

The Concentration and Effect of Training and Education on Weekly Wages and Job Satisfaction Using Florida's (2002) Occupational Classes

**Statistics Canada Socioeconomic Conference 2011
Longitudinal Survey of New Immigrants to Canada (LSIC)**

Co-Authors:

Vasiliki (Vass) Bednar, Vasiliki.Bednar@utoronto.ca

Adrienne Davidson, Adrienne.Davidson@utoronto.ca

Brittany Stief, Brittany.Stief@utoronto.ca

p.416.673.8580

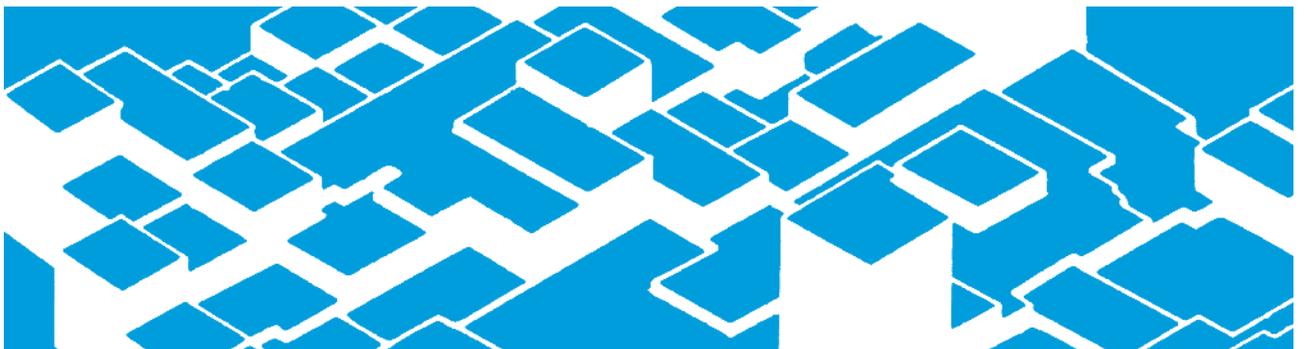
f.416.673.8599

School of Public Policy & Governance
University of Toronto
14 Queen's Park Crescent West
Toronto, ON M5S 3K9

Supervised by Prof. Oleyana Falenchuk
Ontario Institute for Studies in Education (OISE),
University of Toronto

With contributions from: Karen King (Martin Prosperity Institute), Byron Lee (University of Toronto Research Data Centre), Shabnam Mohsenzadeh (Institute for Competitiveness & Prosperity), and Jacqueline Whyte-Appleby (Martin Prosperity Institute)

April 2011



Abstract

Vasiliki (Vass) Bednar, Vasiliki.Bednar@utoronto.ca
Adrienne Davidson, Adrienne.Davidson@utoronto.ca
Brittany Stief, Brittany.Stief@utoronto.ca

p.416.673.8580
f.416.673.8599

School of Public Policy & Governance
University of Toronto

The concentration of training and education on weekly wages and job satisfaction using Florida's (2002) occupational classes

There is a recent and growing literature in labour economics that discusses trends in the labour force in terms of three major occupational groupings: the Creative Class, Service Class, and Working Class. To date, this body of literature has largely ignored the implications of the training and/or receipt of education for new immigrants for their labour market success and potential mobility both within and between classes. This study uses the Longitudinal Study of Immigrants to Canada (LSIC) to describe basic trends in new immigrant integration into the Canadian labour force, as segregated by these major occupational groupings. The study employs longitudinal modeling to estimate the effects of training (in the form of education, job or language training) on two metrics of job success: mean weekly wages and self-reported job satisfaction. The results indicate that the greatest returns to wages occur as a result of the uptake of education, across all classes. However, education is taken up the least out of the three forms of training. Findings also indicate that training and education have a negative impact on job satisfaction, suggesting that intra- and inter-class mobility may not be experienced to the degree desired upon receiving Canadian-based training.

L'effet de l'entraînement et de l'éducation sur la salaire hebdomadaire et la satisfaction d'œuvre reporté de soi à travers les classes travaillistes de Florida (2002)

Il y a une littérature active de l'économie travailliste adressant l'évolution de la force travailliste en traine de trois groups principale: la classe Créatif, la classe de Services et la classe Travailleur. A date, cette littérature n'a pas poursuit les implications de l'entraînement ni/ou l'éducation de l'immigrant pour le succès dans la marche libre ni pour la mobilité entre ou a travers les classes. Cette étude utilise le document classique Longitudinal Study of Immigrants to Canada (LSIC) pour décrire des tendances d'intégration de l'immigrant nouvel dans la marche d'oeuvres Canadien, a travers ces trois groups principales. On emploi la technique longitudinal pour estimer les effets de l'entraînement (éducation générale ou l'entraînement de l'oeuvre ou de langes) sur deux mesures du succès travaillante – le salaire moyenne hebdomadaire et la satisfaction d'oeuvre reporté de soi. Les résultats dénotes que les plus grande rendements du salaire deviens de l'éducation, pour tous les trois groupes. Mais, l'éducation générale est prise la moindre de ces trois options. Trouvailles indique que l'entraînement et de l'éducation ont un impacte négatif sur la satisfaction d'oeuvre, suggérant que la mobilité la satisfaction d'oeuvre entre et a travers des classes travailliste n'est pas obtenu quelque désires d'après de entrainements Canadien.

Table of Contents

Abstract	i
Contents	ii
Background	1
Research question.....	1
Major occupational groupings.....	2
Methodolgy	3
Data preparation.....	4
Measures.....	4
Analytical design.....	6
Results and Discussion	7
Descriptive statistics.....	7
Modeling Results	12
Square root of weekly wage model.....	12
Job satisfaction model.....	14
General Trends and Conclusion	16
Shortcomings and further analysis.....	16
Policy implications.....	17
Scaleability.....	18
Works Consulted	19
List of Appendices	22
Appendix A.....	22
Appendix B.....	24
Appendix C.....	26
Appendix D.....	27

Background

The Longitudinal Survey of Immigrants to Canada (LSIC) was designed to study how new immigrants adjust to living in Canada over time. The national immigration system plays a central role in meeting the nation's human resource requirements, and this survey is central to understanding barriers and enablers of immigrant success.

Canada's reliance on immigration for labour force growth has increased sharply since the 1980s, and in the coming decades it is expected to account for all of the country's net labour force growth (Gaskell 2007). Despite this, as a recent Toronto Star article (January 29, 2010) suggested, "few [immigrants] believe they can meet their career goals in Canada." The article further reported that only 30% of immigrants feel that their jobs are commensurate with their career goals in Canada, and their experience and/or education prior to immigrating. In response to this dissatisfaction, there have been many compelling proposals for the strategic reform of Canada's federal immigration system (Alboim 2009, Drummond 2009). However, appropriate reform is dependent on a deep appreciation of the composition and challenges of the labour force for new immigrants.

While it is generally understood that immigrants are not reaching their full potential in the Canadian labour market, it is often difficult to conceptualize where the gaps exist. In order to facilitate change, policy makers must ask such relevant questions as: in what labour classes are new immigrants entering the Canadian labour force? To what extent are foreign credentials being recognized? Is there a certain *type* or *class* of work that recognizes these more than others?

Recognizing that there are important long-term economic, labour market, and intergenerational equity implications associated with increasing the number of immigrants to Canada, this paper capitalizes on the popularization of the work of labour economist Richard Florida, which has dominated discourse around the knowledge economy and 'Creative Class workers' in urban regions around the world since 2002 (*The Rise of the Creative Class*, and *The Flight of the Creative Class*). The occupational groupings pioneered by Dr. Florida are a constructive mechanism with which to reframe recent immigrants and their participation in the Canadian labour force. This study reorganizes the LSIC respondents into these occupational groupings, allowing us to explore the demographic characteristics of each occupational grouping. It also reveals where training is concentrated, and enables us to measure both where and what type of training is most effective. These groupings have been widely studied in the past ten years, but never in the context of immigration.

Research question

The research undertaken in this study considers whether there is evidence

that workers within various sectors of the labour force – specifically, the three main occupational groupings established and popularized by Florida's typology (2002): the Creative Class, Service Class, and Working Class – engage in training programs within their first four years of employment in Canada. In addition to exploring which sectors tend to employ recent immigrants, the study also explores the extent to which worker training programs affect socioeconomic status over time. With these motivations in mind, this study aims to satisfy three related research questions:

1. Are training opportunities (and uptake) equally distributed across the three classes of the labour force?
2. Is there evidence that socioeconomic status – as indicated by median weekly wages and self-reported job satisfaction – improves for those who have received training? Here, we want to measure the effect of training (independent variables) on labour market success (dependent variable).
3. Where are any wage gains concentrated in terms of employment sector?

Full participation in the labour market is a central aspect of integration for new immigrants, and appropriately targeted training opportunities could help to promote fuller participation. As such, this research aims to inform policy choices that directly influence training opportunities in the workforce for new immigrants.

Major occupational groupings

The following section will further describe each of the occupational groupings into which the survey sample is categorized.¹

Creative Class

Creativity-oriented occupations are high-autonomy jobs where workers are paid to think (e.g. artists, doctors, senior managers, and architects). Persons involved in creative class work add economic value through the generation of new ideas and forms. The class is generally defined by two broad characteristics. The first is that employees have specialized competencies, and they are expected to formulate new solutions and ideas, or solve complex problems. The second is that they enjoy high levels of workplace autonomy, such that Creative Class workers have the ability to translate ideas or knowledge into actions without impediment or the supervision of others.

Service Class

The service class is comprised of routine-oriented service occupations in the service sector (e.g. food service workers, janitors, groundskeepers, secretaries, and clerks) where workers enjoy lower levels of autonomy than in the Creative Class. The services that are provided are nondurable and available for direct consumption. Service workers are also those in business services, including

¹ Note that Appendix A describes their categorization in greater detail.

accountants and cashiers. Despite the obvious range in prestige, a defining characteristic of service class work is routinization. Service class work is dominated by forms of standardization and control which prevent the expression of individual creativity.

Working Class

The working class is comprised of occupations that depend on routine-oriented physical skills and repetitive tasks (e.g. construction trades, mechanics, trade operator, and assembly line workers). Typically, members of the Working Class are wage earners who produce material commodities and who engage in physical labour. Most generally, Working Class jobs are comprised of manufacturing and physical labour occupations that require little in the way of formal education. Their importance (prominence) in the economy has been in decline recently, but these jobs are still a popular form of employment for less-educated workers.

Florida's fourth occupational class — Fishing, Farming, and Forestry — was left out of our analysis for several reasons: the sample group is significantly smaller; work is often seasonal which may skew income estimates; and work often requires a very unique skill set, so the effects of job training programs could bias the rest of our study.

Hypothesis

We anticipate that the uptake of Canadian education-related training will be concentrated in the Service and Working Classes and that this training will be positively correlated to job satisfaction and wages.

Methodology

Data

We use all three waves of data from the LSIC. Approximately 20,300 new immigrants to Canada were interviewed at three points in time: at six months (2000), 2 years (2002) and 4 years after arrival in Canada (2004). Throughout this study, we look at immigrants who report employment in at least one wave, in one of the three classes of interest. We allow for the variability in employment status, as it makes allowances for unemployment due to new educational opportunities, and job shifting. We moreover do not consider Fishing, Farming and Forestry work, due to the low proportion of immigrants employed in this occupational class (**Table 1:** 2.02%), and its seasonal nature. This class is not featured in our analysis due to low n-values that could not be disclosed, in addition to the reasons noted above.

Data preparation

In order to build a model to understand the impact of job training and education on job success, relevant survey questions were isolated, including those that focused specifically on both metrics of job success (including weekly wage, job duties, and job satisfaction) and educational attainment (measuring uptake of language training, job training, or further education since arriving in Canada). Other relevant survey data included demographic variables including age, gender, ethnicity, prior education and work experience, and language proficiency.

The most significant modification made to the existing data was with respect to the classification of occupations, occupational training, desired occupation, and jobs held before immigration. The LSIC features job categorization by both Occupational Major Groups and Occupational Unit Groups (through the Standard Occupational Classification System – SOC 1991), and by Industry Unit Groups and Industry Sectors (as set by the North American Industry Classification System – NAICS 1997). For the occupational recoding done in this study, the SOC Occupational Major Groups were chosen for the transition, as the job classifications were the most specific, and were most closely matched to the classifications delineated in *Florida's Occupational Groups*. The occupations and occupational training of all participants were recoded into a 1-3 scale according to their classification within the Creative Class (1), the Service Class (2), or the Working Class (3). **Appendix A** discloses how the Occupational Major Groupings used in the LSIC survey were translated (recoded) into each of the occupational classes.

Following the recoding of variables,² basic visualization of the data was undertaken to look for any major outliers. The only outliers that were subject to deletion were those deemed to not make sense in the context of the question. Such outliers were identified in respect of weekly wage, and hours per week of work, and were summarily removed from the data set (i.e. set to “.”). Outliers were determined by standardizing the wage variable by creating a Z score. Any individuals who reported wages that fell outside the -3/+3 Z-score range were excluded from the analysis, resulting in approximately 200 individuals being excluded from the analysis (dropping the sample size from 10,950 to 10,733). The weekly wage distribution was further normalized for analysis through a square root function.

Measures

Dependent variables

The analysis considered two metrics of labour force integration and job success: any measured deviation in weekly wage, and potential gains in job satisfaction.

² The data process included reshaping the dataset long-form format. Fishing, Farming and Forestry was removed from later analysis due to small sample size, and in some instances, the Working Class was also omitted from descriptive analysis for the same reason. Answers denoting: Not Applicable, Don't Know, Valid Skip, Refused, or Not Stated were replaced with “.” to indicate missing information.

Previous interest in the variable of “job duty change” was discounted due to low numbers reporting change, and the underlying possibility that not all change is positive (i.e. removal of duties), which would not be reflected in the data.

- i. **Weekly wage** acts as a strong metric of job success, as it may be an indication of promotion, greater job duties at work, and improved status in the workplace (including through an increase in number of hours worked per week). There are inherent problems with using weekly wage as a dependent variable, as this measurement does not follow a normal distribution, and is generally positively skewed. To normalize the weekly wage data in this dataset, the weekly wage was subjected to a square-root function.
- ii. **Job Satisfaction** is a weaker metric of success than median weekly wage, but it is useful because it speaks to perceived workplace success as experienced by the survey respondents. Originally a four-part categorical variable, this measure was recoded to be a dummy variable denoting “satisfaction” versus “dissatisfaction” with current employment.

Independent variables

- i. **Training and Education** is seen to be a potentially important factor of immigrant success in Canada, and is elucidated in the LSIC survey through inquiry into three kinds of training: language training, job training, and involvement in further educational programs in Canada. These categories were maintained in the data management. It should be noted that the *Language Training* variable combines two categories (French language training and English language training) into one coded dummy variable. The assumption herein is that immigrants are receiving training in the official language of greatest relevance to the local labour market economy.
- ii. **Prior Education** refers to the highest level of achieved education inside or outside of Canada. A multi- category variable, this confounding factor was recoded into a three-level categorical dummy variable. Immigrants who reported never completing high school, completing high school, or attending (but not completing) either university, CEGEP, college or an apprenticeship, were grouped into a reference category of “High School or Lower.” Those who reported having completed a college, university or apprenticeship program were grouped into a Postsecondary category, while those who had completed a postgraduate or professional degree were categorized in Postgraduate category. Prior education is believed to be strongly linked to job success in Canada, and speaks to levels of human capital among the immigrant population.
- iii. **Language Proficiency** reflects the ability at which a new immigrant speaks one of the official languages. It is important to note that this variable is only considered for immigrants for whom English/French

is not their mother tongue, and for whom English/French is not the primary language spoken in the home. Thus, only those immigrants who report English/French as a secondary language are captured in the Language Proficiency data.³

- iv. **Time** is a key variable in understanding the effects of training on job success. It is utilized in all interaction terms, to understand the effect of education/training on *rates of change*, per one year. This is an important change to note, as in the raw data, time was coded by Wave (1, 2, 3) but not by time period, and thus required modification. The time variable was modified to a variable of 0, 1.5, 3.5 to reflect the time passed during the interview processes. This time variable means that: Time 0 represents six months in Canada, Time 1.5 represents two years in Canada, and finally Time 3.5 represents four years in Canada. While it would similarly be possible to code the time to be 0.5, 2, 4, this causes some issues in estimating the intercept.

Control variables

Analyses were adjusted to consider age (in 10 year cohorts), gender, prior education level, language proficiency, and visible minority status. Further analyses considered interaction terms with gender over time and with training, however most results were insignificant and they generally were either very small effects and not directly related to the research question. After exploring these more detailed models, we decided to remove the gender interaction terms in favor of a simpler model that is more representative of what we are interested in looking at.

Analytical design

Education and training opportunities affect Creative, Service, and Working Occupational Classes with varying magnitudes. In order to determine what these effects are, the analytical stage separated each occupational group in the modeling. Prior to running the models, the data was investigated to see whether there was significant movement between each of the classes (i.e. from Service to Creative), as this might be a move enabled by training. Upon visualizing the data, it was seen that this movement between classes remains very low, with less than 5% movement into or out of any one group (*data not shown*), and thus this was not considered further. This suggests a relatively static nature of immigrant employment in Canada, but is also deserving of further research. In order to simplify the modeling of education on job success, the impact of training was only considered *within* classes.

Analyses were completed using both an *xtmixed* regression and an *xtlogit* regression, for *square-root weekly wage* and *job satisfaction* variables, respectively. The normal distribution of weekly wages (after normalization)

³ The categorical (1-5) data was re-coded into a three-categorical variable: 0 represents poor language skills (reported 1 or 5), 1 represents moderate language skills (a reported 2) and 2 represents good language skills (a reported 3 or 4).

is maintained over each of the job classes, and thus does not complicate the analysis. In isolating the effects within each job category, it is difficult to draw comparative conclusions between groups. Future study may compare such relationships.

Regression analysis was also completed for a normalized hourly wage variable however the results are not articulated within this paper. It was decided that the normalized weekly wage variable acted as a better metric of labour force integration, as it was indicative of other integration characteristics including hours worked per week.

Results and Discussion

Descriptive statistics

Composition of occupational groups

The composition of occupational groups is the natural starting point for the descriptive statistics of this study. In understanding the employment characteristics of Canada's immigrant population, it is important to know: 1) which job class immigrants were employed in prior to arriving in Canada; 2) what job class they are employed in when in Canada; and finally 3) what job class they desire to be in when in Canada. This information speaks to a number of issues regarding not only educational credential recognition, but also the recognition of prior work experience. It also allows us to consider other possible barriers to employment such as language proficiency, the role of training, and labour market access. Within the sample population, 56% of respondents were male, and 44% female. Further description of sex by job class can be seen below in **Table 1**.

TABLE 1 Sex by job classification immigrant labour force (%)

	Sex	Creative	Service	Working	Total
Immigrant Labour Force (LSIC Survey 2000–2004)	Female	40.80	52.54	29.89	44.26
	Male	59.15	47.46	70.11	55.74
Canadian Labour Force (2006 Census)	Female	48.68	62.68	14.47	47.39
	Male	51.32	35.99	85.53	52.61

As seen above, there are gender divisions between job classes. Of new immigrants to Canada employed in the Creative and Working Classes, there are a greater proportion of men (~60% and ~70% respectively). The proportion of immigrant

men and women employed in the Canadian labour force do not differ substantially from the greater Canadian population. However, there are interesting differences within occupational classes. Notably, there are a greater proportion of male immigrants employed in the Service Class, and a higher proportion of women immigrants in the Working Class.

Table 2 (below) elucidates perhaps the most interesting descriptive in this study. It compares occupational job classification in a multitude of ways, looking at: job classification for work prior to coming to Canada; the occupational class they wanted to join in Canada; and the occupational class they were employed in Canada.

TABLE 2 Job classification

%	CC	SC	WC
Prior (Job held in home country)	58.54	27.56	9.97
Wanted (Expressed desire)	66.69	26.04	7.27
Employment achieved in Canada	19.95	53.79	26.26
Desirability Disparity	- 46.74	27.75	18.99
Federal Government⁴	52.60	10.50	31.60

Creative Class work is the most desired by new immigrants (at ~67%). By comparing the “Prior” and “Wanted” rows, it can be observed that longitudinal respondents highly favour maintaining their occupational class when transitioning from their home country to the labour force in Canada. The above information also highlights the fact that only about one third of respondents previously employed in the Creative Class achieved Creative Class employment within the first four years of their arrival in Canada. This scenario is inverted for individuals in the Working Class, where, based on previous work experience, far more immigrants than anticipated obtained employment in the Working Class in Canada within their first four years in the country. The Service Class, however, sees the highest proportional intake of new immigrants, and overall it would appear that previous members of the Service Class have the **greatest success** maintaining their major occupational grouping upon immigration, while members of the Creative class have the **least success** in maintaining their occupational grouping upon arrival in Canada. It seems that these former members of the Creative Class are being redistributed not only to the Service Class, but also to the Working Class.

The final rows of **Table 2** provide the most salient information. The “Desirability Disparity,” comparing the expressed desire for work in a particular occupational

⁴ This column estimates the proportion of workers desired by the Federal Government for each occupational grouping. **Appendix B** shows how the skilled work experience classes were translated into the occupational groupings used in the study.

group against “Employment Achieved in Canada.” The results show that almost half of those employed immigrants who have been surveyed do not achieve the type of work they desire, and also that there is a surplus of service employers, where an additional 28 per cent of employed new immigrants surveyed attain employment in the service sector than expressed a preference for doing so. Finally, an additional 19 per cent of respondents become employed in the working class than their initially stated preference. Finally, the “Federal Government” row shows the distribution of occupational categories that immigrants to Canada are selected for under the Canada Skilled Worker category. While this study does not consider only those immigrants who arrive in Canada under the Skilled Worker Category, it nonetheless showcases an interesting trend. The occupational categories in need of skilled individuals noted by the Federal Government are the Creative Class (52.6%) and the Working Class (31.6%), however, the majority of new immigrants to Canada finding employment in the Service Class.

Table 3 shows educational background for new immigrants in each of the occupational classes. Just under 60% of Creative Class workers have University or College credentials, while about half of Service Class (51.1%) and Working Class (46.3%) workers have a University or College education. This apparent mismatch could suggest that there is over-qualification in these two classes, which could be a result of more formerly Creative Class workers assuming a Service/Working Class occupation upon arrival in Canada.

TABLE 3 Education and job experience

%	CC	SC	WC
Survey Proportion	19.95	53.79	26.20
Has post-secondary education (University/College)	58.68	51.13	46.34
Job experience accepted by employer	86.57	51.42	36.03

The decision to engage in a form of job training may be motivated by an employer not recognizing a foreign credential. The LSIC survey questioned whether job experience outside of Canada was reported as being accepted by Canadian employers. For the sake of simplicity, **Table 3** considers whether job experience was *accepted* or *not accepted*, as there were various other responses to choose from. We then organized any trends in terms of occupational class. Of those employed within the Creative Class, approximately 87% of respondents reported that their job experience was accepted. However, it is important to note that this is 86% of the ~20% of new immigrants employed in the Creative Class. Overall, acceptance of prior job experience by employers is only 54% across all employment categories.

Training

TABLE 4A Training type by occupational class

%	CC	SC	WC	Total
Received job training	5.97	29.22	16.21	51.40
Received education	4.09	7.41	2.84	14.35
Received language training	7.08	22.59	4.57	24.25

When immigrants are employed in Canada, they often capitalize on job training opportunities for career advancement and to gain Canadian credentialing. **Table 4A** shows three different forms of training: job training, education training, and language training (either French or English). We find that Service Class workers employed in Canada access the highest proportion of training opportunities, and that the second-highest concentration of training appears to be in the Working Class. The Creative Class has the lowest proportional uptake of training, which is not surprising given the proportion of respondents who noted that previous work experience (and likely at least some of their educational attainment) was accepted within the Canadian labour force. Job training was the most popular form of training, with just over half of all workers across the occupational groupings accessing it. Language training was utilized by 24.25% of respondents, while 14.35% of respondents received education training.

TABLE 4B Training by occupational class and wave

Training Type		CC	SC	WC	Total
Job training	Wave 1	17.57	51.81	27.06	96.44%
	Wave 2	0.61	0.88	0.50	1.99%
	Wave 3	0.62	0.64	0.31	1.57%
Education	Wave 1	16.44	45.42	26.41	88.27%
	Wave 2	1.25	4.17	0.82	6.24%
	Wave 3	1.12	3.73	0.63	5.48%
Language training	Wave 1	18.13	44.39	21.93	84.45%
	Wave 2	1.47	7.57	3.78	12.82%
	Wave 3	0.34	1.84	0.54	2.72%

The biggest insight from the above table is that the majority of training (on behalf of all occupational classes) is taken up in Wave 1. This finding is important – not only for the purposes of the study but also as a “take away.” Because most education/training occurs early on, it also allows us to reliably use our model to look at the effect of training on wages and job satisfaction over time. Furthermore, it suggests that training is available and accessible fairly quickly. Our descriptives show that Service Class workers utilize the majority of training, and we hypothesize that this could be motivated by the potential to transition (back) to the Creative Class.

Wages

Our sample was limited from the original survey to ~10,000 employed respondents, and that sub-set is the working sample for wage information. When we examined weekly wage, there were ~200 cases of extreme outliers. That number is plausible, and they were removed from the wage variable dataset and excluded from income analysis. Once normalized, the highest weekly wage we are capturing is around \$1,500/week. The remaining cases positively skew our sample, which is not appropriate for the purpose of our analysis. Further, logically, we are not interested in the effects of training on wages for individuals who report wages significantly higher than the Canadian national average. Weekly wage also becomes problematic in considering inflationary pressures on wages over time, thus, in order to mitigate these effects, time is included in all interaction terms during the modeling stage.⁵

Below, **Table 5** shows the mean weekly wages and hourly wages by occupational grouping. It can be observed that Creative Class workers average the highest wages, while Service Class employees sit at the low end of the wage scale.

TABLE 5 Mean weekly and hourly wages by occupational class

	CC	SC	WC
Mean weekly wage (\$)	638.31	289.75	398.43
Mean hourly wage (\$)	17.61	9.53	10.04

Job Satisfaction

TABLE 6 Reported job satisfaction (proportion) by occupational class

Job Satisfaction	CC	SC	WC	Total
Yes	89.78	81.86	75.33	81.89
No	10.25	18.13	24.66	18.11

⁵ Wages were not chained to inflation in the regression analysis.

Both the Creative and Service classes report high levels of job satisfaction. We will comment further on these results pending the analysis of the modeling.

Modeling Results

Square root of weekly wage model

As described in the methodology section, the first model we created explored the effects of various independent variables such as gender, minority status, education, training and language proficiency on wages, across occupational groupings. The results are shown in **Table 7**, and support much of what was found in our data exploration stage.⁶

It is clear that the **starting wages** for males are consistently higher than the starting wages for females (with a difference of approximately \$177 per week higher in the Creative Class, \$84 higher in the Working Class, and \$56 more in the Service Class), and that a higher level of achieved education will consistently result in a higher starting wage. Being a member of a visible minority has a negative impact on starting wages, most significantly in the Creative and Working classes. In the Creative Class, being a minority decreases starting income on average by \$68 per week, and the Working Class sees it drop approximately by \$55. In the Service Class, incomes drop by about \$27 per week for visible minorities.

The most substantial impact of prior education can be found for those working in the Creative Class. As the number of degrees achieved (as a metric of education *outside* of Canada) increases, an individual's starting wages by a factor of (on average) \$75 per week in increased income, yet the completion of professional credentials is not statistically significant. For the Working Class, the impact of professional credentials was again insignificant, but the achievement of degrees did impact starting wages, by an increase of approximately \$15 per degree. Only in the Service Class were both degree count and professional credit count significant, increasing starting wages by \$24 and \$20 per week, respectively. While the lack of impact of professional degrees on wages in the Creative Class is surprising, it potentially points to a disconnect in the recognition of foreign-trained professionals by the Canadian labour market. It is apparent that the emphasis on various forms of education differs depending on the type of work being performed, but that regardless of the interesting result for professional credits, it appears that education is most highly valued in Creative Class work in terms of producing labour market returns.

⁶ Note that the coefficients cannot be interpreted directly as they have been transformed by a square-root function — the analysis will include absolute values calculated from the coefficients noted in Table 8.

There are also some interesting trends with respect to those individuals who are deciding to take up training (either in the form of education, job training, or language training). Not unsurprisingly, immigrants who seek and take up a form of training have lower starting wages than those who do not seek training. For language training, the negative effect on starting wages can be observed throughout all three classes: on average \$84 lower weekly wage in the Creative Class, \$62 lower in the Service Class and \$20 lower in the Working Class. For those who decide to take up education within Canada, there are again significant impacts across all three classes: on average \$169, \$87 and \$92 lower for Creative Class, Service Class and Working Class, respectively. Interestingly, the impact of job training is only observed within the Service Class, where starting weekly wages are ~\$27 lower per week for those who attend this form of training. This may be due to the nature of Service work in comparison to Creative and Working class employment, but given the heterogeneity of labour within each class, it would be difficult to specify the cause.

In general, uptake of education in Canada has the greatest impact on **wages over time**, across all three classes. It significantly impacts the rate of change of income (seen below). As most of this education is taken up within the first wave of the study, the impact on income is indicative of the positive returns to Canadian education within the Canadian labour market. It is interesting to note that job training has no significant impact on the rate of change of income, and that language training only significantly impacts the incomes of immigrants employed in the Service Class. This may not be surprising, however, given the need for communication that is often associated with Service Class work. Language training (and subsequently proficiency) would impact job effectiveness and likelihood of job acceleration.

TABLE 7 Estimated effects of various forms of training on the *Square Root of Weekly Wage* over time and across job class (XT Mixed)⁷

SQRT Wage	Creative Class		Service Class		Working Class	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
INTERCEPTED EFFECTS						
Male	3.599***	0.406	1.696***	0.182	2.157***	0.213
Minority	-1.542***	0.418	-0.897***	0.214	-1.544***	0.261
Age	0.020	0.221	0.145	0.090	0.055	0.090
Professional Credentials Count	-0.313	0.399	0.649***	0.174	0.045	0.192
Degree Count	1.590***	0.460	0.750***	0.198	0.412*	0.227

⁷ For visualization of this data, see **Appendix C**.

SQRT Wage	Creative Class		Service Class		Working Class	
Language Training	-1.934***	0.428	-2.092***	0.237	-0.529**	0.229
Job Training	-0.352	0.619	-0.874**	0.438	0.177	0.510
Education as Training	-4.081***	0.616	-3.073***	0.317	-2.668***	0.474
Language Proficiency	-0.582**	0.245	-0.436***	0.125	-0.129	0.114
Time (Wave)	0.500***	0.161	0.153*	0.091	0.392***	0.076
_cons	22.782	1.165	15.761	0.502	18.618	0.548
SLOPE EFFECTS						
Language Training · Time	0.237	0.205	0.289**	0.116	0.072	0.116
Job Training · Time	-0.184	0.190	0.240	0.170	0.251	0.181
Education as Training · Time	0.308*	0.178	0.282**	0.110	0.465***	0.179
Language Proficiency · Time	0.141	0.090	0.109**	0.053	0.088*	0.050

Age = 10 year groupings

* Significant at the 90% level

** Significant at the 95% level

*** Significant at the 99% level

Job satisfaction model

The second model focused on the self-reported job satisfaction of longitudinal respondents based on many of the same independent variables as in the previous model, with the addition of square root of weekly wage. The results are shown in **Table 8**, and provide an interesting look at the experience of new immigrants to Canada and the factors that affect this subjective — but important — measure of job success.

Workers in all three occupational groups appear to report greater job satisfaction as their wages increase – for a one-unit increase in the square root of weekly wage, the probability of reporting “satisfied” or “very satisfied” increases by 12.6% in the Creative Class, 8% in the Working Class, and 12.8% in the Service Class. The positive effect of wages, however, is not maintained over time, as a decreasing correlation is noted for both the Working and the Creative Classes (it is not significant in the Service Class).

Unsurprisingly, the results also show that for immigrants with higher education attainment — noted by number of degrees attained — there is a significantly decreased probability of reporting job satisfaction if their work is in the service class or the working class. With an increase of one in the number of degrees attained, the probability of reporting job satisfaction decreases by ~47% and by ~36% in the Service Class and the Working Class, respectively. It would appear that high levels of educational attainment are traditionally most valued in Creative Class work, as noted by high levels of job satisfaction reported in this group.

The effects of training over time have the most interesting interaction with job satisfaction levels. With the exception of one language training interaction, the effect of training uptake is negative on job satisfaction (*see below*). This is an interesting result, as it may suggest that while training (education/language/job) does not result in the kind of job acceleration or labour force mobility that results in higher levels of job satisfaction.

TABLE 8 Estimated effects of various forms of training on job satisfaction over time and across job class (XT Logit)⁸

Effects	Creative Class		Service Class		Working Class	
	B	SE	B	SE	B	SE
INTERCEPTED EFFECTS						
Sqrt Wage	0.126***	0.025	0.080***	0.017	0.128***	0.025
Male	0.130	0.232	-0.532***	0.130	0.037	0.147
Minority	-0.453*	0.250	-0.373**	0.156	-0.187	0.178
Age	0.076	0.154	-0.173***	0.065	-0.101	0.064
Professional Credentials Count	-0.227	0.216	-0.150	0.119	-0.280**	0.128
Degree Count	-0.098	0.247	-0.470***	0.136	-0.359**	0.151
Language Training	0.605	0.410	-0.139	0.194	-0.564***	0.193
Job Training	-0.970**	0.464	0.145	0.338	-0.372	0.387
Education as Training	0.899*	0.528	0.516*	0.286	-0.379	0.430
Time (Wave)	1.019***	0.329	0.543***	0.166	0.791***	0.247
SLOPE EFFECTS						
Language Training · Time	-0.505*	0.238	0.001	0.123	0.340**	0.141
Job Training · Time	0.282	0.239	-0.380**	0.168	0.259	0.224
Education as Training · Time	-0.385**	0.219	-0.338***	0.126	0.118	0.206
Sqrt Wage · Time	-0.035***	0.012	-0.008	0.009	-0.029**	0.012

* Significant at the 90% level
 ** Significant at the 95% level
 *** Significant at the 99% level

⁸ For visualization of this data, see **Appendix D**.

General Trends and Conclusion

This study initially concludes that training opportunities are not equally distributed across the three occupational classes of the labour force. As described in **Table 5A**, the Service Class accesses the highest proportion of training opportunities, the Working Class has the second-highest concentration of training, while the Creative Class is third. In addition to these trends, our analysis finds that job training is the most utilized form of training, while language training is moderately accessed and education training is the least common form of training.

Across all labour classes, employed immigrants who seek out any one of the forms of training have lower starting wages than those who do not. The impact of training over time varies between training type and occupational class. The impact of language training over time is only significant in the Service Class. Job training, which has the greatest uptake at over 50%, has no appreciable effects on wages, while Education (returning to college, apprenticeship or university programs) sees the greatest returns and significant rates of change for wages in all classes. However, only 14% of employed immigrants reported receiving educational training during the survey period. Given the low percentage uptake of education, but its significant returns to wage growth, it can be inferred that the accessibility and quality of these education-related training opportunities to new immigrants is a vital policy concern in the maintenance of a vibrant, multi-cultural, and productive Canadian labour market.

While engagement with training appears to decrease job satisfaction, this may be due to a number of factors such as dissatisfaction with the results of receiving training. Immigrants who receive training in hope of greater labour market achievements may be dissatisfied if/when labour market mobility or job acceleration is not realized even after the attainment of Canadian education. Moreover, reported levels of job satisfaction begin at a high level (75–90% reported satisfaction by occupational class) and there is minimal opportunity to improve on this. Other factors may impact this interaction. Said training could be mandatory in nature, and workers may be resentful or neutral towards such training. In addition, minority status and language proficiency may continue to disadvantage new immigrants to Canada in the labour force despite educational or training achievements, impacting job satisfaction and labour mobility.

Shortcomings and further analysis

One shortcoming of this study is that we chose not to delve into inter-occupational class mobility. For instance, we do not analyze the proportion of workers previously employed in the Creative Class in their home country who assume employment in either the Service or Working Classes upon arrival (though we do highlight a

discrepancy between prior job class and job class in Canada in **Table 2**). Capturing inter-class mobility would allow us to comment on where Creative Class workers are misallocated in the labour force upon immigration.

A second limitation is that only those who were employed in at least one of the three Waves were considered. This excludes longitudinal respondents who were unemployed across all three waves, regardless of whether they access training. For this reason, we cannot account for the impact of training on those individuals, despite the possibility that they face some of the greatest barriers to employment and may actively seek out training and/or education to leverage their skills within the Canadian job market.

Thirdly, training is loosely defined within the LSIC. This prevents us from properly understanding the form, quality and duration of training opportunities; for instance, whether job training is employer-mandated and thus represents a baseline requirement of employment rather than the development of a specific skill that could increase job function and employee status within a firm.

Policy implications

This study addresses economic integration and wellbeing of new immigrants to Canada across unique occupational groupings. Though not directly related to the initial research questions, our results show that a considerable wage differential exists between male and female workers across all occupational groupings and that members of a visible minority group consistently have lower wages and reported job satisfaction than their non-minority peers. While our analysis is unable to offer reasons why this differential exists, the substantive nature of this differential warrants further research and deserves the attention of policy makers.

In order to remain economically competitive within an efficient labour market, Canadian policy makers should also be looking more to the effects of training on the socioeconomic status and job satisfaction of new immigrants. Our analysis has already emphasized that the skilled worker targets set by the Federal Government (**Appendix B**) are not being well satisfied by newcomers to the labour force (**Table 2**). This is problematic in and of itself for the nation's long-term competitiveness. This mismatch is likely to be exacerbated in the absence of the LSIC in the future (as the Federal government has discontinued the survey).

Training opportunities are critical in addressing any disparities in skills so as to integrate the human capital of new immigrants into the economy. As such, it is imperative to appreciate what forms of training are the most effective for different occupational groupings in order to target and implement effective training strategies. For example, while Job Training is the most accessible of the three types of training, it elicits no benefits in terms of job satisfaction or wage effects. Conversely, the uptake of educational opportunities within Canada sees positive returns to income, yet this type is the least utilized. This may be due to a number

of factors including the opportunity cost to returning to school. This relationship, however, also points to a valuing of Canadian experience and education over other international experience and education despite the fact that a large proportion of these immigrants gain entrance into Canada based on these metrics. Policies to promote a more flexible and responsive labour market to these indicators should be explored.

Scaleability

The composition of employed new immigrants to Canada captured in the LSIC is comparable to the broader Canadian labour force. In the province of Ontario, the labour force (as of 2006) expressed the following distribution: Ontario (provincially) - 45.9% Service Class, 22.1% Working Class, 30.3 Creative Class, 1.7% FFF and in Canada (nationally) - 45.5% Service Class, 28.4% Creative Class, 21.6% Working Class, and 2.9% in FFF (Martin Prosperity Institute, 2010). Thus the composition of these occupational groups in Canada is representative of the Canadian labour force (not an anomaly). This fact suggests that our immigration system is “losing” human capital through these occupational mismatches and that we are compromising economic competitiveness in the process.

Works Consulted

- Abadie, Alberto, and et.al. 2001. Implementing matching estimators for average treatment effects in STATA. *The Stata Journal* 1, (1): 1-18.
- Adra, Hicham. 2009. We're working to integrate skilled immigrants. *The Ottawa Citizen* 2009.
- Alboim, Naomi. 2009. *Adjusting the balance: Fixing Canada's economic immigration policies* Toronto, Ontario: The Maytree Foundation.
- Anonymous. 2009. Labour mobility across Canada and across the Atlantic *CIC News*, April 2009, 2009.
- Ashenfelter, Orley. 1978. Estimating the effect of training programs on earnings. *The Review of Economics and Statistics* 60, (1): 47-57.
- Ashenfelter, Orley, and David Card. 1985. Using the longitudinal structure of earnings to estimate the effect of training programs. *The Review of Economics and Statistics* 67, (4): 648-60.
- Brennan, Richard. 2010. Ottawa shortchanging immigration programs: Province *The Toronto Star*, April 7, 2010, 2010.
- . 2010. Ottawa shortchanging immigration programs: Province *The Toronto Star*, April 7, 2010, 2010.
- Drummond, Don. 2010. Improving Canada's productivity.
- . 2007. An alternative policy script to boost Canadian productivity growth In *A Canadian priorities agenda: Policy choices to improve economic and social well being*. eds. Jeremy Leonard, Christopher Ragan and France St-Hilaire, 389-396. Montreal, Quebec: The Institute for Research on Public Policy.
- Florida, Richard. 2006. *The flight of the creative class*. United States of America: Basic Books.
- . 2002. *The rise of the creative class: And how it's transforming work, leisure, and everyday life*. United States of America: Basic Books.
- Gaskell, Jane. 2007. Education and human capital: Reconciling policy imperatives and policy design In *A Canadian priorities agenda: Policy choices to improve economic and social well being*. eds. Jeremy Leonard, Christopher Ragan and France St-Hilaire, 67-76. Montreal, Quebec: The Institute for Research on Public Policy.

- Gelinas, Ben. 2009. Canada benefits from foreign-trained workers *National Post*, December 7, 2009, 2009.
- Grady, Patrick. 2009. *The impact of immigration on Canada's labour market* Toronto, Ontario: The Fraser Institute.
- Hart, Michael. 2007. Canadian engagement in the global economy In *A Canadian priorities agenda: Policy choices to improve economic and social well being*. eds. Jeremy Leonard, Christopher Ragan and France St-Hilaire, 405. Montreal, Quebec: The Institute for Research on Public Policy.
- Hu, Wei-Yin. 2000. Immigrant earnings assimilation: Estimates from longitudinal data. *The American Economic Review* 90, (2): 368-72.
- Industry Canada. 2005. *Aging population and immigration in Canada; economic, labour market and regional implications*. Ottawa, ON: Government of Canada.
- Keung, Nicholas. 2010. Help immigrants update skills, province told *The Toronto Star*, March 31, 2010, 2010.
- . 2010. Job dreams dashed for skilled immigrants; study shows few believe they can meet their career goals in Canada. *The Toronto Star*, January 29, 2010, 2010.
- Klie, Shannon. 2009. Immigration system not meeting labour market needs. *Canadian Human Rights Reporter* 22, (21).
- Kukushkin, Vadim. 2009. *Immigrant-friendly communities: Making immigration work for employers and other stakeholders*. Canada: The Conference Board of Canada.
- Kunz, Jean Lock, and Stuart Sykes. 2007. *From mosaic to harmony: Multicultural Canada in the 21st century* Ottawa, Ontario: Government of Canada Policy Research Initiative.
- LaLonde, Robert. 1986. Evaluating the econometric evaluations of training programs with experimental data. *The American Economic Review* 76, (4): 604-20.
- LaLonde, Robert, and Robert Topel. 1991. Immigrants in the American labour market: Quality, assimilation, and distributional effects. *The American Economic Review*: 297-302.

Reguly, Eric. 2010. The fear and farce of climate-change science. *Globe & Mail*, Sunday, February 7, 2010, 2010.

Sharpe, Andrew. 2007. Three policies to increase productivity growth in Canada. In *A Canadian priorities agenda: Policy choices to improve economic and social well being*. eds. Jeremy Leonard, Christopher Ragan and France St-Hilaire, 353-388. Montreal, Quebec: The Institute for Research on Public Policy.

Statistics Canada. 2007. *Canadian social trends: Immigrants' perspectives on their first four years*.

———. 2003. *LSIC: A regional perspective of the labour market experiences*.

List of Appendices

APPENDIX A

Classification of Major Job Occupations

Occupational Major Group #	Classification	Occupation Major Group (OMG)
0	<i>Removed</i>	<i>Could not be coded</i>
1	CC	Senior Management Occupations
2	CC	Specialist Managers
3	SC	Managers in Retail, Trade, Food, and Accommodation Services
4	CC	Other Managers
5	CC	Professional Occupations in Business and Finance
6	CC	Finance and Insurance Administrative Occupations
7	SC	Secretaries
8	SC	Administrative and Regulatory Occupations
9	SC	Clerical Supervisors
10	SC	Clerical Occupations
11	CC	Professional Occupations in Natural and Applied Sciences
12	CC	Technical Occupations Related to Natural and Applied Sciences
13	CC	Professional Occupations in Health
14	CC	Nurse Supervisors and Registered Nurses
15	CC	Technical and Related Occupations in Health
16	SC	Assisting Occupations in Support of Health Services
17	CC	Judges, Lawyers, Psychologists, Social Workers, Ministers of Religion, and Policy and Program Workers
18	CC	Teachers and Professors
19	CC	Paralegals, Social Service Workers and Occupations in Education and Religion
20	CC	Professional Occupations in Art and Culture
21	CC	Technical Occupations in Art, Culture, Recreation, and Support
22	SC	Sales and Service Supervisors
23	SC	Wholesale, Technical, Insurance, Real Estate Sales Specialists, and Retail, Wholesale, and Grain Buyers
24	SC	Retail Salespersons and Sales Clerks
25	SC	Cashiers
26	SC	Chefs and Cooks
27	SC	Occupations in Food and Beverage Service

Occupational Major Group #	Classification	Occupation Major Group (OMG)
28	SC	Occupations in Protective Services
29	SC	Occupations in Travel and Accommodation Including Attendants in Recreation and Sport
30	SC	Childcare and Home Support Workers
31	SC	Sales and Service Occupations
32	WC	Contractors and Supervisors in Trades and Transportation
33	WC	Construction Trades
34	WC	Stationary Engineers, Power Station Operators and Electrical Trades and Telecommunications Occupations
35	WC	Machinists, Metal Forming, Shaping and Erecting Occupations
36	SC	Mechanics
37	SC	Other Trades
38	WC	Heavy Equipment and Crane Operators Including Drillers
39	WC	Transportation Equipment Operators and Related Workers, Excluding Labourers
40	WC	Trades Helpers, Construction, and Transportation Labourers and Related Occupations
41	FFF	Occupations Unique to Agriculture Excluding Labourers
42	FFF	Occupations Unique to Forestry Operations, Mining, Oil and Gas Extraction, and Fishing, Excluding Labourers
43	WC	Primary Production Labourers
44	WC	Supervisors in Manufacturing
45	WC	Machines Operators in Manufacturing
46	WC	Assemblers in Manufacturing
47	WC	Labourers in Processing, Manufacturing and Utilities
96	<i>Removed</i>	<i>Not applicable</i>
99	<i>Removed</i>	<i>Not stated</i>

Process of establishing these groupings: A reference document was obtained from the Martin Prosperity Institute. This document matched the classifications to the 2001 NOCS. We used this against the 2006 NOCS (most recent) to code for the 2006 NOCS. Finally, the 2006 NOC codings were used to assess and designated the Occupational Major Groups from the Labour Force Survey of Immigrants to Canada (as described above).

APPENDIX B **Skilled work experience categories (designated by the federal government) (*38)**

*Referenced using the previously classified NOCS coding

NOC	Category	Class classification
0111	Financial Managers	CC
0213	Computer and Information Systems Managers	CC
0311	Managers in Health Care	CC
0631	Restaurant and Food Service Managers	SC
0632	Accommodation and Service Managers	SC
0711	Construction Managers	CC
1111	Financial Auditors and Accountants	CC
2113	Geologists, Geochemists and Geophysicists	CC
2143	Mining Engineers	CC
2144	Geological Engineers	CC
2145	Petroleum Engineers	CC
3111	Specialist Physicians	CC
3112	General Practitioners and Family Physicians	CC
3141	Audiologists and Speech Language Pathologists	CC
3142	Physiotherapists	CC
3143	Occupational Therapists	CC
3151	Head Nurses and Supervisors	CC
3152	Registered Nurses	CC
3215	Medical Radiation Technologists	CC
3233	Licensed Practical Nurses	CC
4121	University Professors	CC
4131	College and Other Vocational Instructors	CC
6241	Chefs	SC
6242	Cooks	SC
7213	Contractors and Supervisors, Pipefitting Trades	WC
7215	Contractors and Supervisors, Carpentry Trades	WC
7217	Contractors and Supervisors, Heavy Construction Equipment Crews	WC
7241	Electricians (Except Industrial and Power System)	WC
7242	Industrial Electricians	WC
7251	Plumbers	WC
7252	Steamfitters, Pipefitters and Sprinkler System Installers	WC
7265	Welders and Related Machine Operators	WC

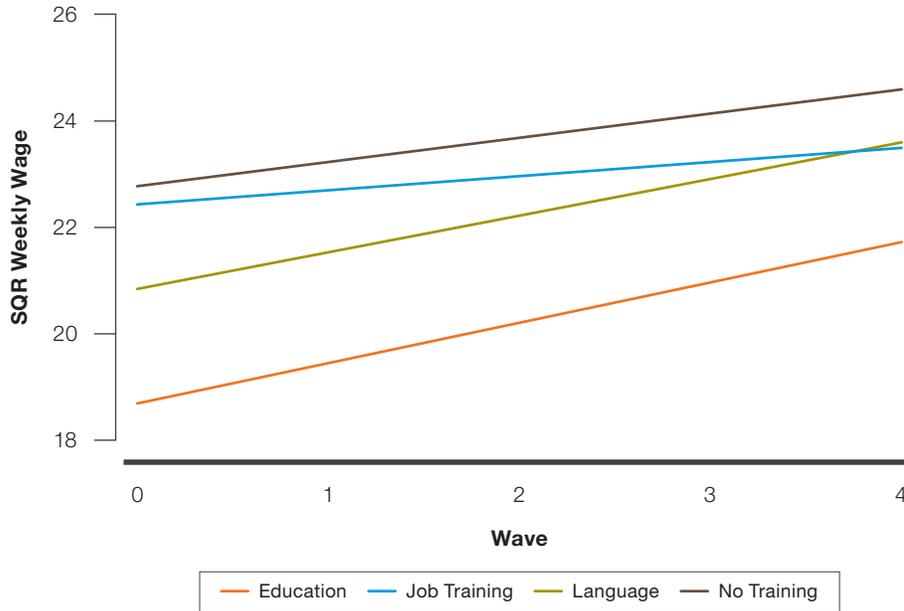
NOC	Category	Class classification
7312	Heavy-Duty Equipment Managers	WC
7371	Crane Operators	WC
7372	Drillers and Blasters – Surface Mining, Quarrying, and Construction	WC
8221	Supervisors, Mining and Quarrying	FFF
8222	Supervisors, Oil and Gas Drilling Service	FFF
9212	Supervisors, Petroleum, Gas and Chemical Processing and Utilities	WC

The Federal Government's Immigration website states that, "in order for your application to be eligible for processing, you must...be a skilled worker who has had at least one year of experience* in one or more of the following occupations within the last ten years: *Experience is defined as a continuous full-time equivalent part time paid work experience."

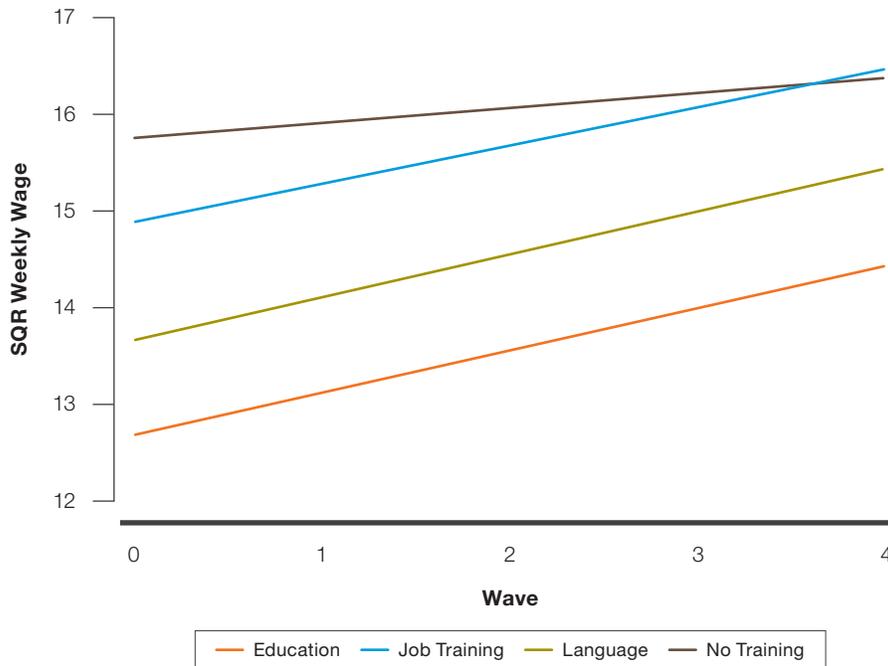
- a. Creative Class: $20/38 = 52.6\%$
- b. Service Class: $4/38 = 10.5\%$
- c. Working Class: $12/38 = 31.6\%$
- d. Fishing, Farming, and Forestry: $2/38 = 5.3\%$

APPENDIX C Model One – XT mixed square-root weekly wage results by occupational grouping

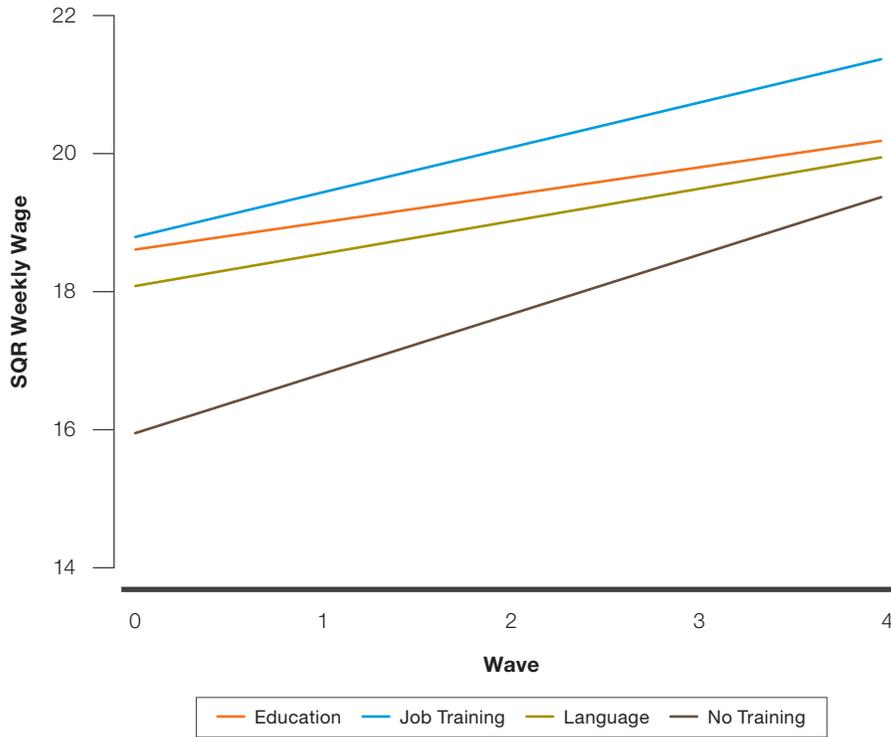
Graph One: Creative Class



Graph Two: Service Class



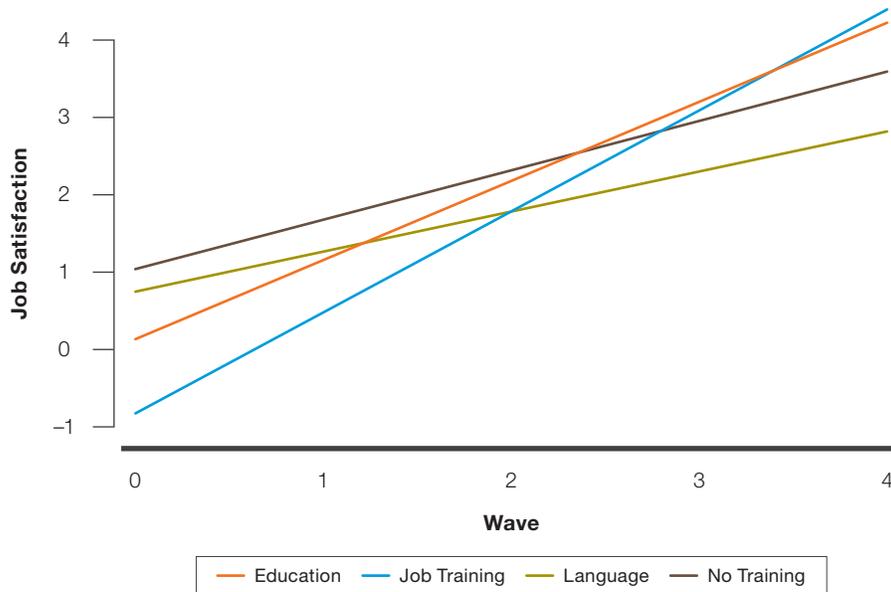
Graphic Three: Working Class



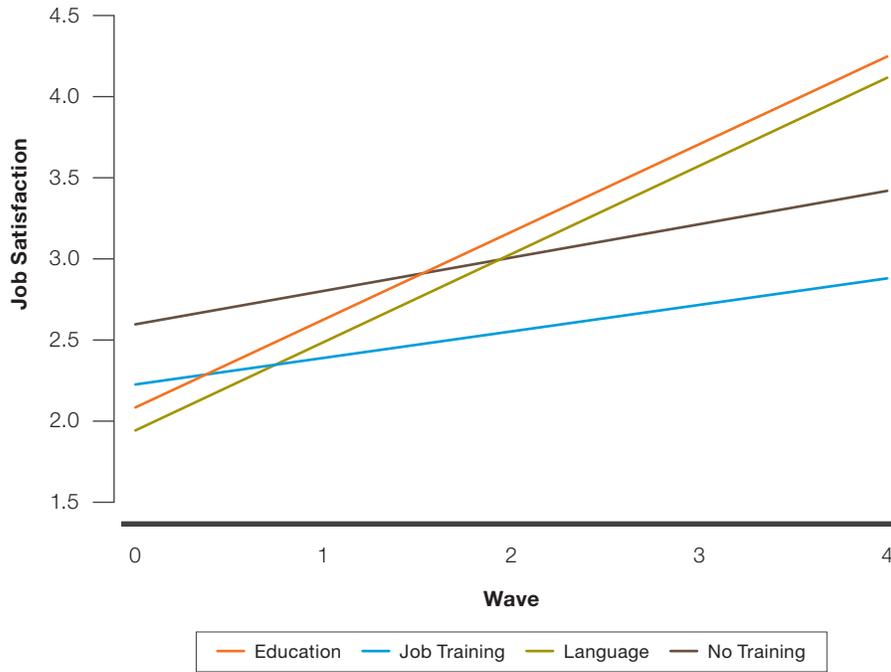
APPENDIX D

Model Two – XT logit job satisfaction results by occupational grouping

Graph One: Creative Class



Graphic Two: Service Class



Graphic Three: Working Class

