i + \beta7EXP_i^2$$
$$+ \beta8SMS_i + \beta9DR5_i + \beta10FESB_i + \beta11FNESB_i + \beta12INB_i + u_i$$

Where *Y12*, *CER*, *DIP*, *UG*, *PG* are highest educational attainment dummies for each individual i, namely, year 12, certificate, diploma, undergraduate degree and postgraduate qualifications respectively. *EXP* denotes the years of labour market experience of each individual which is calculated using the Mincer proxy (age of an individual minus their years of training minus the age at which they started school, usually at five years of age). To allow for the possibility of diminishing returns to

experience a quadratic term EXP^2 is also included. *SMS* is a dummy variable that denotes social marital status (civil or de facto), *FESB*, *FNESB* and *INB* are dummies that are equal to 1 if an observation is foreign born English speaking background, foreign born non-English speaking background or Indian born respectively. It should be noted that Indian born observations are not included in either of the two foreign born cohorts, which is to say for an Indian born observation *FESB* and *FNESB* are equal to 0.

To capture duration of residence effects, *DR5* denotes a dummy variable which is equal to 1 if a migrant arrived in Australia more than five years ago and 0 otherwise. The observations for the different cohorts were pooled together for estimation as cohort specific auxiliary regressions did not illustrate significant differences in the slope parameters. Therefore the observations were pooled to provide the greatest possible variability with cohort effects controlled through the use of dummy variables. The employment sample only includes individuals who are in the labour force (employed or unemployed but looking for work), the sample excludes males under the age of 21 and full time students as the employment outcomes of such individuals are likely to be influenced by educational participation.

The above specification offers a very broad indicator of an individual's engagement with the labour market. To test for varying levels of engagement with the labour market the hours worked per week by an individual (*HWP*) is expressed as a function of the explanatory variables plus some additional dummies for family composition.

$$HWP_i = \alpha0 + \alpha1Y12_i + \alpha2CER_i + \alpha3DIP_i + \alpha4UG_i + \alpha5PG_i + \alpha6EXP_i + \alpha7EXP_i^2$$
$$+ \alpha8SMS_i + \alpha9DR5_i + \alpha10FESB_i + \alpha11FNESB_i + \alpha12INB_i$$
$$+ \alpha13CPND_i + \alpha14CPD15_i + \alpha15SPD15_i + u_i$$

Where *HWP* is a continuous variable equal to the number of hours worked per week by an individual. Along with the previously defined set of explanatory variables and controls, the labour market engagement model controls for family composition through the use of additional binary variables. *CPND* is a dummy variable that is equal to one if an individual is part of a family unit that does not have any dependents and 0 otherwise, *CPD15* is 1 if an individual is in a family unit with dependents under the age of 15 and 0 otherwise, *SPD15* is equal to 1 if an individual is a single parent with dependents under the age of 15 and 0 otherwise. The hours worked per week sample is constructed using the same criteria as the employment sample, but also excludes individuals that do not report their weekly hours worked.

Data Sources and Sample Summary Statistics

This study utilises cross sectional confidential unit record data from the Census of Housing and Population conducted by the Australian Bureau of Statistics (ABS). In recent rounds the ABS has provided access to confidential unit record data files (CURFs) as a one per cent and five per cent sample of the Australian population (ABS 2009; ABS 2013). These CURFs contain information on a wide range of demographics variables, such as age, ethnic background, employment status, weekly income, level of

post-secondary qualifications and year of arrival in Australia. This study primarily utilizes CURF data from the five per cent sample from the 2006 and 2011 Census. Data from the 2001 Census is not included in the analysis due to the unavailability of a five per cent CURF sample, and an insufficient number of valid observations for Indians in the one per cent sample.

Selected summary statistics from the data are reported in this section for the sake of illustration and to assist in later analysis.

Table 1 - Sample Unemployment Rate – Per Cent

	2006	2011
Australian	4.26	4.16
ESB	3.67	3.87
NESB	5.82	5.38
INB	3.92	3.27

Table 2 - Sample Distribution of Number of Weekly Hours Worked

	AUS	ESB	NESB	INB
	2006			
25th Percentile	40	40	38	38
Median	42	43	40	40
75th Percentile	50	50	50	45
Mode	40	40	40	40
60 hours or more	15%	14%	11%	7.5%
	2011			
25th Percentile	40	40	38	38
Median	42	42	40	40
75th Percentile	50	50	48	42
Mode	40	40	40	40
60 hours or more	15%	14.00%	10.30%	5%

Tables 1 and 2 report that the various sample cohorts are quite similar in terms of the unemployment rate. However foreign born males with a non-English background fare the worst in terms of employment. It must be reemphasised that Indian born males are not included in the non-English background cohort and are reported separately, the sample unemployment statistics show Indian born males as faring better than all the other cohorts in 2011 with the sample unemployment rate at 3.27 per cent. In terms of labour market engagement as measured by hours worked per week, again there is considerable similarity between the cohorts, however, the Indian born cohort has a much lower percentage of individuals who work sixty hours or more in a week.

Table 3 reports the tertiary qualifications possessed by the sample cohorts, Indian born males in the sample had a much higher incidence of higher education qualifications with nearly sixty three per cent of the cohort possessing a university qualification in 2006 and 2011. Generally table 3 illustrates that certificate qualifications

(vocational qualifications) were more prevalent within the Australian and foreign born English speaking background (ESB) cohorts, whereas university degrees had a higher representation in the foreign born non- English background (NESB) and Indian cohorts.

Table 3 - Tertiary Qualifications[2] – Per Cent of Sample Cohort

	Australian	ESB	NESB	INB
2006				
PG	3	6	8.7	28.53
GD	1.64	1.7	1.28	2.74
UG	13.78	16.17	22.3	30.98
DIP	7.57	8.8	9.5	8.65
CER	31.65	30.67	19.58	12.01
2006				
PG	3.58	6.84	11.37	29.6
GD	1.77	2.1	1.64	3.5
UG	15	18.07	25.39	30.26
DIP	8.26	10	9.72	12.97
CER	33.43	29.47	18.57	9.72

Table 4 reports the age distribution of the sample cohorts, at the median it can be seen that the two foreign born cohorts are older than both the Australian and Indian cohorts. It should also be noted that the Indian born male cohort has gotten markedly younger between 2006 and 2011, with the age difference at the median between Australian and Indian born males widening from 2 years in 2006 to 7 years in 2011. The widening of this gap between Australian males and Indian born males highlights the increasing influx of younger Indian migrants especially former international students that is discussed in Rafi and Lewis (2013).

Table 4 - Age Distribution of Sample Cohorts

	AUS	ESB	NESB	INB
2006				
25th Percentile	29	36	34	30
Median	39	44	44	37
75th Percentile	49	53	52	46
90th Percentile	56	59	59	56
2011				
25th Percentile	30	35	33	29
Median	40	45	43	33
75th Percentile	50	53	52	41
90th Percentile	58	60	59	52

---

[2] PG denotes post graduate qualifications such as Masters and Doctorate degrees, GD denotes graduate diplomas, UG denotes undergraduate (bachelors) degrees and DIP and CER denote vocational diplomas and certificate qualifications.

Table 5 - Social Marital Status of Sample Cohorts – Per Cent

	AUS	ESB	NESB	INB
		2006		
Unmarried	36.37	27.2	26.43	25.94
Married	63.63	72.8	73.57	74.06
		2011		
Unmarried	36.66	28.33	27.44	28.88
Married	63.34	71.67	72.56	71.12

Finally, table 5 illustrates that marriage (civil or de facto) is an important facet of Australian society and the lives of labour market participants in general. While the proportion of married males is high across all the cohorts, Australian males had a noticeably higher proportion of unmarried males relative to the other cohorts.

4. Empirical Results

The empirical results are summarised and discussed in this section. The results are robust from heteroskedasticity and show that there is very little difference in the employment outcome of the four cohorts and that a tertiary qualification only makes a very modest contribution to increasing the likelihood of an individual being employed. However, in terms of labour market engagement, Indian born males work less hours per week compared to the other cohorts.

Table 6 reports the results from the pooled binary logit model of employment and unemployment. The first important finding of the results highlights that the possession of tertiary qualifications only makes a very modest contribution to an individual's likelihood of being employed; this is reflected in the odds ratios for the educational dummies which are quite modest and similar. Secondly, it can be noted that there has been a slight deterioration in the ability of undergraduate and post graduate degrees to assist in employment with the odds ratios for those variables recording a very modest decline.

The results indicate that migrants are at a slight disadvantage in the labour market in terms of employment; this disadvantage is modest for ESB males, but more noticeable for NESB and Indian males. In 2006 Indian born males fared worse than Australian and ESB male migrants in terms of employment but better than NESB male migrants. In 2011 the non-significant coefficients for ESB and Indian born males suggests that in terms of being employed there was no statistically significant difference between Australian, ESB male migrants and Indian born males. The results therefore suggest that the language background of an individual remains an important factor in terms of explaining employment. The results also suggest that migrants who have resided in Australia for longer than five years (as captured by the DR5 dummy) enjoy a modest advantage in being able to secure employment, however this duration of residence effect as quantified by the odds ratio is not very strong. Finally the results from the pooled logit model illustrate that age (and by extension experience) play a very limited role in terms of facilitating employment in the Australian labour market, and that by far the largest determinant of being employed was an individual's marital status.

At face value the results presented in table 6 suggest that differences in the employment outcomes of Australian, foreign born and Indian born males are quite trivial. However the logit model offers a very broad indicator of the labour market engagement of an individual. To test for differences between the labour market engagements of the various cohorts, the continuous variable hours worked per week by an individual is regressed on the original explanatory variables in addition to some new family composition dummies. These results are presented in table 7, and illustrate that the possession of tertiary qualifications, especially a university degree does increase the engagement of an individual with the labour market, however the slight deterioration with respect to the contribution of educational qualifications observed in the logit model is also apparent in the OLS results. The results presented in table 7 do indicate that Indian born males have the lowest engagement with the labour market of all the cohorts, followed by NESB and ESB male migrants respectively.

Table 6 - Binary Logit Employment Model Estimates

	2006				2011			
EMP	*Coefficient*	*Odds Ratio*	*Marginal Effect*		*Coefficient*	*Odds Ratio*	*Marginal Effect*	
Y12	0.546	1.726	1.81%	***	0.473	1.604	1.68%	***
CER	0.638	1.894	1.86%	***	0.482	1.620	1.52%	***
DIP	0.443	1.557	1.22%	***	0.466	1.593	1.34%	***
UG	0.645	1.905	1.73%	***	0.504	1.655	1.49%	***
PG	0.571	1.771	1.47%	***	0.353	1.423	1.05%	***
ESB	-0.333	0.717	-1.23%	***	-0.036	0.965	-0.12%	
NESB	-0.862	0.423	-3.78%	***	-0.421	0.656	-1.65%	***
INB	-0.556	0.574	-2.35%	***	0.121	1.129	0.39%	
AGEP	0.030	1.031	0.10%	***	0.024	1.024	0.08%	***
$AGEP^2$	0.000	1.000	0.00%	***	0.000	1.000	0.00%	***
DR5	0.288	1.334	0.88%	***	0.228	1.257	0.86%	***
SMS	1.092	2.981	4.37%	***	1.042	2.835	4.34%	***
	n	220,697			n		250,598	
	R^2	6.50%			R^2		5.30%	
	Correctly Classified	95.70%			Correctly Classified		95.60%	

The dependent variable in this case is employment status (EMP) which is a binary variable (1 if employed, 0 if unemployed). *** Significant at 1 per cent, ** significant at 5 per cent, * significant at 10 per cent.

Table 7 - OLS, Hours Worked Per Week Model Estimates

HWP	2006		2011	
Y12	1.589	***	1.222	***
CER	2.004	***	1.826	***
DIP	1.131	***	1.177	***
UG	2.030	***	1.801	***
PG	2.618	***	2.076	***
ESB	-1.754	***	-0.019	
NESB	-4.389	***	-2.872	***
INB	-4.531	***	-3.164	***
AGEP	0.832	***	0.855	***
AGEP^2	-0.010	***	-0.011	***
DR5	1.429	***	1.546	***
SMS	4.571	***	4.302	***
CPND	-1.426	***	-1.462	***
CPD15	-0.761	***	-0.905	***
SPD15	-3.072	***	-2.806	***
n	220,697		250,598	
R^2	5.00%		4.90%	

The dependent variable in this case is hours worked per week (HWP) which is a continuous variable. *** Significant at 1 per cent, ** significant at 5 per cent, * significant at 10 per cent.

The results in table 7 indicate that in 2006, Indian born males in the sample worked four and a half hours less per week compared to Australian males and approximately three hours less in 2011. The reason for this lower engagement needs to be investigated further; most notably it needs to be investigated whether this lower engagement per week with the labour market is by choice or whether due to the inability of NESB and Indian born males to secure more hours of employment. The results also reaffirm the very limited role played by age (and by extension experience) in terms of employment outcomes. In terms of duration of residence effects the results in table 7 indicate that migrants who have resided in Australia for longer than five years had a higher labour market engagement and worked on average an hour and a half more per week than more recently arrived migrants. It would appear that marital status and family composition are more important determinants of labour market engagement. The results illustrate that married males worked nearly four and a half hours more in 2006 and 2011 than unmarried males. The empirical results also indicate that family composition is an important influence on labour market engagement. Table 7 illustrates that males in a relationship with no dependents and males that were single parents worked less hours per week compared to males in a relationship with dependents under the age of 15. The significant influence of family composition on labour market engagement is a possible area for future research that will be considered in greater detail in later work.

The Quality and Nature of Employment

So far the empirical results have established that Indian born male migrants are quite similar to Australian born males and other male migrant cohorts in terms of their

ability to secure employment. The results have also indicated that Indian male migrants (as well as NESB male migrants) have lower labour market engagement relative to Australian males and ESB males as measured by the hours worked per week.

The question arises whether the differences between Indian male migrants and other male cohorts arise not so much in the broad aggregates of employment status and hours worked but rather in the quality and nature of employment. This section of the paper reports summary extracts from cross tabulations of occupations by field of study and level of study from the estimation sample and offers some clarity on the nature of employment of Indian male migrants.

Table 8 - Top 5 Occupations of sample Cohorts

	2006	2011
Australian	Specialist Managers (8.4%) Construction Trade Workers (6%) Business, HR and Marketing Professionals (5.1%) Hospitality Retail and Services Managers (4.8%) Road and Rail Drivers (4.6%)	Specialist Managers (8.9%) Automotive and Engineering Trades Workers (7.1%) Construction Trades Workers (6.2%) Business, Human Resource and Marketing (5.2%) Hospitality, Retail and Service Managers (4.7%)
ESB	Specialist Managers (10.9%) Business, HR and Marketing Professionals (6.2%) Automotive and Engineering Trade Workers (5.9%) Design, Engineering, Science and Transport Professionals (4.7%) Hospitality Retail and Services Managers (4.4%)	Specialist Managers (11.1%) Automotive and Engineering Trades Workers (5.7%) Construction Trades Workers (5.5%) Design, Engineering, Science and Transport Professionals (5.4%) Hospitality, Retail and Service Managers (4.4%)
NESB	Specialist Managers (7.7%) Business, HR and Marketing Professionals (5.9%) Automotive and Engineering Trade Workers (5.5%) Design, Engineering, Science and Transport Professionals (5.2%) ICT Professionals (5.1%)	Specialist Managers (7.9%) Business, HR and Marketing Professionals (6.6%) Design, Engineering, Science and Transport Professionals (5.7%) ICT Professionals (5.6%) Automotive and Engineering Trades Workers (5.1%)
INB	ICT Professionals (11%) Business, HR and Marketing Professionals (10.3%) Specialist Managers (8.7%) Design, Engineering, Science and Transport Professionals (6.7%) Road and Rail Drivers (4.9%)	ICT Professionals (12.4%) Business, HR and Marketing Professionals (8.2%) Specialist Managers (7.7%) Road and Rail Drivers (6.9%) Design, Engineering, Science and Transport Professionals (5.5%)

Table 8 reports the top five occupations of each male cohort from the estimation sample from 2006 and 2011. The percentages in brackets denote the proportion of each sample cohort engaged in a particular occupation. Table 8 shows that apart from 'Road and Rail Drivers' Indian born males were engaged in highly specialised

occupations in 2006 and 2011 with a high proportion ICT professionals, Business, HR and Marketing Professional and specialist managers. In general the three migrant cohorts were all engaged in specialised occupations, suggesting good matching of skills with occupations. Table 9 further shows that all cohorts were highly skilled in terms of their fields of study with the Indian born male cohort having the highest relative proportions of males with engineering and IT qualifications. Tables 8 and 9 illustrate that in terms of skills, and skilled occupations, Indian born male migrants in the sample are not dissimilar to the other cohorts.

Table 9 - Top 3 Fields of Study of Sample Cohorts

	2006	2011
Australian	Engineering and Related Technologies (21%) Management and Commerce (9.5%) Architecture and Building (7.6%)	Engineering and Related Technologies (21.7%) Management and Commerce (10.7%) Architecture and Building (8.4%)
ESB	Engineering and Related Technologies (23.4%) Management and Commerce (10%) Architecture and Building (8.3%)	Engineering and Related Technologies (22.4%) Management and Commerce (11.8%) Architecture and Building (8.54%)
NESB	Engineering and Related Technologies (22.1%) Management and Commerce (12.1%) Information Technology (6%)	Engineering and Related Technologies (21.3%) Management and Commerce (15.1%) Information Technology (7.1%)
INB	Engineering and Related Technologies (26.7%) Management and Commerce (21.6%) Information Technology (16.3%)	Engineering and Related Technologies (24.6%) Management and Commerce (24%) Information Technology (17%)

Table 10 also illustrates that Indian male migrants with post graduate and undergraduate qualifications were employed in occupations that required specialised skillsets although there has been some deterioration between 2006 and 2011, for example for Indian born males with post graduate qualifications as shown by a notable proportion (5.4 per cent) of Indian postgraduates working as numerical clerks. There is also a higher incidence of trade and semi-skilled occupations for Indians with diploma qualifications however this pattern is not dissimilar from that of the other male cohorts in the estimation sample[1].

Tables A1 and A2 reported in the appendix of this paper report the top three occupations by field of study, again apart from a few idiosyncratic results (17.4 per cent of males with Architecture and Building qualifications working as road and raid drivers in 2006) the skillsets of Indian males are well matched with occupations in the Australian labour market. However, there is some evidence of deteriorating employment opportunities in terms of correctly matched occupations for Indian born males in 2011 for certain fields of studies such as education and society and culture.

---

[1] The cross tabulations and summary extracts for the other male cohorts are not reported in this paper for the sake of brevity but exhibit similar patterns to Indian born males. These extracts are available from the author upon request

Table 10 - Indian Born Males, Top 5 Occupations by Level of Study

	2006	2011
PG	ICT Professionals (15.3%) Business, HR and Marketing Professionals (14%) Specialist Managers (12.1%) Design, Engineering, Science and Transport Professionals (11.8%) Health Professionals (5.9%)	ICT Professionals (20.5%) Business, HR and Marketing Professionals (12.9%) Specialist Managers (10.8%) Design, Engineering, Science and Transport Professionals (8.9%) Numerical Clerks (5.4%)
UG	ICT Professionals (16.2%) Business, HR and Marketing Professionals (12.1%) Specialist Managers (9.1%) Design, Engineering, Science and Transport Professionals (6.9%) Health Professionals (6.9%)	ICT Professionals (15.9%) Business, HR and Marketing Professionals (10%) Specialist Managers (8.5%) Design, Engineering, Science and Transport Professionals (7.0%) Health Professionals (6.5%)
DIP	Hospitality Retail and Services Managers (9.4%) Automotive and Engineering Trade Workers (9.4%) ICT Professionals (7.2%) Specialist Managers (6.7%) Business, HR and Marketing Professionals (6.1%)	Road and Rail Drivers (13.6%) Food Trade Workers (12.9%) Hospitality Retail and Services Managers (5.7%) Machine and Stationary Plant Operators (5.4%) Automotive and Engineering Trade Workers (5.1%)
CER	Automotive and Engineering Trade Workers (22.4%) Machine and Stationary Plant Operators (10%) Factory Process Workers (7.6%) Electro Technology and Telecomm Trade Workers nfd (6.8%) Food Trade Workers (6%)	Automotive and Engineering Trade Workers (17.7%) Food Trade Workers (9.3%) Road and Rail Drivers (8.1%) Machine and Stationary Plant Operators (7.7%) Electro Technology and Telecomm Trade Workers nfd (6.7%)

As shown in table A2, in 2011, 7.4 per cent of Indian males with qualifications in natural and physical sciences were working in hospitality and retail services. A large proportion of Indian males with qualifications in education, society and culture (17.5 and 11.1 per cent respectively) were working as road and rail drivers, suggesting that by 2011 employment opportunities for some Indian males in their nominated field of training were shrinking. Overall, Indian male migrants in the sample do not display any strong evidence of occupational and skills misclassification in term of employment patterns when cross tabulated against their level and field of study.

However, as established in Rafi and Lewis (2014) Indian born male migrants were the least successful of all the male cohorts in terms of leveraging their tertiary qualifications to increase earnings, especially at the undergraduate and post graduate level. Taken together the findings of this paper and Rafi and Lewis (2014) imply that while Indian born males do not face difficulty in finding suitable employment, they are not as successful at generating higher returns to tertiary education. There could be a number of reasons for this, firstly, language and cultural barriers may be preventing

Indian born males from climbing organisational hierarchies, they may be correctly matched with occupations but may be unable to secure promotions or senior positions due to language or cultural difficulties as they are crowded out by more naturalised employees. Secondly, the lower returns to earnings could be a result of the relatively poor quality of qualifications held by Indian born males. A limitation of the census data utilised in this research is that it does not identify whether qualifications were obtained in Australia or overseas, nor is it possible to identify the institution attended by an individual. These issues remain important and warrant further attention and are potential areas for future research.

5. Conclusion

This paper utilised unit record data from the 2006 and 2011 Census of Housing and Population to analyse the employment and occupational outcomes of Indian born males relative to Australian and other foreign born male migrants in the Australian labour market. The findings from this paper indicate that Indian born males are not dramatically dissimilar to Australian males and foreign born males from both English speaking and non-English speaking backgrounds in terms of their ability to secure employment. Furthermore, the results indicate that tertiary qualifications only make a very modest contribution to increasing the likelihood of an individual being employed. However, in terms of labour market engagement, as measured by hours worked per week, Indian born male migrants do have a lower engagement with the labour force. The empirical results of this paper and the summary extracts from the sample cross tabulations highlight that despite lower labour market engagement there is no strong evidence of a mismatch of skills and occupations for Indian born male migrants. Cross tabulations from the sample data illustrate that the Indian born male migrants are largely engaged in occupations that complement their formal training and level of study. This makes the lower earnings for Indian male migrants that were discussed in Rafi and Lewis (2014) perplexing, it is hypothesised that cultural and language barriers and the lower quality of their tertiary qualifications may be holding Indian male migrants back in terms of earnings.

Appendix

Tables A1 and A2 provide summary information from cross tabulation of the sample data. The occupation of each observation was cross tabulated against their field of study to determine whether there was any mis-match between formal training and occupations. The patterns displayed by Indian born males are largely consistent with those of other male cohorts in the estimation sample. Summary information from the cross tabulations for the other male cohorts are not reported in this paper for the sake of brevity but is available from the author on request.

Table A1 - Indian Born Males, Top 3 Occupations by Field of Study

	2006
Natural and Physical Sciences	Design, Engineering, Science and Transport Professionals (16.7%) Specialist Managers (11.1%) ICT Professionals (11.1%)
Information Technology	ICT Professionals (37.5%) Engineering, ICT and Services Technicians (7.4%) Specialist Managers (6.5%)
Engineering and Related Technologies	Design, Engineering, Science and Transport Professionals (15.8%) Automotive and Engineering Trade Workers (15.8%) ICT Professionals (10.4%)
Architecture and Building	Design, Engineering, Science and Transport Professionals (39.1%) Road and Rail Drivers (17.4%) Specialist Managers (13.04)
Health	Health Professionals (87%) Design, Engineering, Science and Transport Professionals (4%) Managers nfd (1%)
Education	Education Professionals (46.1%) Specialist Managers (11.5%) Other Clerical and Admin (7.7%)
Management and Commerce	Business, HR and Marketing Professionals (31.3%) Specialist Managers (14.7%) Numerical Clerks (6.9%)
Society and Culture	Legal, Social and Welfare Professionals (9%) Protective Services Workers (7.9%) Business, HR and Marketing Professionals (6.4%)
Creative Arts	Design, Engineering, Science and Transport Professionals (14.29%) Inquiry Clerks and Receptionists (14.29%) Arts and Media Professionals (7.14%)
Food, Hospitality and Personal Services	Food Trade Workers (57.9%) Hospitality Retail and Services Managers (10.5%) Specialist Managers (5.2%)

Table A2 - Indian Born Males, Top 3 Occupations by Field of Study

	2006
Natural and Physical Sciences	Design, Engineering, Science and Transport Professionals (15.6%) Engineering, ICT and Services Technicians (8.2%) Hospitality Retail and Services Managers (7.4%)
Information Technology	ICT Professionals (44%) Specialist Managers (7.6%) Engineering, ICT and Services Technicians (6.8%)
Engineering and Related Technologies	Design, Engineering, Science and Transport Professionals (15.5%) Automotive and Engineering Trade Workers (11.4%) ICT Professionals (10.5%)
Architecture and Building	Design, Engineering, Science and Transport Professionals (28.1%) Engineering, ICT and Services Technicians (18.8%) Specialist Managers (12.5%)
Health	Health Professionals (84.2%) Carers and Aides (1.9%) Specialist Managers (1%)
Education	Education Professionals (32.5%) Road and Rail Drivers (17.5%) Specialist Managers (7.5%)
Management and Commerce	Business, HR and Marketing Professionals (22.3%) Specialist Managers (11.5%) Numerical Clerks (8.5%)
Society and Culture	Legal, Social and Welfare Professionals (11.1%) Road and Rail Drivers (11.1%) Specialist Managers (8.2%)
Creative Arts	Arts and Media Professionals (13.3%) Design, Engineering, Science and Transport Professionals (13.3%) Machine and Stationary Plant Operators (10%)
Food, Hospitality and Personal Services	Food Trade Workers (41%) Road and Rail Drivers (16.2%) Hospitality Retail and Services Managers (7.7%)

References

Antecol, H., Cobb-Clark, D.A. and Trejo, S.J. (2003), 'Immigration Policy and the Skills of Immigrants to Australia, Canada, and the United States', *Journal of Human Resources*, 38(1), 192-218.

ABS (2009), *Technical Manual. Census of Population and Housing: Census Sample File, Technical Paper*, Australian Bureau of Statistics, Commonwealth of Australia, Canberra.

ABS (2013), *Microdata: Census of Population and Housing: Census Sample File. 5 Expanded CSF Data Lis*, Australian Bureau of Statistics, Commonwealth of Australia, Canberra.

ABS (2014), *Australian Social Trends, 2014. Where do Migrants Live?*, Cat. No. 4102.0, Australian Bureau of Statistics, Commonwealth of Australia, Canberra. Retrieved June 12, 2014, from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4102.0main+features102014#WHERE>

Baas, M. (2007), 'Language of Migration: Education Industry Versus the Migration Industry', *People and Place*, 15, 49-60.

Birrell, B. and Healy, E. (2008), 'How Are Skilled Migrants Doing?', *People and Place*, 16(8).

Birrell, B. and Healy, E. (2010), 'The February 2010 Reforms and the International Student Industry', *People and Place*, 18, 65-80.

Bradford, A. (2013), 'Sharing the Risks and Rewards of Economic Migration', *University of Chicago Law Review*, 80(1), 29-57.

Cellini, R. (2007), 'Migration and Welfare: A Very Simple Model', *Journal of International Development*, 19(7), 885-894.

Chiswick, B.R. and Miller, P.W. (2008), 'Occupational Attainment and Immigrant Economic Progress in Australia', *Economic Record*, 84, S45-S56.

Glinskaya, E. and Lokshin, M. (2007), 'Wage Differentials Between the Public and Private Sectors in India', *Journal of International Development*, 19, 333-355.

Kossoudji, S.A. (1989), 'Immigrant Worker Assimilation: Is it Labor Market Phenomenon?', *Journal of Human Resources*, 24(3), 494-527.

Kijima, Y. (2006), 'Why Did Wage Inequality Increase? Evidence From Urban India 1983-99', *Journal of Development Economics*, 81, 97-117.

Kumar, U. and Mishra, P. (2008), 'Trade Liberalization and Wage Inequality: Evidence from India', *Review of Development Economics*, 12, 291-311.

Lane, B. (2012), Indians Now Our Top Migrants. The Australian. Retrieved from <http://www.theaustralian.com.au/national-affairs/policy/indians-now-our-top-migrants/story-fn9hm1gu-1226430407750#>

Maxwell, N.L. (1988), 'Economic Returns to Migration: Marital Status and Gender Differences', *Social Science Quarterly* (University of Texas Press), 69(1), 108-121.

Miller, P. W., and Neo, L. M. (2003). Labour Market Flexibility and Immigrant Adjustment. *Economic Record*, 79(246), 336.

Majumdar, R. (2010), 'Did Liberalization Impact Productivity of the Indian Electronics Hardware Industry?', International Journal of the Economics of Business, 17(2), 253-273.

McCann, W. (2010), *Regulation of VET Services for Overseas Students in South Australia*. Report Prepared for Hon Jack Snelling MP, Minsister for Employment, Training and Further Education, South Australia.

OECD (2007), The Labour Market Integration of Immigrants in Australia. *OECD Papers*, 7(2), 1-61.

Parasnis, J., Fausten, D. and Cheo, R. (2008), 'Do Australian Qualifications Help? The Effect of Host Country Qualification on Migrant Participation and Unemployment', *Economic Record*, 84, S131-S140.

Rafi, B. and Lewis, P. (2013), 'Profiling Indian Students in Australia: Their Patterns and Motivations', *Australian Journal of Education*, 57(2), 157-171.

Rafi, B. and Lewis, P. (2014), 'Earnings of Indian Male Migrants in the Australian Labour Market', *Australian Journal of Labour Economics*, 17(3), 257-275.

Slater, M. (1979), 'Migrant Employment, Recessions, and Return Migration: Some Consequences for Migration Policy and Development', *Studies in Comparative International Development*, 14(3/4), 3.

Sidhu, H. (2010), 'Productivity Led Wage Disparity in the Indian Industry', *Indian Journal of Industrial Relations*, 45, 350-366.