

Earnings of Indian Male Migrants in the Australian Labour Market

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Abstract

The number of Indian students and migrants in Australia has increased considerably from the mid-2000s, partly as a result of changes in migration policy which made it much easier to gain a visa to work and settle in Australia. This paper examines the earnings of Indian migrants in the Australian labour market controlling for educational attainment and demographic variables for Australian born Indian born, and other foreign born migrants from English speaking and non-English speaking backgrounds. The results suggest that the returns to educational qualifications in the Australian labour market for Indian born male migrants are markedly lower as compared to Australians and other migrants in general. These findings are consistent with the major hypothesis of this paper that Indian males in the labour market are not utilising their post-secondary qualifications to their full extent either due to divergent motivations that treat the possession of a post-secondary qualification as a secondary consideration, or the quality of their qualifications may be perceived to be of poorer quality. Both explanations have serious implications for Australia's skilled migration policy and the labour market prospects of Indian migrants and workers in Australia.

Keywords: Indian migrants, Earnings, Migration, Returns to education

JEL classification: J24, J61

1. Introduction

The number of Indian migrants and students in Australia increased considerably from the mid-2000s partly as a result of changes made to Australian migration policy. These changes made it easier to gain residence to work and settle in Australia for those obtaining certain qualifications from Australian tertiary education institutions (Baas, 2007; Birrell and Healy, 2010; McCann, 2010). This paper attempts to open a dialogue on the issue of the labour market outcomes of Indian migrants and former international students. This cohort has received considerable media attention in recent years although not all of this discussion has been productive or indeed academic. A common refrain that runs through the discussion of this issue is that when it comes

to recent Indian migrants, Australia's immigration policy has done a less than perfect job at vetting these applicants, resulting in relatively poor labour market outcomes for Indian migrants in terms of earnings and employability. Australia might be expected to present greater labour market opportunities for Indians as compared to their home country. The extent to which Indians in the Australian labour market have capitalised on these opportunities, especially relative to Australian-born, remains to be tested.

This paper concentrates on one important labour market outcome, namely weekly earnings, and analyses the differences in earnings outcomes of Indian male migrants in Australia compared to Australian-born labour market participants and migrants from a non-Indian backgrounds.

This research is motivated by the relatively recent phenomenon of a rapid increase in the number of Indians coming to Australia, especially former students who chose Australia as an international study destination and subsequently as a migration destination. As Rafi and Lewis (2013) illustrate, this trend persisted until 2009 after which student numbers from India started to taper off. A combination of factors such as the global financial crisis (GFC), a strengthening Australian dollar and ethnic violence against Indians in Melbourne has been thought responsible for this decline in new student arrivals (Rafi and Lewis, 2013). Previous research by Rafi and Lewis (2013) also highlighted that the recent behaviour of Indian students in Australia, their course preferences and the mix of higher education and vocational education have been governed by recent changes in immigration policies.

Theory suggests that the desire of Indians to secure quality qualifications and access market opportunities in Australia is driven by an expected increase in lifetime income (Maxwell, 1988; Bradford, 2013). The Indian economy is characterised by large scale informal employment, heterogeneous and stagnant wage and productivity growth between sectors, and increasing income inequality (Kijima, 2006; Glinskaya and Lokshin, 2007; Kumar and Mishra, 2008; Majumdar, 2010; Sidhu, 2010). Furthermore, supply constraints in the Indian tertiary sector, in terms of lack of suitable staff and unavailability of vacancies at premier tertiary institutions as outlined by Jain *et al.* (2006) and Aggarwal (2008), mean that Indians are increasingly looking beyond their borders for educational and employment opportunities. Thus, Australia can be seen as one of the possible destinations that Indians consider to pursue higher education and by extension better economic opportunities in the labour market. The attraction of Australia as a migration destination is also amplified due to Australia's skilled migration program awarding extra points for applicants that possess Australian qualifications.

This paper begins with a brief overview of recent movements of Indian students to Australia, followed by a summary of the theoretical framework and research methodology, followed by the presentation and discussion of empirical results, and concluding by suggestions for the direction for future research.

2. Indian Students in Australia

The number of Indian students in Australia grew significantly during the 2000s. The number of students in higher education rose steadily (more than doubling) up to 2009, with most of these students choosing to pursue postgraduate courses in information technology (IT) and commerce (Rafi and Lewis, 2013). Post 2006 the popularity of vocational courses such as hairdressing and cookery spiked dramatically with

Indian students enrolling in vocational (VET) courses rather than university degrees in commerce or IT. These VET courses became the most cost effective and assured pathway to permanent residency (McCann, 2010). This explains the surge in Indians applying for subclass 572 VET study visas. The total number of subclass 572 VET visas granted increased dramatically from 12,612 in 2007/08 to 36,774 in 2008/09 while subclass 573 higher education visas started to decline around the same time (Rafi and Lewis, 2013). However, due to quality concerns regarding the provision of VET services in Victoria, and the realisation that the VET sector was being utilised as a migration loophole, the link between vocational training and migration was promptly de-emphasised (Rafi and Lewis, 2013).

As highlighted by Rafi and Lewis (2013) Indian students have proven to be keen followers of Australian migration policies, making choices that result in the highest probability of securing permanent residence in Australia. While anecdotal, there is, however, the general perception that Indian students who chose to stay in Australia after the completion of their studies do not end up fully utilising their university and tertiary qualifications and are engaged in relatively low skilled jobs.

While Indian students who choose to study in Australia are clearly motivated by superior labour market outcomes than would be expected in India, the superior outcomes may not necessarily result from the possession of an Australian qualification. That is to say, for an Indian student, an Australian qualification may not be the primary factor that nets a higher rate of return to education; instead an Australian qualification may be the mechanism which facilitates migration which provides the superior economic outcomes relative to the Indian labour market. It may be the prospect and likelihood of Australian migration that is attractive to Indians considering studying in Australia, not the qualification itself. This hypothesis is tested in this paper by modelling the earnings of Indian males in the Australian labour market relative to Australian-born males and other male migrants.

3. Theoretical Framework

This section discusses recent literature on the labour market outcomes of migrants to Australia and the returns to their skills and qualifications.

A recent report by the OECD (2007) concluded that overall the labour market integration of skilled migrants in Australia was favourable compared to other migrant destinations. This was attributed mainly to Australia's point based selection criteria for skilled immigrants which, generally, means migrants to Australia are highly educated (OECD, 2007). Furthermore migrants originating from non-OECD countries were found to be more qualified than migrants from OECD countries. However, immigrants from non-OECD countries faced a higher initial unemployment gap relative to immigrants from OECD countries. The report stated that immigrants from non-OECD countries experienced an unemployment rate of 26 per cent in the first two years post arrival. This is compounded by higher levels of distress driven employment for non OECD immigrants, 39.1 per cent of whom were engaged in low to medium skilled jobs for which they were over qualified (OECD, 2007), the report argued that the high incidence of over qualification for non-OECD migrants results in lower returns to qualifications for these migrants.

Messinis (2008) found evidence of over qualification in the Australian labour market. The findings of Messinis (2008) suggested that ethnic background, ancestry, natural ability and parental occupation status were important determinants of over qualification.

With regards to qualifications, using data from the Household Income and Labour Dynamics Australia (HILDA) survey the OECD reported that immigrants with Australian qualifications fared better in terms of employment prospects when compared to similar migrants (in terms of age, gender, education level, experience) who did not possess Australian qualifications (OECD, 2007, p.35).

Parasnis, Fausten and Cheo (2008) further tested the labour market assimilation and outcomes for migrants, especially former international students in Australia. The authors stated that the literature on immigrant assimilation suggested that immigrants are disadvantaged in the labour market relative to Australian-born. According to Parasnis, Fausten and Cheo (2008) the policy of allocating extra points to migration applicants with Australian qualifications has been justified on the basis that possessing Australian qualifications would reduce the labour market disparity between migrants and Australian-born workers. Parasnis, Fausten and Cheo (2008) utilised a probability model to estimate the impact of Australian qualifications on the labour market outcomes of migrants. Utilising Census data from 2001 the authors estimated the labour market outcomes for migrants with Australian qualifications and migrants without Australian qualifications. Both cohorts were compared against Australian born workers. Their findings contradict those of the OECD (2007) in that possession of Australian qualifications were found to not exert a significant influence on labour force participation and employment and that other factors such as labour market experience, marital status, disability and birthplace were better determinants of labour force participation and employment.

Miller and Neo (2003) analysed the labour market adjustment of immigrants in the Australian and US labour markets by analysing expected earnings and employment outcomes. Utilising augmented Mincer wage equations and a binary logit model of employment, the findings of the authors suggested that high degrees of labour market inflexibility in Australia resulted in relatively modest and slower convergence of the labour market outcomes of immigrants in Australia as compared to the USA.

Chiswick and Miller (2008) used unit record data (one per cent sample) from the 2001 Census to estimate an augmented earnings function (which included information on occupation) for adult men from different labour market cohorts including immigrants. The results showed that limited international transferability of human capital skills was responsible for new immigrants taking up low skilled jobs when they first entered the Australian labour market (Chiswick and Miller, 2008, p.45). In the present context, it is expected that this phenomenon would be less severe, as the higher incidence of Australian qualifications possessed by recent Indian migrants would assist them in transferring their skills more readily to the Australian labour market. However, as the findings of Parasnis, Fausten and Cheo (2008) illustrate, this is not a guaranteed outcome.

The framework for this study draws on the work of Chiswick and Miller (Miller and Neo, 2003; Chiswick, Yew Liang and Miller, 2005; Chiswick, Le and Miller, 2008; Chiswick and Miller, 2008); and Parasnis, Fausten and Cheo (2008).

Using this framework, we analyse the impact of educational attainment and other demographic variables on the earnings outcomes of Indian immigrants.

4. Methodology

This study largely follows the specification of Miller and Neo (2003). Weekly gross income (WIP) for each individual i is used as a proxy for weekly earnings¹ and is related to a number of educational and demographic variables

$$WIP_i = Y12_i + CER_i + DIP_i + UG_i + PG_i + EXP_i + EXP_i^2 + SMS_i + DR5_i + u_i$$

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. It should be noted that by implication, an observation that possesses an undergraduate or postgraduate qualification also possess a $Y12$ or equivalent qualification, however, the $Y12$ dummy is only equal to 1 if that is the highest qualification possessed by an observation.

EXP denotes the years of labour market experience of each individual, 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 (de-facto or civil). To incorporate the possible effect of duration of residence on earnings a duration of residence variable, $DR5$, is also included. This dummy variable is equal to 1 if a migrant has resided in Australia for five years or longer and zero otherwise. Finally u denotes the random error term.

Migrants (excluding Indian born males) are split into two separate cohorts, foreign born English speaking background (ESB) males and foreign born non-English speaking background (NESB) males. It should be noted that Indian born observations are not included in either of the two foreign born cohorts. As such the weekly income model is estimated for Australian born, foreign born ESB and NESB and Indian born male cohorts separately.

An ordered logistic regression model, estimated through maximum likelihood is used for empirical testing of the weekly earnings specification. The estimation technique utilised for the earnings model is governed by the nature of the data. The data used for this research is from the Census five per cent sample. The information on the dependent variable WIP, weekly gross personal income is reported by the ABS as an ordered categorical variable in the confidential unit record file (CURF) that is ranked according to increasing ranges of weekly gross income (ABS, 2013).

¹ The ABS defines weekly income of person as gross income before tax, superannuation, health insurance, or other deductions are made. Gross income includes family payments, additional family payments, pensions, unemployment benefits, student allowances, maintenance (child support), superannuation, wages, salary, overtime, dividends, rents received, interest received, business or farm income (less operating expenses) and workers' compensation received. Given the age profile of the sample and their hours worked per week, this research uses weekly income of persons as a proxy for weekly earnings based on the assumption that the majority of gross weekly income is attributed to earnings from salary and wages.

The earnings sample excludes all males who do not report their weekly income or are not employed. To control for the number of hours worked the earnings model only includes males who were engaged in full time employment (working more than 34 hours a week).

In the presence of a variable that has discrete outcomes the use of OLS is inadvisable due to the fact that the predicted probabilities of the outcomes are not constrained between zero and one (Katchova, 2013). Therefore in this case the use of the ordered logit model is more appropriate. Greene (2007) and Katchova (2013) provide an overview of the ordered logit model which is summarised below.

Let Y_i^* denote a latent unobservable variable for the i th observation which can be represented in terms of a vector of independent predictors X_i and a random error term u_i so that:

$$Y_i^* = X_i' \beta + u_i$$

Where β denotes a vector of parameters.

For J possible outcomes the probability distribution can be compartmentalised into $J-1$ thresholds denoted by α :

$$Y_i = j \text{ if } \alpha_{j-1} < Y_i^* \leq \alpha_j$$

The probability of observation i choosing outcome j is given by:

$$P_{ij} = P(\alpha_{j-1} < Y_i^* \leq \alpha_j)$$

$$P_{ij} = cdf_{Y_i^*}(\alpha_j) - cdf_{Y_i^*}(\alpha_{j-1})$$

$$P_{ij} = F(\alpha_j - X_i' \beta) - F(\alpha_{j-1} - X_i' \beta)$$

Where F denotes a cumulative distribution function of the logistic distribution which can be generally represented as:

$$F(z) = \frac{e^z}{1 + e^z}$$

As such the predicted probability of an observation i selecting outcome j can be computed as the difference between the two cumulative distribution functions:

$$P_{ij} = \frac{e^{(\alpha_j - X_i' \beta)}}{1 + e^{(\alpha_j - X_i' \beta)}} - \frac{e^{(\alpha_{j-1} - X_i' \beta)}}{1 + e^{(\alpha_{j-1} - X_i' \beta)}}$$

Unlike the OLS model, where the parameter estimates given by β represent the marginal effects of the independent variables on the dependent variable, in the case of the ordered logit model the parameter estimates are not the same as the marginal effects and must be calculated separately. For an increase in a particular independent regressor X_r , the marginal effect of X_r on the probability of selecting outcome j for observation i is given by the partial derivative:

$$\frac{\partial p_{ij}}{\partial x_{ri}} = \{F'(\alpha_{j-1} - X_i' \beta) - F'(\alpha_j - X_i' \beta)\} \beta_r$$

The marginal effects are calculated at the means for each independent variable (X_j) and for J outcomes the sum of the marginal effects over all the categories of the independent variable is equal to zero. This is due to the fact that if some outcomes are more likely to occur, by implication other outcomes are less likely to occur.

5. Data Sources and Summary Statistics

This study utilises cross sectional confidential unit record data from the five per cent sample confidentialised unit record data files (CURFs) from the Census (ABS, 2009; ABS, 2013). These CURFs contain information on a wide range of demographics variables, such as age, ethnic background, employment status, weekly gross income (which in this research is used as a proxy for weekly earnings), level of post-secondary qualifications and year of arrival in Australia.

Separate sub samples for Australian born, foreign born ESB, foreign born NESB and Indian males were constructed using information contained in the Census variable 'Country of Birth of Person' (BPLP). All observations that did not report their weekly income or were not engaged in full time employment were dropped from the respective samples².

This paper only considers the earnings outcomes of full-time males. Females are excluded since their earnings are subject to issues such as gaps in their professional working careers due to issues such as maternity leave and childcare, and potential gender biases in earnings and employability for certain occupation streams such as trades related occupations. In the context of Indian migrants, especially for young, single migrants, females are also likely to be underrepresented in the Australian labour market due to cultural differences and the reluctance of Indian families to allow unmarried females to travel unattended. In the sample data for 2006 and 2011 there is an over representation of unmarried Indian born males in the 18-30 year old age cohort, as such this study concentrates on male earnings with the aim of addressing gender biases in earnings in future research. Only full-time workers (those that work more than 34 hours a week) are considered, so that the returns to education are not obscured by differences in hours worked, particularly by part-time work. Selected summary statistics from the data are reported in this section for the sake of illustration and to assist in later analysis.

Table 1 provides summary statistics on hours of work per week, as an indication of labour market engagement. As table 1 shows, 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.

² Estimation was carried out using STATA scripts uploaded to the ABS Remote Access Data Laboratory (RADL).

Table 1 - Sample distribution of the number of weekly hours worked

	<i>Australian</i>	<i>ESB</i>	<i>NESB</i>	<i>Indian</i>
<i>2006</i>				
25th Percentile	40	40	38	38
Median	42	43	40	40
75th Percentile	50	50	50	45
Mode	40	40	40	40
Work 60 hours or more	15	14	11	7.5
<i>2011</i>				
25th Percentile	40	40	38	38
Median	42	42	40	40
75th Percentile	50	50	48	42
Mode	40	40	40	40
Work 60 hours or more	15	14.00	10.30	5

Table 2 - Tertiary qualifications – percentage of sample cohort

	<i>Australian</i>	<i>ESB</i>	<i>NESB</i>	<i>Indian</i>
<i>2006</i>				
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
<i>2011</i>				
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 2 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 63 per cent of the cohort possessing a university qualification in 2006 and 2011. Generally table 2 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 - Median weekly income of sample cohorts

	<i>Australian</i>	<i>ESB</i>	<i>NESB</i>	<i>Indian</i>
<i>2006</i>				
Median Group	\$800-\$999	\$1,000-\$1,299	\$800-\$999	\$1,000-\$1,299
Estimated Median	\$926	\$1,081	\$893	\$1,028
Income relative to AUS	1	1.17	0.96	1.11
<i>2011</i>				
Median Group	\$1,000-\$1,249	\$1,250-\$1,499	\$1,000-\$1,249	\$1,000-\$1,249
Estimated Median	\$1,171	\$1,345	\$1,109	\$1,114
Income relative to AUS	1	1.15	0.95	0.95

Table 3 reports the median and relative incomes of the male cohorts from the earnings sample, in 2006 and 2011. The sample summary statistics identify foreign born ESB males as possessing the highest weekly median income followed by Indian born males. As shown by the ratio of the incomes of the foreign born (ESB and NESB) and Indian born male cohorts relative to the incomes of Australian born males, Indian born males in the earnings sample experienced a decline in their median income relative to Australian males between 2006 and 2011. This effect results from the relatively greater increase in the incomes of Australian born males relative to Indian born males over the five year period.

Table 4 reports the age distribution of the 2006 and 2011 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 cohort is markedly younger in 2011 compared to 2006, with the age difference at the median between Australian and Indian born males widening from two years in 2006 to seven 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 discussed in Rafi and Lewis (2013).

Table 4 - Age distribution of sample cohorts

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

6. Empirical Results

It is well known that in a maximum likelihood ordered logit regression, the coefficients are of little operational interest (Katchova, 2013). However, the sign on a coefficient (and its statistical significance) is instructive, as it states the likelihood of an observation falling in a higher (positive coefficient) or lower (negative coefficient) category. Given the less than straight forward interpretation of the coefficient estimates it is more intuitive to represent the coefficients in terms of proportional odds ratios which are equal to the probability of being in a higher income category relative to the probability of being in a lower income category. The interpretation of the marginal effects of the independent variables on each of the categories of the dependent variable is straightforward and can be stated as, all else being equal, a one unit increase in a continuous variable (or a discrete dummy variable being equal to 1) increases (positive coefficient) or decreases (negative coefficient) the probability of a particular outcome occurring by a given percentage amount.

Table 5 reports the log odds ratios for Australian born, other foreign and Indian born males for 2006 and 2011. In general, the possession of post-secondary qualifications makes a positive contribution (increases the likelihood) of all male cohorts of being in a higher income category. The exception here is the possession of certificate (vocational qualifications) by Indian born males, which has an odds ratio of less than one as well as being statistically non-significant. This lends some support to the tentative argument that investment in and possession of vocational qualifications by Indians in 2006 was not a significant contributor to their earnings capacity. To further pursue this argument the rapid increase in VET enrolments from India is a post 2006 phenomena so it remains to be seen whether Indian migrants have gotten any use out of their vocational qualifications.

As expected Australian born males enjoy the greatest benefits from tertiary education, although based on the evidence of the odds ratios there appear to be very little gains from pursuing a certificate or diploma qualification relative to year 12. This result is very much in line with previous research that for many the returns to a TAFE certificate are negative or zero. In particular previous research suggests that there are no significant earnings returns to Certificate I/II qualifications and there are no significant annual earnings returns to Certificate III/IV qualifications for those who have finished Year 12 (Leigh, 2008; Lewis, 2008).

Table 5 - Weekly Income: Log Odds Ratios³

<i>WIP</i>	<i>Australian</i>		<i>ESB</i>		<i>NESB</i>		<i>Indian</i>	
<i>2006</i>								
Y12	1.973	***	1.581	***	1.353	***	2.078	***
CER	1.516	***	1.308	***	1.480	***	0.980	
DIP	2.685	***	2.427	***	2.070	***	1.377	**
UG	5.524	***	5.285	***	4.440	***	2.356	***
PG	11.140	***	9.910	***	7.933	***	4.273	***
EXP	1.188	***	1.151	***	1.091	***	1.140	***
EXP2	0.997	***	0.998	***	0.999	***	0.998	***
SMS	1.635	***	1.464	***	1.298	***	1.420	***
DR5	na		0.958		1.150	***	1.522	***
	n	134376	n	19608	n	25857	n	2082
	Pseudo R ²	8.34	Pseudo R ²	6.30	Pseudo R ²	4.60	Pseudo R ²	5.30
<i>2011</i>								
Y12	1.849	***	1.506	***	1.460	***	1.671	***
CER	1.544	***	1.258	***	1.528	***	0.818	***
DIP	2.676	***	2.233	***	1.947	***	1.026	
UG	5.372	***	4.612	***	4.305	***	2.625	***
PG	10.151	***	8.866	***	6.683	***	3.685	***
EXP	1.173	***	1.156	***	1.101	***	1.154	***
EXP2	0.997	***	0.998	***	0.998	***	0.998	***
SMS	1.559	***	1.315	***	1.270	***	1.161	***
DR5	na		0.970		1.212	***	1.701	***
	n	141651	n	22541	n	32338	n	4425
	Pseudo R ²	7.87	Pseudo R ²	6.23	Pseudo R ²	4.76	Pseudo R ²	5.53

The dependent variable in this case is weekly income of person (WIP) which is an ordered categorical variable used as a proxy for weekly earnings. *** Significant at 1% , ** Significant at 5% , * Significant at 10%.

For Australian males the major gains to earnings accrue from the completion of an undergraduate or postgraduate qualification which increases the likelihood of being in a higher income category by 5.5 times and 11 times respectively in 2006. As illustrated in table 2, despite having the highest relative proportion of tertiary qualification of all the male cohorts, the earnings premiums associated with university qualifications for Indian born males are visibly lower compared to both Australian and other foreign born males for both undergraduate and post graduate qualifications. It is also clear from the results in table 5 that ESB male migrants fare better than NESB male migrants, suggesting that language and cultural background remain important in explaining labour market outcomes such as earnings. The low premiums to tertiary education for Indian born males are likely compounded by the over concentration of Indian graduates in a very narrow band of disciplines thus increasing the likelihood of a supply glut and raising quality concerns.

³ Table 5 through 8 present abridged results from the maximum likelihood ordered logistic regression model.

Previous research (Rafi and Lewis, 2013) determined that Indian graduates were highly concentrated in two narrow fields, the disciplines of Management and Commerce (which includes accounting courses) and Information Technology. The reason for this overconcentration is hardly surprising, given the availability of extra points towards permanent migration for graduates in accounting and IT. This overconcentration is one reason for the revamping of the skilled occupation list (SOL) as the inclusion of these fields of study was no longer warranted.

The impact of labour market experience on earnings is remarkably consistent and similar for all cohorts. One would have expected that after controlling for educational attainment Australian born workers, and workers in general, with more market experience would have an advantage in the labour market. However, this does not appear to be the case. Miller and Neo (2003) reached a similar conclusion stating that Australia's strict labour and wage laws govern earnings rather than experience as compared to other developed markets such as the US labour market.

In terms of the effect of duration of residence, the results indicate that foreign born NESB males and Indian born males enjoy modest benefits from more years of residency in Australia, with the benefits being larger for Indian born males. However, the variable is not significant for foreign born ESB male migrants suggesting that duration of residence has no impact on their earnings. The benefit granted by duration of residence increases modestly for Indian born males between 2006 and 2011, suggesting that more established and settled Indian males enjoy an advantage over recently arrived Indian males.

Finally, it is interesting to note that men in all four cohorts benefit from being married with Australian and Indian born males benefitting the most from being married. The observation that married individuals, especially married men, tend to earn more than their unmarried counterparts is well established in the literature (e.g. Antonovics and Town, 2005); Ahituv and Lerman, 2007; and Watson and McLanahan, 2011), and there are two main hypotheses put forward to explain this⁴. The first interpretation offered in the literature is that the added financial responsibility of marriage and spousal support increases the willingness of men to work harder both in terms of effort and number of hours worked, hence increasing their earnings. Furthermore marriage can also provide benefits ranging from greater emotional support, a more settled social life, and a source of supplementary income so that marriage and the need to work harder complement each other's effect. The recent work of Antonovics and Town (2005); Ahituv and Lerman (2007) and Watson and McLanahan (2011) explore these two themes. Notably Watson and McLanahan (2011) found empirical support for the first hypothesis, whereas Antonovics and Town (2005) and Ahituv and Lerman (2007) found evidence in support of the second hypothesis. In the case of Indian males it is likely that there are applicable elements of both theories.

⁴ This phenomenon could be due to the fact that men who work harder and are more productive tend to earn more and as such make for more viable and suitable candidates for marriage. This suggests an issue with endogeneity caused by inverse causality. We assume exogeneity in our model, as such the coefficient on the marriage variable needs to be treated with caution as the positive effect of marriage on earnings is likely to be overestimated due to the endogeneity problem.

The results for 2011 also illustrate that there has been a slight deterioration in the contribution of post-secondary education on earnings (especially at the post graduate level, with this being most visible for foreign born males) for all cohorts. However the pattern of the results is similar to the earlier discussion of the 2006 results. It is interesting to note that the differences observed for Indian born males compared to other foreign born males in 2006 are even more distinct in 2011. These results suggest that the possession of post-secondary vocational qualifications provides very limited gains in terms of increasing the likelihood of being in a higher income category. As depicted by the odds ratios on CER and DIP for Indian born males, on the evidence of the results, Indian born males gain very little from their vocational qualifications, lending further support to the tentative argument established by the 2006 empirical results.

Tables 6 and 7 report selected marginal effects (percentage probabilities) of the independent variables on the various outcome categories of the dependent variable (weekly income of males). The marginal effects are calculated at the means for each explanatory variable (X_j) and for J outcomes the sum of the marginal effects over all the categories of the independent variable is equal to zero. This is due to the fact that if some outcomes are more likely to occur, by implication other outcomes are less likely to occur. The marginal effects suggest that the possession of post-secondary qualifications increases the probability of being in a higher income bracket for all cohorts.

Between 2006 and 2011 the contribution of higher education degrees towards higher income categories also increased. However, for Indian born males these probabilities are markedly lower as compared to Australian born and other foreign born males. In terms of the gap between Indian born males and Australian and foreign born males there is little to no improvement in this regard between 2006 and 2011.

Table 6 and 7 also reaffirm the earlier findings that possession of certification and diploma qualifications by Indians does not make a positive and sizeable contribution towards their likelihood of being in a higher weekly income category. These findings suggest one of several possible scenarios. First, Indians engaged in the Australian labour market are not putting their tertiary qualifications to optimal use. A rather more serious implication is that the qualifications possessed by Indians are of little use to the Australian labour market. This could be due to the lower quality tertiary programs taken by Indians (in India or in Australia), or their gravitation towards and concentration in a very narrow spectrum of disciplines such as IT and accounting, creating a supply glut. This second interpretation is consistent with the earlier hypothesis that Indians were motivated by the ease with which particular Australian qualification facilitated permanent migration, rather than the employment prospects and earnings potential. The availability of extra points towards immigration awarded for certain professions acted as a very strong signal to recent arrival Indian students who chose to pursue these vocations (Rafi and Lewis, 2013).

Table 6 - Weekly Income: Selected Marginal Effects (per cent) 2006

	\$1- \$149	\$150- \$249	\$250- \$399	\$600- \$799	\$1,000- \$1,299	\$1,600- \$1,999	\$2,000 or more
<i>Australian Born</i>							
Y12	-0.19	-0.55	-1.79	-6.41	4.67	3.20	3.93
CER	-0.11	-0.31	-1.03	-4.05	2.73	2.04	2.53
DIP	-0.19	-0.55	-1.83	-9.52	3.36	5.72	8.15
UG	-0.29	-0.84	-2.81	-15.16	2.11	10.14	17.04
PG	-0.27	-0.80	-2.70	-17.71	-6.48	12.61	34.28
EXP	-0.05	-0.14	-0.45	-1.66	1.23	0.81	0.97
EXP2	0.00	0.00	0.01	0.03	-0.02	-0.01	-0.02
SMS	-0.15	-0.42	-1.38	-4.56	3.65	2.20	2.64
<i>Foreign Born ESB</i>							
Y12	-0.09	-0.22	-0.72	-4.49	0.98	2.64	4.64
CER	-0.05	-0.12	-0.39	-2.60	0.37	1.59	2.88
DIP	-0.13	-0.29	-0.99	-7.66	-1.64	5.31	11.97
UG	-0.21	-0.49	-1.66	-12.92	-5.36	8.77	25.60
PG	-0.21	-0.48	-1.63	-14.16	-12.12	7.62	42.94
EXP	-0.03	-0.06	-0.22	-1.38	0.27	0.82	1.44
EXP2	0.00	0.00	0.00	0.02	0.00	-0.01	-0.02
SMS	0.0008	-0.19	-0.64	-3.78	1.06	2.16	3.68
DR5	0.01	0.02	0.07	0.42	-0.08	-0.25	-0.45
<i>Foreign Born NESB</i>							
Y12	-0.13	-0.27	-0.92	-2.40	2.05	1.40	1.89
CER	-0.14	-0.30	-1.03	-3.42	2.27	2.00	2.85
DIP	-0.23	-0.47	-1.66	-6.55	3.20	4.01	6.15
UG	-0.44	-0.92	-3.21	-12.69	4.53	8.31	14.26
PG	-0.43	-0.90	-3.19	-16.32	-1.08	11.23	27.43
EXP	-0.04	-0.07	-0.25	-0.72	0.57	0.42	0.57
EXP2	0.00	0.00	0.00	0.01	-0.01	-0.01	-0.01
SMS	-0.11	-0.23	-0.80	-2.07	1.78	1.20	1.62
DR5	-0.06	-0.12	-0.42	-1.12	0.95	0.65	0.88
<i>Indian Born</i>							
Y12	-0.29	-0.57	-1.76	-6.97	3.91	4.00	5.10
CER	0.01	0.01	0.04	0.20	-0.07	-0.13	-0.17
DIP	-0.08	-0.17	-0.53	-3.14	0.63	2.08	3.05
UG	-0.22	-0.45	-1.41	-8.20	1.36	5.54	8.46
PG	-0.35	-0.69	-2.18	-13.03	0.16	9.29	16.33
EXP	-0.04	-0.08	-0.24	-1.31	0.43	0.81	1.12
EXP2	0.00	0.00	0.00	0.02	-0.01	-0.01	-0.02
SMS	-0.11	-0.23	-0.71	-3.49	1.41	2.10	2.81
DR5	-0.13	-0.27	-0.83	-4.17	1.56	2.55	3.46

Table 7 - Weekly Income: Selected Marginal effects (per cent) 2011

	\$1- \$199	\$200- \$299	\$300- \$399	\$600- \$799	\$1,000- \$1,249	\$1,500- \$1,999	\$2,000 or more
<i>Australian Born</i>							
Y12	-0.18	-0.40	-0.82	-5.53	-0.84	5.85	6.76
CER	-0.11	-0.26	-0.53	-3.78	-0.95	4.16	5.09
DIP	-0.19	-0.44	-0.91	-7.16	-4.56	8.34	14.59
UG	-0.30	-0.67	-1.39	-11.04	-8.47	11.39	27.64
PG	-0.28	-0.64	-1.32	-11.40	-13.58	6.03	45.81
EXP	-0.04	-0.10	-0.21	-1.44	-0.25	1.54	1.77
EXP2	0.00	0.00	0.00	0.02	0.00	-0.03	-0.03
SMS	-0.13	-0.30	-0.62	-4.07	-0.44	4.24	4.72
<i>Foreign Born ESB</i>							
Y12	-0.11	-0.15	-0.26	-2.99	-2.04	3.22	6.57
CER	-0.05	-0.07	-0.13	-1.57	-1.28	1.70	3.88
DIP	-0.15	-0.20	-0.37	-4.59	-5.26	4.19	15.61
UG	-0.26	-0.35	-0.64	-7.91	-9.78	5.05	31.29
PG	-0.26	-0.35	-0.64	-8.37	-13.41	-1.59	48.29
EXP	-0.04	-0.05	-0.09	-1.03	-0.78	1.12	2.40
EXP2	0.00	0.00	0.00	0.02	0.01	-0.02	-0.04
SMS	-0.07	-0.10	-0.18	-2.01	-1.35	2.18	4.36
DR5	0.01	0.01	0.02	0.22	0.17	-0.24	-0.51
<i>Foreign Born NESB</i>							
Y12	-0.16	-0.25	-0.51	-3.89	0.31	3.18	4.12
CER	-0.14	-0.22	-0.47	-4.09	-0.46	3.57	5.42
DIP	-0.20	-0.31	-0.66	-6.07	-1.44	5.43	9.35
UG	-0.43	-0.67	-1.40	-12.53	-3.69	10.57	21.83
PG	-0.41	-0.64	-1.35	-13.55	-8.09	9.46	34.34
EXP	-0.04	-0.06	-0.12	-0.97	0.00	0.82	1.12
EXP2	0.00	0.00	0.00	0.02	0.00	-0.01	-0.02
SMS	-0.10	-0.15	-0.31	-2.44	0.12	2.02	2.66
DR5	-0.08	-0.12	-0.25	-1.97	0.11	1.63	2.13
<i>Indian Born</i>							
Y12	-0.27	-0.26	-0.65	-5.65	0.89	4.52	4.59
CER	0.09	0.09	0.23	2.16	-0.13	-1.84	-1.98
DIP	-0.01	-0.01	-0.03	-0.27	0.00	0.24	0.27
UG	-0.35	-0.34	-0.87	-9.19	-1.60	8.63	11.75
PG	-0.46	-0.44	-1.13	-11.91	-2.79	11.16	16.84
EXP	-0.06	-0.06	-0.15	-1.50	-0.01	1.33	1.50
EXP2	0.00	0.00	0.00	0.02	0.00	-0.02	-0.02
SMS	-0.07	-0.06	-0.16	-1.57	0.03	1.37	1.52
DR5	-0.23	-0.22	-0.56	-5.51	-0.02	4.86	5.56

Also, it can be argued that characteristics, such as English language skills, Australian citizenship status, differences in attitudes towards work and the presence of labour market discrimination are also important in determining labour market outcomes such as earnings. The results presented in tables 5, 6 and 7 lend support to the argument that language background plays an important role in determining earnings with foreign born ESB males enjoying a clear lead over foreign born NESB and Indian males⁵.

Table 8 - Goodness of Fit

WIP	Sample Frequency (per cent)				Means of Predicted Probabilities (per cent)			
	AUS	FB ESB	FB NESB	IND	AUS	FB ESB	FB NESB	IND
<i>2006</i>								
Negative or Nil Income	0.8	0.57	1.03	0.63	0.78	0.58	1.03	0.62
\$1-\$149	0.54	0.30	0.55	0.43	0.51	0.31	0.55	0.43
\$150-\$249	1.51	0.69	1.13	0.86	1.43	0.70	1.14	0.86
\$250-\$399	4.41	2.25	3.91	2.65	4.31	2.29	3.99	2.69
\$400-\$599	14.09	9.51	15.81	10.50	14.11	9.58	16.13	10.81
\$600-\$799	18.44	15.82	19.28	16.72	18.41	15.88	19.56	17.2
\$800-\$999	16.04	15.58	16.27	15.48	16.09	15.56	16.26	15.66
\$1,000-\$1,299	17.33	18.82	16.37	18.66	17.39	18.77	16.08	18.44
\$1,300-\$1,599	10.57	12.62	9.90	12.88	10.56	12.62	9.67	12.49
\$1,600-\$1,999	6.75	8.60	6.67	9.18	6.79	8.57	6.55	8.89
\$2,000 or more	9.51	15.24	9.08	12.00	9.61	15.15	9.04	11.91
<i>2011</i>								
Negative or Nil Income	0.84	0.64	1.14	0.79	0.82	0.64	1.14	0.79
\$1-\$199	0.52	0.37	0.53	0.62	0.50	0.38	0.53	0.63
\$200-\$299	1.15	0.50	0.81	0.60	1.10	0.51	0.82	0.61
\$300-\$399	2.21	0.90	1.69	1.51	2.15	0.91	1.71	1.54
\$400-\$599	6.41	3.80	7.05	6.23	6.44	3.83	7.16	6.44
\$600-\$799	13.31	10.14	15.69	15.58	13.39	10.17	16.04	16.16
\$800-\$999	14.56	13.01	15.55	16.34	14.54	13.07	15.8	16.56
\$1,000-\$1,249	15.97	15.46	15.57	16.00	15.97	15.49	15.56	15.86
\$1,250-\$1,499	12.09	13.14	11.54	12.34	12.15	13.07	11.31	12.07
\$1,500-\$1,999	15.68	17.72	14.23	15.17	15.70	17.62	13.87	14.71
\$2,000 or more	17.25	24.32	16.19	14.81	17.24	24.31	16.06	14.62

⁵ Regarding the issue of citizenship, auxiliary regressions estimated by the authors did not identify citizenship status as a statistically significant explanatory variable for Indian born males. However these issues and others will be revisited in future research to improve the analysis and discussion.

The reliability of the model predictions can be tested by comparing the means of the predicted probabilities against the sample frequency for each category of the dependent variable. Each observation in the sample has a predicted probability of being in each of the eleven income categories. The means of these predicted probabilities are compared to the sample frequencies in table 8. As can be seen, the model predictions are very close to the sample frequency, and on the whole the model performs well in terms of fitting the data.

6. Conclusion

This paper reported estimates of the earnings outcomes of Indian male migrants in the Australian labour market. Focusing on full time employed Indian males in the Australian economy, this paper empirically analysed the effect of educational attainment on the weekly earnings of Indian males relative to other foreign born (ESB and NESB) and Australian males. The empirical results suggest that for most levels of education, the probabilities of Indian males being in a higher income category are lower in comparison to other foreign born males and Australian born males. These findings are consistent with the hypothesis that Indian males in the labour market are not utilising their tertiary qualifications either due to divergent motivations that treat the possession of a tertiary qualification as a secondary consideration, or rather worryingly, their qualifications may be perceived as poorer quality by Australian employers.

Appendix

The ABS does not report weekly income as a continuous variable for the unit record data in the CURFs. The income categories were also revised by the ABS between the 2006 and 2011 Censuses. The income categories reported by the ABS in the CURFs and utilised for this paper are reported below.

<i>2006</i>	<i>2011</i>
<i>Negative or Nil Income</i>	<i>Negative or Nil Income</i>
\$1-\$149	\$1-\$199
\$150-\$249	\$200-\$299
\$250-\$399	\$300-\$399
\$400-\$599	\$400-\$599
\$600-\$799	\$600-\$799
\$800-\$999	\$800-\$999
\$1,000-\$1,299	\$1,000-\$1,249
\$1,300-\$1,599	\$1,250-\$1,499
\$1,600-\$1,999	\$1,500-\$1,999
\$2,000 or more	\$2,000 or more

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