University of Victoria | Economics

Department Discussion Paper DDP2406

ISSN 1914-2838

Firm Characteristics and Immigrant Wage Outcomes in Canada

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December 19, 2024

Abstract

The earnings outcomes of recent immigrants to Canada are considerably below those of similarly skilled native-born workers and these gaps rarely fully dissipate over time. A few recent studies examine the importance of unobserved firm-level wage premiums in explaining immigrant-native wage gaps. These studies find that the sorting of immigrants into low wage establishments explains a significant portion of the initial earnings gap between immigrants and native-born workers and that movements to higher wage firms over time partially explains why immigrant wages catch up to those of the native born. Likely due to a lack of detailed information on firm attributes, very little is known about the role of observed firm-level characteristics in immigrant wage outcomes. This paper focuses on the relationship between observable establishment-level characteristics and the relative wage outcomes of immigrants using linked Canadian employee-employer data from Statistics Canada's *Workplace and Employment Survey* (WES) for 2005. We augment a human capital model with a rich set of observed establishment-level characteristics to identify the precise establishment attributes driving firm-specific wage premiums and the establishment characteristics associated with unobserved worker-firm match quality across immigrants and the native born. We find that, while several observed establishment characteristics are associated with firm pay premia, the average skill level of employees at a firm plays a particularly important role in the sorting of immigrants across establishment. Recent arrivals to Canada are sorted into establishments with lower average skill levels, which is associated with lower wages. Such sorting is concentrated among immigrants from non-traditional source countries. With time in Canada, immigrants move to establishments with higher average skill levels.

Keywords: Immigrant, wage differential, firm characteristics

JEL Classifications: J15 J31 J62

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(1) Introduction

International migrants form important segments of the workforce in many countries. In Canada, immigrant employees accounted for a record high 27% of the workforce in 2023, a proportion that is projected to continue increasing[1]. Both the popular press and academic literature have documented the struggles of immigrant employees in finding jobs that match their foreign acquired skills and credentials, as well as the earnings gaps that persist between immigrant and native-born workers. How heterogeneous firm characteristics might contribute to, or mitigate, this earnings gap is less well understood. This paper delves into the relationship between domestic firms and immigrant employees, using a unique set of matched employer-employee data to examine the relationship between observable firm-level characteristics and labour market outcomes of immigrants.

Our primary focus is on new empirical work that identifies the observed firm characteristics important in determining the wage outcomes of immigrants. Previous research has established the importance of unobserved firm-specific wage effects in explaining the relative wage outcomes of immigrants and native-born workers. We add a rich set of observed establishment-level characteristics in our empirical regression approach that allow us to shed light on the precise establishment attributes driving establishment-specific wage premiums and the establishment characteristics associated with unobserved worker-firm match quality. We address a number of important questions. What employer attributes determine whether an employer pays higher or lower average wages? Do these attributes differ across native-born and immigrant workers and across immigrants with different years since migration and source country?

[1] Statistics Canada, Canadian Labour Force Survey (Table 14-10-0083-01) and Statistics Canada (2022)

While our main goal is not to distinguish amongst competing theories for firm-level pay premiums, identifying which firm or establishment-level characteristics are associated with higher or lower wages provides important clues to the underlying model driving these wage premiums. Each theoretical explanation points to a different subset of observed firm attributes likely to be associated with higher or lower firm wages. For example, search and matching models emphasize the role of firm characteristics associated with human resources, wage bargaining and match quality. In comparison, Monopsonistic wage setting models suggest that firm factors associated with rents, such as productivity and workplace amenities, are important in determining the wage premiums paid. It is likely that no single model fully explains firm-level wage premiums and that the importance of each explanation varies across groups of workers, including immigrant and non-immigrant workers.

There is an extensive literature showing that the earnings outcomes of recent immigrants are considerably below those of native-born workers with similar observed skills and that these gaps rarely fully dissipate over time (Baker and Benjamin 1994; Bloom, Grenier, and Gunderson 1995; Grant 1999; Reitz 2001 and Frenette and Morrisette 2003). Attempts to explain these wage gaps focus primarily on the productive characteristics of immigrants, the labour market returns to these characteristics and public policy levers that affect the composition of immigrants[2]. This research suggests that language and region of origin (Aydemir and Skuterud 2005), lower returns to foreign labour market experience (Schaafsma & Sweetman, 2001; Green and Worswick, 2010 and Aydemir and Skuterud 2005), and low returns to foreign education

[2] An important exception is (Green and Worswick, 2003) who show that declines in labour market outcomes of all labour market entrants (immigrant and non-immigrant) explain some of the declines in earnings.

(Buzdugan & Halli, 2009 and Li, 2001) are all significant in explaining the poor and declining outcomes of recent immigrants.

An emerging body of research examines the role of firms or establishments in explaining wage variation across workers[3]. This literature shows that the firm at which an individual is employed is an important determinant of wages across workers with similar observable skills. A number of theoretical explanations for why some firms pay higher wages have been put forth[4]; including discrimination, compensating differentials, equilibrium strategic wage posting, search and matching, and monopsonistic wage setting models. These explanations for firm-level wage effects suggest that employer attributes may play a particularly important role in the wage outcomes of immigrants (especially new arrivals) and the differential wage outcomes between immigrants and non-immigrants. Recent immigrants are new entrants to the country and job market and, as a result, may be less efficient at job search compared to native born workers (Frijters et al.; 2003) and lack a local employment history that provides valuable information on unobserved ability to firms. In addition, immigrants arrive with a different set of observed and unobserved host-country specific skills than non-immigrants along with a set of unique country of origin skills[5]. Finally, immigrants may value work-place amenities (like access to training) differently than native born workers because of their unique skill-sets and labour market histories. Efficiency of job search, employment history information and country-specific skills

[3] See, for example, Groshen (1991), Bronars and Famulari (1997), Abowd, Kramers and Margolis (1999) and Lane, Salmon and Spletzer (2007) and more recent studies using matched employee and employer data such as Card, Heining and Kline (2013), Barth, Bryson, Davis and Freeman (2016) and Song, Price, Guvenan, Bloom and Von Wachter (2018).
[4] See, for example, Bartolucci (2014) on discrimination and Groshen (1991), Dostie, Li, Card and Parent (2023) for more general discussions.
[5] As examples, language, country/region of origin knowledge and contacts, and training vary by country of origin.

all improve with time in the country. Thus, the importance of any particular firm characteristic is likely to change with years since migration.

To this point, the majority of empirical studies examining firm-level wage effects assume that firms affect wages through unobserved characteristics, such as monopsonistic wage setting policies (Card et al; 2018 and Dostie et al; 2023), which are captured by a firm or establishment level fixed effect[6]. Firm-level wage effects are the basis of a number of examinations of earnings differentials across groups of workers; including gender (Groshen; 1991, Bayard et al.; 2003, Card et al. 2018 and Bruns; 2019) and race differentials (Bayard et al.; 1999 and Gerard et al.; 2018). Of significance to the current paper, Aydemir and Skuterud (2008), Damas de Matos (2017) and Dostie et al (2023) utilize this approach to examine the importance of firm-level wage premiums in explaining immigrant-native wage gaps at arrival and the reduction of these gaps with time in the host country. These papers confirm the importance of firm-specific wage premiums in determining the wage outcomes of immigrants. In particular, they show that the sorting of immigrants into low wage establishments explains a significant portion of the average earnings gap between immigrants and native-born workers. The sorting of immigrants into low wage firms is found to be more of a factor for immigrants with lower levels of education (Dostie et al; 2023) and from non-traditional source countries (Aydemir and Skuterud; 2008 and Dostie et al; 2023). With time in the host country, many immigrants[7] initially matched to low wage firms move to higher wage firms; explaining, in part, why immigrant wages catch up to those of the native born.

[6] In particular, most studies estimate two-way fixed effect models similar to Abowd, Kramarz, and Margolis (1999).
[7] Dostie et al (2023) find this resorting of immigrants to high wage firms to be greatest among university educated immigrants from non-traditional source countries.

Perhaps because of a lack of detailed information on the attributes associated with a particular firm or establishment, only a small number of studies examine the role of observed firm characteristics (Aydemir and Skuterud; 2008, Barth, Davis and Freeman; 2018), and very little is known about the role of observed firm-level characteristics in immigrant wage outcomes[8]. This paper contributes to this gap in the literature by focusing on the relationship between observable establishment-level characteristics and the relative wage outcomes of immigrants using linked Canadian employee-employer data from Statistics Canada's *Workplace and Employment Survey* (WES). The WES data provides detailed information about each surveyed employee and their establishments, allowing us to examine the outcomes of immigrants and the characteristics of the establishments they work in, jointly. The primary advantage of the WES data over other matched employee-firm data is the breadth and richness of information on firms included in the data. The WES includes information at the establishment level on human resource activities, employee characteristics, strategic planning, training programs and other benefits and output characteristics. Following previous studies on immigrant firm-level wage effects, we classify immigrants into four groups based on years since arrival to Canada (recent arrivals – 10 years or less vs established – more than 10 years) and source country (traditional vs non-traditional). In addition, we compare outcomes between immigrants and non-immigrants across broad education categories (college degree and higher and no degree).

By identifying the establishment attributes associated with immigrant wage outcomes, our results will help guide future research on the role of firms in immigrant outcomes and provide guidance for policy makers. Some firm-level characteristics are fixed (for example, those linked

[8] Aydemir and Skuterud (2008) use similar data to that used in our study to examine the role of establishment-level fixed effects for immigrants to Canada and include a small number of job characteristics but no firm characteristics.

to industry) while others are subject to manipulation by the firm. Our view is that both types are important to make informed policy decisions. First, if firm characteristics matter, the composition of firm characteristics in a market will help to identify which types of immigrants are likely to succeed. The selection of immigrants could be targeted to a particular labour market. Second, to the extent that firms have control over their characteristics, knowledge about factors that improve immigrant outcomes will be useful to the firm itself and to policy makers who can influence firm level decisions.

We find that observed establishment attributes are important in determining the wage outcomes of workers in Canada. Unlike the returns to human capital, the returns to establishment attributes do not appear to be systematically lower among male immigrants. The sorting of recent male immigrants into low wage establishment is not explained by their crowding into establishment with a cluster of low-paying attributes. Instead, the sorting of recent male immigrants into low wage establishments is explained, primarily, by their higher representation among establishments with lower average "employee skill levels" – explaining on average between 6% (lower bound) and 10% (upper bound) of the observed wage gaps. Such sorting of male immigrants is not present among more established male immigrants - suggesting that immigrants transition to establishments with higher average skills over time in Canada.

The remainder of this paper is organized as follows. Section 2 describes the data used and we provide and discusses summary statistics; comparing native-born to our groups of immigrant workers. In Section 3 we describe the empirical approach utilized to identify the wage effects of establishment characteristics and the decomposition used to identify the contribution of these characteristics in explaining immigrant-native wage gaps. Section 4 discusses the results and we conclude the paper in Section 5.

(2) Data

We use linked Canadian employee-employer data from Statistics Canada's Workplace and Employment Survey (WES) to examine the relationship between immigrant outcomes and establishment characteristics. The annual data in WES covers the period from 1999-2005 and surveys approximately 6000 establishments and 20,000 of those f establishments' employees each year. The WES data provides detailed information on a nationally representative sample of surveyed employees and their employers[9], allowing us to examine the outcomes of recent immigrants and the characteristics of the firms/establishment they work in, jointly.

The WES data are longitudinal over the entire sample period, for establishments, and over concurrent two-year windows, for employees. Unfortunately, the sample design of the WES does not permit us to identify unbiased worker fixed effects in our setting[10]. As Aydemir and Skuterud (2008) point out, workers in the WES are lost between survey years when there is a job separation. Such attrition is unlikely to be random across immigrant and native-born workers, especially when considering newly arriving immigrants, because of outmigration. The inability to control for unobserved worker effects means that we are unable to separate the effects of sorting based on unobserved worker characteristics from the true return to firm characteristics. However, the WES provides detailed information on workers and, unlike most survey data, the jobs in which they are employed; permitting us to control for a broad range of observed factors that might otherwise be left as unobserved. In addition, given that previous research has established that the sorting of immigrants into firms/establishments with lower pay premiums is important in explaining the immigrant-native wage gap (not differences in pay premiums within

[9] All businesses operating in Canada with paid employees are included with the exception of Yukon, Nunavut and Northwest Territories; and those engaged in primary industries, public administration and religious organizations.
[10] See Aydemir and Skuterud (2008) pp. 335-36 for details.

firms), we focus primarily on the sorting of immigrants across establishment types. As discussed in the section describing our methodology (Section 3) below, we also do not include firm/establishment level fixed effects because of the limitations this would impose on the variety and nature of the returns to observed firm/establishment characteristics identified.

In our initial analysis we examine outcomes for Canadian men[11] and disaggregate the immigrant samples by groupings based on recency of arrival, source country and education level utilizing the 2005 WES. The primary advantage of the WES data over other matched employee-firm data is the breadth and richness of information on jobs and establishments included in the data. While more recent linked employee-firm data are available, these are based on administrative files and lack the range of information on employees, jobs and establishments that is available in the WES. We focus on several firm characteristics that theory suggest are likely associated with pay premia and job match. These include firm size, union status, industry, productivity measures, the degree of internationalization[12], access to training, the presence of non-wage benefits, the amount of job turnover, human resource practices and establishment level employee characteristics (including the share of full-time workers and new hires and a proxy for average skill level).

In addition to common worker characteristics (gender, age, education, marital status, number of children, experience, and tenure) the WES includes information on immigrant status, language spoken at home, source country of immigrants and number of years in Canada.

[11] Our initial analysis for women showed very small wage differentials across groups of immigrant and non-immigrant workers after controlling for demographic and productive characteristics. Thus, there was little gap to explain. We plan to return to this analysis in a later version of the paper.
[12] Frias, Kaplan, Verhoogen and Alfaro-Serrano (2022) find that increases in exporting activity results in an increase in wage premia within firms.

Table 1 provides mean characteristics for our samples of non-immigrant men and immigrant men by recency of arrival. The first panel includes wages along with individual and productive characteristics typically included in a wage regression. The second panel adds information on observed firm characteristics for the groups of workers. The results in the first panel are similar to those of previous studies. The unconditional wages of immigrant men from non-traditional source countries are lower, on average, than those of non-immigrant men. Recent male immigrants from non-traditional source countries earnings were approximately 25 percent lower than non-immigrants in our sample. This disadvantage was not observed among more established non-traditional male immigrants nor among immigrants from traditional source countries.

At the same time, our samples of immigrants have higher levels of education, on average, than non-immigrants. All samples of immigrant men include a higher percentage of workers with a Bachelor's degree or higher and a lower percentage with less than high school compared to the sample of non-immigrants. This is particularly true of immigrants who recently arrived in Canada. For example, approximately 38 percent of traditional and 31 percent of non-traditional recent arrivals have a bachelor's degree compared to just over 12 percent of non-immigrant males. Other productivity related characteristics were lower among the samples of recently arriving immigrants, however. Recently arriving immigrant men from both traditional and non-traditional source countries had fewer total years of labour market experience and job tenure, on average, than non-immigrants.

The second panel of Table 1 provides information on the mean attributes of the establishments to which our samples of immigrant and non-immigrant workers are matched. These attributes are sorted by characteristics associated with the firm/establishment, those of the employees at the establishment and the human resource practices/benefits available to employees at the

firm/establishment. With respect to firm or establishment characteristics it appears that established immigrants, whether from traditional or non-traditional source countries, tend to be matched to firms with higher foreign ownership. Both groups of established immigrants are associated with establishments that, on average, are over 21 percent foreign owned. This compares to just 12 percent among non-immigrant men. If anything, recent immigrants are matched to firms with lower foreign ownership rates than non-immigrants. All groups of immigrant men, however, are associated with firms/establishments with higher export activity than non-immigrants. Despite higher export activity, however, recent immigrants are matched to firms that generate lower revenue per worker (productivity), on average, than non-immigrants and more established immigrants. For example, establishments employing recent immigrants generated over $30,000 less per employee in 2005 than those employing non-immigrants.

With respect to the establishment employee characteristics, there are several similarities between immigrant and non-immigrant workers. For example, immigrant workers are found to be employed at similar sized firms with similar shares of employees working full-time as non-immigrants. However, recent immigrants from non-traditional source countries are matched to establishments with less stable employment characteristics. Recent immigrants from non-traditional source countries are employed at firms with higher quit rates and a higher share of employees who are new hires than non-immigrants and other groups of male immigrants. The quit rate at establishments that employ recent non-traditional immigrants is around 22 percent compared to under 15 percent among non-immigrants. The share of workers earning more than $80,000 is included as a proxy for the skill level at the firm and suggests that recent immigrants from non-traditional source countries are matched to firms with lower average skill levels than non-immigrants and other immigrant groups. Only 5 percent of workers at establishments

employing recent non-traditional immigrants earned over $80,000 compared to 7.3 percent among non-immigrant establishments and over 9 percent of establishments matched to recent immigrants from traditional source countries. Finally, immigrants in our samples appear to enjoy similar establishment level benefits as non-immigrants. The percent of establishments offering private pension plans and job training is similar across immigrants and non-immigrants and, if anything, immigrants are more likely to be employed at establishments that offer a dental plan.

Table 2 provides descriptive statistics for our samples of non-immigrant and immigrant men by education level; separating out workers with at least a college/university degree from those with no degree. Partitioning by broad education category highlights significant wage gaps among recently arriving male immigrants that were particularly pronounced among more highly educated immigrants. Recent arrivals with a degree in our sample had wages that were 40 percent below those of similarly educated non-immigrants while this differential was around 20 percent among immigrants with no degree. A comparison of the characteristics of the establishments to which immigrants and non-immigrants are matched shows a pattern across the two groups that is generally similar to those in Table 1, described above. However, there are some important differences among the group of recent immigrants; those with the largest wage gaps. For example, there is a large gap in productivity (as measured by total revenue per worker) among recent arrivals with a degree compared to their non-immigrant counterparts. Revenue per worker is 42 percent higher, on average, at establishments matched to non-immigrant men with a degree compared to similar immigrants. In addition, the finding from Table 1, of immigrants matching to establishments with a lower skilled workforce, is more pronounced among the recently arriving male immigrants with a degree. Approximately 17 percent of the workers in establishments in which non-immigrants with a degree are employed earned more than $80,000

compared to just 10 percent of workers in establishments matched to similarly educated recent arrivals.

Table 2 also shows significant differences in matching by establishment characteristics between lower educated recent arrivals and their non-immigrant counterparts. Recent immigrant men with no degree are matched to firms that are smaller, with lower rates of foreign ownership, lower export activity, a lower share of full-time workers and a much lower average employee skill level than non-immigrant and established immigrants with the same education level. The establishments at which recent immigrants with no degree are employed are also characterised by higher quit rates, a higher percent of workers who are new hires and provide less access to on-the-job and classroom training than the other similarly educated groups of men[13]. As we will show later in this paper, these are attributes that are associated with lower wage rates.

(3) Empirical Approach

In this section we present an empirical framework for identifying the role of firm characteristics in the wage outcomes of immigrant and native-born workers in Canada. As noted above, recent research suggests that the sorting of immigrants across firms likely plays an important role in the immigrant-native wage gap. Thus, we decompose the observed wage differentials between native-born workers and groups of immigrants into differences in the returns to observed firm characteristics and differences in the distribution across these firm "types".

[13] The finding that immigrant men are less likely to match to an establishment that provides training is consistent with the results in Dostie and Javdani (2019). They find that minority immigrant workers, in particular, are less likely to receive training.

We estimate augmented human capital earnings equations of the following form by linear regression as the basis of our analysis:

$$(1)\ lnw_{gik} = \beta_0 + M_{gi}\beta^M + X'_{gi}\beta^X_g + Z'_{gik}\beta^Z_g + e_{gik}$$

where lnw_{gik} is the log hourly wage rate of worker i in group g (either immigrant (m) or native born (n)) working in establishment k, M_{gi} is an immigrant indicator variable, X_{gi} is a column vector of individual worker characteristics and e_{gik} is a random error. We augment, a traditional human capital model, with Z_{gik}; a vector of observed firm/establishment characteristics[14]. The returns to worker characteristics in our model will differ from a traditional human capital model if establishment characteristics directly affect wages and workers are sorted across establishment "types" in a non-random manner. The coefficients on establishment characteristics are of particular interest as they may provide clues to the underlying model driving establishment premiums. The coefficients on worker and firm/establishment characteristics are permitted to vary across immigrants and native-born workers but are restricted to be the same within groups. Allowing the coefficients to vary across groups will capture any differences in the returns arising from discrimination or differential matching on establishment characteristics across immigrants and native-born workers.

We do not include individual or establishment fixed effects in our model. As indicated above, the sampling design of the WES data does not permit the inclusion of individual fixed effects. Previous research has established the presence and importance of firm/establishment pay premiums. The inclusion of establishment fixed effects in our model would limit the analysis to only those characteristics that vary within establishments over time and captures only short-term

[14] This approach is similar to Barth, Davis and Freeman (2018) with the exception that we do not include establishment fixed effects.

impacts on wages of changes in firm/establishment characteristics. The choice to omit establishment fixed effects comes at the cost of using cross-section data to identify the returns to establishment characteristics.

Decompositions:

The raw differences in average earnings across the sample of immigrants and native-born workers used in the estimation of our fully interacted model in equation (1) can be decomposed using a Oaxaca (1973) decomposition. In our implementation of the Oaxaca decomposition, we utilize Neumark's (1998) extension and include coefficients from a pooled regression over immigrants and non-immigrants in calculating the endowment effects as follows:

$$(2)\ ln\,\overline{w}_m - ln\overline{w}_n = \hat{\beta}^M + (\bar{X}_m - \bar{X}_n)\hat{\beta}_P^X + \left(\hat{\beta}_m^X - \hat{\beta}_n^X\right)\bar{X}_m + (\bar{Z}_m - \bar{Z}_n)\hat{\beta}_P^Z + \left(\hat{\beta}_m^Z - \hat{\beta}_n^Z\right)\bar{Z}_m$$

Where subscript m and n indicate the estimated coefficients or group means for immigrants and natives, respectively, and the $\hat{\beta}$s are the estimated coefficients from equation (1). The first term captures the unexplained component (evaluated at base values). The second term measures the part of the wage gap attributed to differences in average individual characteristics between immigrants and natives (weighted by the returns to these characteristics from a pooled regression of native-born and immigrant workers), while the third term measures that attributed to differences in the returns to individual characteristics across groups. The fourth and fifth terms are of particular interest. The fourth term (the "sorting component") measures the part of the wage gap associated with differences in the distribution across establishment types between immigrants and natives (weighting by the pay premiums associated with each characteristic from a pooled regression of native-born and immigrant workers). For example, if immigrants are

disproportionately excluded from establishments with characteristics associated with higher wages this term will explain a positive portion of the wage gap. The fifth term captures differences in the return to establishment characteristics, weighted by the distribution across these characteristics among immigrants. These can be broken down into detailed contributions of single characteristics to identify which establishment attributes play the biggest role in explaining the wage gap.

(4) Results

Table 3 provides estimated coefficients and standard errors on human capital and individual characteristics typically included in wage equations for our OLS regressions. The left-hand column for each group of workers includes 6 provincial/regional dummies so that the results are within province or region. The coefficients are mostly similar to those found in the Canadian immigration literature. There are positive returns to education and experience[15]. The returns to education are lower (without controlling for where the education was attained) among recently arriving immigrants. Speaking a different language at home has a positive effect on earnings among non-immigrants but a negative effect among immigrant men. Age also has a positive effect on earnings among non-immigrant men but a negative effect on immigrants due to its correlation with age at arrival.

The right-hand columns for each group add observed firm/establishment characteristics, as in equation (1). In addition to the observed firm/ establishment, employee, and HR/benefit

[15] One difference between our results and those typically found in the literature is that the returns to experience are typically found to be lower among immigrants than non-immigrants. We do not find this here.

characteristics described above, we add fixed effects for 14 industries and 6 broadly defined occupations. The addition of observed establishment characteristics raises the R^2 similarly among our samples of immigrants and non-immigrants from approximately 0.39 to 0.63; explaining an additional 24 percent of the wage variance within each group.

Addition of the observed firm/establishment characteristics moderates the effects of human capital and individual characteristics among the immigrant and non-immigrant groups. For example, the positive effects of education and experience fall significantly in all of our samples with the inclusion of firm/establishment characteristics; with particularly large declines in the effects of education among recently arriving immigrant men. The independent effects of age and the use of a different language at home on earnings, which are positive among non-immigrants and negative among immigrants (as is often found in the literature) also fall in all cases when firm/establishment characteristics are included. This suggests that the sorting of immigrant and non-immigrant workers across establishment "types" explains some of the impact of human capital characteristics and that the exclusion of establishment characteristics likely results in biased coefficients on human capital variables.

Table 4 provides estimated coefficients and standard errors for the observed firm/establishment characteristics (Z_{gik} in equation 1), which are of particular interest. As noted above, we permit the coefficients to vary across immigrant and native-born workers. In addition, we estimate separate models for our four groups of immigrant men based on recency of arrival and source country. Looking across non-immigrant and immigrant groups, with a few exceptions, the signs of the coefficients are the same. The result that stands out the most is the high estimated rate of return to working in an establishment with a larger number of high-skilled workers. The coefficients on the percent of workers at an establishment earning over $80,000 per year (our

proxy for the skill level) show that a 10 percentage-point increase in the number of workers earning above this threshold is associated with a minimum of 6 percent (among recent non-traditional immigrant men) and as high as a 10 percent (among recent traditional immigrant men) increase in earnings[16]. Further, and as expected, foreign ownership, revenue per worker (productivity), the size of the establishment, the share of full-time employees and the presence of fringe benefits (pension and dental plans) are all generally associated with higher earnings across our samples of men[17]. At the same time, attributes related to high worker turnover at an establishment (the quit rate and the share of new hires) are mostly associated with lower earnings.

In a few cases, the estimated effects of observed establishment characteristics differ across immigrant status in terms of sign or magnitude. For example, earnings at establishments with a high level of export activity are slightly lower, all else equal, among non-immigrant men but are significantly higher among recent non-traditional and established traditional immigrants. This may suggest that immigrants are valued differently in exporting establishments. Union status, which is associated with slightly lower earnings among non-immigrant men after controlling for other establishment characteristics has an estimated positive effect on our samples of immigrants from traditional source countries. Research and development intensity, which has a positive effect on the earnings of non-immigrant men, is associated with much higher earnings among recent non-traditional immigrants but lower earnings among other immigrant groups. In addition, the results suggest that the premium to matching to establishments that have better employee

[16] This is consistent with the results presented in Barth, Davis and Freeman (2018). Utilizing a similar approach to ours and matched worker-establishment data for US workers in manufacturing, they find that a one-year increase in the mean number of years of schooling at an establishment is associated with an increase of almost 7 percent of a worker's own wage (equivalent to the estimated effect of a one-year increase in the workers own education).
[17] The magnitudes of the estimated coefficients on percent foreign ownership and revenue per worker are small, however.

characteristics are higher for immigrants, across some dimensions, than native-born workers. The estimated coefficients on employment size and percent of full-time workers are higher in our samples of immigrants (particularly recent arrivals) than among non-immigrants. The coefficients on the natural log of employment suggest positive elasticities that are almost twice the size of non-immigrants among three of our four immigrant samples compared to non-immigrants. At the same time, the estimates show that a 10 percentage-point increase in the number of full-time employees is associated with wages that are higher by over 4 percent among recent immigrants compared to just over 2 and a half percent among non-immigrants.

With respect to HR practices there are some important differences across immigrant status as well. The practice of filling vacancies outside of the firm or establishment is associated with higher earnings among non-immigrants and established immigrants but lower earnings among recent immigrants. This may be because establishments that promote or hire from within have more or better information about the skills of recently arrived immigrants due to their employment history than those hiring outside of the establishment. The results related to the presence of training programs suggests differences in returns to training across worker type or a sorting of workers across training type based on the likely value of the form of training received.

The presence and receipt of classroom and job training, which are generally associated with higher earnings, are correlated with much higher earnings increases for recent arrivals from non-traditional source countries than native-born workers or other groups of immigrants. Working at an establishment that provides classroom training (job training) is associated with a 21 percent (17 percent) increase in earnings among non-traditional recent immigrants who received such training. These estimates compare to a 1 percent and 3.6 percent increase in earnings among non-immigrants receiving classroom and job training, respectively. The receipt of government

training funds by an establishment, in comparison, is more commonly associated with lower earnings than classroom or job training. Though positive and large in our sample of recent non-traditional immigrants, the estimated coefficients on government training funding at an establishment are negative and statistically significant for our other groups of immigrants. Because we are unable to control for the selection of establishments into government funding programs, the negative values for government funding may reflect the criteria required of establishments to receive such funding rather than the effect of any training received.

Table 5 provides estimated coefficients and standard errors for the observed firm/establishment characteristics for our samples of non-immigrant and immigrant men by education level. Many of the results comparing across immigrant status are the same as those from Table 4. However, some important differences are also revealed by looking within education groups. The estimated effect of establishment skill level as captured by the percent of workers earning more than $80,000 is still very large for all groups of men. Establishment size and the share of full-time employees continue to be associated with higher earnings in our groupings based on education level. The signs of the coefficients on foreign ownership and revenue per worker are mixed across the samples but the implied magnitudes are small. The presence of fringe benefits, which were uniformly associated with higher earnings in Table 4 are now associated with lower earnings among some of the immigrant groups in Table 5. In particular, the presence of both a pension plan and a dental plan is associated with lower earnings among established immigrants with a degree and the presence of a dental plan is associated with slightly lower earnings among recently arriving immigrants in both education groups.

The decline in earnings associated with a higher quit rate at an establishment found in Table 4 is much larger among recent immigrants when compared to similar immigrants in the same

education group. A 10 percentage-point increase in the quit rate is associated with a 4.4 percent (1.7 percent) decrease in earnings among recent immigrants with a degree (with no degree). In comparison, the estimated effect of an increase the quit rate is zero among non-immigrants with a degree and just 1.1 percent for a 10 percentage-point increase for non-immigrants with no degree. At the same time, increases in the quit rate are associated with an increase in earnings in our samples of established immigrants. The other establishment characteristic associated with high worker turnover, the share of new hires, which is associated with lower earnings within groups in Table 4, is now associated with an increase in earnings for recent immigrants with and without a degree and established immigrants without a degree compared to similar immigrants in the same education groups. This is interesting in light of the fact that the effect of an increase in the share of new hires at an establishment is negative among non-immigrants within the same education group. This suggests that establishments with more vacancies are able to offer higher wages to recently arriving immigrants but that recent immigrants receive lower wages in firms experiencing difficulty retaining employees.

Finally, the relatively high rates of return to the presence and receipt of classroom and job training in Table 4 among recent non-traditional immigrants are also present for both groups of recent arrivals when we allow the rate of return to vary by education group but restrict them to be the same across source country. Working at an establishment that provides classroom training (job training) is associated with a 17 percent (21 percent) increase in earnings among degree-holding recent immigrants who received such training and 22 percent (18 percent) among recent immigrants with no degree. The maximum increase in earnings for any form of training among our samples of non-immigrants is 4 percent (for non-degree holding native born workers with no degree). The positive effect of being matched to an establishment receiving government training

funds among recent non-traditional immigrants in Table 4 appears to be concentrated among recent immigrants with no degree. In Table 5, the estimated increase in earnings associated with working at an establishment receiving government training funding is 9.2 percent among recent immigrants with no degree compared to negative and statistically significant declines among the other groups of immigrants and small positive affects among native-born men.

Decomposition Results:

Table 6 provides the results of the Oaxaca decomposition from equation 3 above. For brevity, we include only the results relating to observed establishment characteristics. In particular, because our focus is on differential firm/establishment matching between immigrants and natives, we include only the part of the wage gap associated with differences in the distribution across establishment types between immigrants and natives (the "sorting" component $(\bar{Z}_m - \bar{Z}_n)\hat{\beta}_P^Z$ from equation 2) in Table 6. The results related to worker characteristics and to differences in the returns to establishment characteristics are included in Appendix Tables 1 and 2, respectively. The results in the Appendix Tables are consistent with the previous literature that examines the role of productive characteristics to explain earnings gaps between native-born and immigrant male workers in Canada. The returns to education and experience among recently arriving immigrant men are lower (particularly among those with no degree and from non-traditional source countries) than similar native-born workers[18]. In addition, language spoken at home and lower seniority also help to explain differences between recent arrivals and native-born men in our samples.

[18] Our measures of labour market experience and education levels do not account for whether these were achieved in Canada or abroad. As noted above, the immigration literature finds lower rates of return to foreign experience and education among immigrant men in Canada.

The upper panel (Panel A) of Table 6 provides wage differences between native-born workers and the various sub-groups of recently arriving immigrant men examined (upper portion) and the sorting contributions of establishment characteristics from the Oaxaca decomposition for these sub-groups (lower portion). Panel B provides similar information for our sub-groups of more established immigrant men. Looking first at recent arrivals, we find that the wages of all of the subgroups of recently arriving men, except the full group of recent arrivals from traditional source countries, are statistically significantly below similarly educated non-immigrants. The complete group of recent immigrant men from traditional source countries experience raw average wages that are 14 percent higher than non-immigrants in our samples. The wages of recent immigrant men from non-traditional source countries, on the other hand, are almost 26 percent below those of native-born working men. When we distinguish immigrants by broad education group, we find the gap between recent immigrant and non-immigrant men to be largest for immigrants with a degree. The difference in wages between recent immigrant and non-immigrant men with a degree is almost 42 percent, compared to a 21 percent gap between recent immigrants with no degree and similarly education native-born men. Because of the larger wage gaps found for non-traditional and more highly educated recent arrivals and non-immigrants we have added the sub-group of recent arrivals from non-traditional source countries with a degree to our analysis in Table 6. As we might expect, the wages of recent arrivals from non-traditional source countries with a degree are substantially below those of similarly educated native-born men; with a wage difference of 58 percent.

The lower portion of the panel suggests that these wage differences are not explained by the crowding of recent immigrant men into firms/establishments with a cluster of low paying attributes. The only sorting factor, among the establishment characteristics examined, that helps

to explain the wage gaps identified is the percent of workers at the establishment earning more than $80,000. Among the groups of workers in which we find an immigrant wage deficit in Table 6, the relatively low representation of recent immigrant men among establishments with high average skill levels explains a fairly substantial fraction (between 8 and 11.5 percent) of these raw overall wage gaps. For example, the finding that recent immigrant men from non-traditional source countries are matched to establishments with lower average skill levels than non-immigrant men explains 2 percentage-points (almost 8 percent) of the 26 percentage-point gap. This same factor explains 11.5 percent of the overall raw wage gap identified between recent arrivals with a degree and similarly skilled native-born workers; while it explains around 10 percent of the wage gap for recent immigrant men with no degree and those from non-traditional source countries with a degree.

The results for more established male immigrants (panel B) in Table 6 show that, unlike the sample of recent arrivals, most immigrant male workers with more years in Canada do not experience wage deficits relative to native-born workers. In fact, when we examine established immigrant men from traditional source countries and those with no degree, separately, these groups have average raw earnings that are above their native-born counterparts. Only established immigrants with a degree earn wages that are lower than similarly educated native-born men. The lower portion of this panel shows that the earnings gap observed among established immigrant men with a degree is not explained by their being matched to establishments with lower skilled employees. This suggests that immigrant men in Canada transition to establishments with more highly skilled work forces with time in Canada[19].

[19] Indeed, the results in Table 1 show that immigrant men with more years in Canada in our samples are matched to average with a similar or higher percent of workers earning above $80,000

One concern with our proxy variable for average skill level at an establishment is that it likely captures differences in average pay at an establishment across the entire skill distribution along with differences in skill. The percent of workers earning more than $80,000 will be higher at establishments that pay higher wages across all skill levels, holding the average skill level of employees constant. In order to account for this possibility, we redo our analysis and include average per worker payroll in each of our wage regressions. In other words, we partial out the effect of average pay at an establishment from the coefficients on the proxy for average skill level. The revised coefficients along with the effects of average payroll are incorporated in the decomposition described in equation 2 above. These new results likely understate the true effect of average skill level on wages and its sorting contribution to explaining wage differences because establishments that offer the same pay premia to workers across the skill distribution, but hire a more highly skilled workforce, will have a higher average payroll. Thus, we interpret our new estimates as a lower bound on the effect of average skill level and our original estimates as an upper bound.

The results of the Oaxaca decompositions, accounting for differences in average payroll, are summarized in Table 7. Table 7 is similar to Panel A of Table 6 (our primary results) and provides wage differences between native-born workers and the various sub-groups of recently arriving immigrant men and contributions attributed to differential matching across average payroll and adjusted skill level at an establishment from the Oaxaca decomposition. To help summarize the results, the lower panel of Table 7 provides the percentage of the overall wage differences attributed to sorting across each of the two establishment characteristics and their total contribution within each subgroup. The results show that the matching of recently arriving immigrants to establishments with lower average pay accounts for a significant percentage

(between 5.6 and 8.9 percent) of the observed immigrant-native wage gaps. In addition, the results show that after controlling for average pay differences across establishment, the contribution to the observed immigrant-native wage gaps attributed to sorting across average employee skill level declines. The estimated contributions, which ranged from between 8 and 11.5 percent of the overall wage gaps across recent immigrant groups experiencing a wage deficit in Table 6, fall to between 4.7 and 7.7 percent after accounting for average pay at establishments. For example, the matching of recent immigrant men from non-traditional source countries to establishments with lower average skill levels than non-immigrant men which explains 7.7 percent of the wage gap before accounting for average pay (Table 6), explains 4.7 percent of the gap in Table 7. Despite these declines in the percentage values, the contributions attributable to differential matching across establishment skill level remain sizable. Finally, as noted above, these estimates represent lower bounds on the underlying contribution resulting from the relatively low representation of recent immigrant men among establishments with high average skill levels.

(5) Conclusions

Recent research highlights the importance of unobserved firm-level wage premiums in explaining immigrant-native wage gaps. These studies show that the sorting of immigrants into low wage establishments explains a significant portion of the initial earnings gap between immigrants and native-born workers and that movements to higher wage establishments over time partially explains why immigrant wages catch up to those of the native born. This paper focuses on the relationship between observable establishment-level characteristics and the relative wage outcomes of immigrants using linked Canadian employee-employer data from

Statistics Canada's Workplace and Employment Survey (WES). We augment a human capital model with a rich set of observed establishment/firm-level characteristics to identify the precise attributes driving establishment-specific wage premiums and the establishment characteristics associated with unobserved worker-firm match quality across immigrants and the native born.

We find that several observed establishment attributes are important in determining the wage outcomes of workers in Canada. For example, foreign ownership, revenue per worker (productivity), the size of the establishment, the share of full-time employees and the presence of fringe benefits (pension and dental plans) are all generally associated with higher earnings across our samples of men. At the same time, attributes related to high worker turnover at an establishment (the quit rate and the share of new hires) are generally associated with lower earnings. The result that stands out, however, is the high estimated rate of return to working in an establishment with a larger number of high-skilled workers. To our knowledge, this paper is the first to document differences in native-immigrant pay premia associated with establishment characteristics.

Looking across native-born and immigrant men in Canada, our results suggest that, unlike the returns to human capital, the returns to establishment attributes do not appear to be systematically lower among male immigrants. However, we do find that the estimated effects of observed establishment characteristics on wages differ across immigrant status in terms of sign or magnitude in important ways that suggest differences in matching between immigrant and native-born workers and the value establishments place on their skills. For example, our results suggest that immigrants may be more highly valued in establishments involved in higher exporting activity. In addition, the results suggest that the premium to matching to establishments that have better employee characteristics are higher for immigrants, across some

dimensions, than native-born workers. Finally, our estimates of the returns to the presence of training programs suggests differences in returns to training across immigrant and non-immigrant working men or differential sorting of immigrant and non-immigrant workers across training type based on the likely value of the form of training received.

In all cases, the inclusion of observed establishment attributes in our estimation models reduces the effects of human capital characteristics on earnings. This suggests that the sorting of immigrant and non-immigrant workers across establishment "types" explains some of the impact of human capital characteristics and that standard human capital models likely provide biased estimates of the returns to human capital characteristics.

Based on our estimated augmented human capital models, we decompose observed wage differentials between native-born workers and groups of immigrants into differences in the returns to observed establishment characteristics and differences in sorting across these establishment "types" utilizing a series of Oaxaca decompositions. The results of these decompositions show that the sorting of recent male immigrants into low wage establishments is not explained by their crowding into establishments with a cluster of low-paying attributes. Instead, the sorting of recent male immigrants into low wage establishments is explained, in part, by their higher representation among establishments with lower average "employee skill levels". This sorting of recent immigrants into establishments with lower average employee skill levels is observed among both low and highly educated immigrants but is not observed among recent arrivals from traditional source countries. Among the groups of workers in which we find an immigrant wage deficit, the relatively low representation of recent immigrant men among establishments with high average skill levels explains between an estimated 6% of the raw overall wage gaps (on average) on the lower bound and 10% of the observed wage gaps (on

average) on the upper bound. Such sorting of male immigrants is not present among more established male immigrants. This is consistent with immigrant men in Canada transitioning to establishments with higher average skills over time in Canada. This result is also consistent with the previous literature that finds that immigrants to Canada transition to higher wage firms over time in the country.

The finding that recent immigrants are sorted into establishments with lower average employee skill levels should be interpreted with some caution. First, we do not observe the level of capital stock at the establishment. Given the positive correlation between skilled labour and capital, the absence of a control for establishment level capital stocks leaves open the possibility that the estimated returns to average skill level at an establishment also capture the returns to capital stocks. Although, we do include a measure of establishment-level productivity in our analysis that will account for some of the effects of capital. Second, we do not include individual level fixed effects, which may help to explain the differential sorting of immigrants across firms with a more or less skilled workforce. Despite these caveats, this is an important new finding that sheds new light on potential explanations for the matching of new immigrants to low wage firms and raises questions about the mechanism by which immigrants are sorted and the reasons for this sorting that we leave to future research.

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TABLES

Table 1 (Panel A) – Descriptive Statistics Demographic Characteristics (Males) – Means

		Recent Immigrants		Established Immigrants	
Population	**Non-Immigrants**	**Traditional**	**Non-Traditional**	**Traditional**	**Non-Traditional**
Ln(wage)	3.003	3.143	2.745	3.174	2.991
	(0.006)	*(0.008)*	*(0.009)*	*(0.005)*	*(0.005)*
Diff Language	0.047	0.402	0.679	0.215	0.497
	(0.001)	*(0.012)*	*(0.006)*	*(0.005)*	*(0.005)*
Ed (<highschool)	0.165	0.015	0.048	0.106	0.103
	(0.001)	*(0.001)*	*(0.006)*	*(0.005)*	*(0.003)*
Ed (highschool)	0.212	0.149	0.129	0.206	0.139
	(0.001)	*(0.014)*	*(0.007)*	*(0.005)*	*(0.004)*
Ed (some college)	0.119	0.046	0.077	0.116	0.088
	(0.001)	*(0.003)*	*(0.004)*	*(0.003)*	*(0.003)*
Ed (college/trade)	0.341	0.259	0.283	0.351	0.342
	(0.002)	*(0.007)*	*(0.007)*	*(0.005)*	*(0.005)*
Ed (bachelor)	0.124	0.383	0.312	0.154	0.241
	(0.003)	*(0.013)*	*(0.006)*	*(0.002)*	*(0.005)*
Ed (post grad)	0.039	0.148	0.151	0.068	0.087
	(0.001)	*(0.006)*	*(0.006)*	*(0.005)*	*(0.002)*
Yrs of Exp	19.172	14.084	13.331	25.067	16.953
	(0.048)	*(0.372)*	*(0.159)*	*(0.139)*	*(0.093)*
Seniority	8.920	3.548	3.013	10.363	9.350
	(0.038)	*(0.059)*	*(0.035)*	*(0.010)*	*(0.085)*
Age	40.024	37.980	38.486	47.763	43.209
	(0.051)	*(0.284)*	*(0.169)*	*(0.121)*	*(0.105)*
# Dependents	1.195	1.467	1.937	1.303	1.827
	(0.009)	*(0.035)*	*(0.025)*	*(0.178)*	*(0.017)*
Single	0.276	0.154	0.172	0.142	0.131
	(0.002)	*(0.006)*	*(0.172)*	*(0.005)*	*(0.003)*
Married	0.665	0.812	0.807	0.784	0.824
	(0.002)	*(0.006)*	*(0.007)*	*(0.005)*	*(0.004)*
Div/wid/sep	0.060	0.034	0.021	0.074	0.044
	(0.001)	*(0.003)*	*(0.001)*	*(0.002)*	*(0.002)*

Entries are weighted averages (utilizing survey weights provided) with bootstrap standard errors in parentheses.

Table 1 (Panel B) – Descriptive Statistics: Firm Attributes (Males) – Means

		Recent Immigrants		Established Immigrants	
Population	**Non-Immigrants**	**Traditional**	**Non-Traditional**	**Traditional**	**Non-Traditional**
Firm Characteristics					
Foreign Own %	11.944	7.140	11.173	22.267	21.255
	(0.180)	*(0.298)*	*(0.412)*	*(0.636)*	*(0.521)*
Exporter	0.200	0.306	0.238	0.276	0.283
	(0.002)	*(0.008)*	*(0.007)*	*(0.005)*	*(0.006)*
R&D Intensity	0.189	0.271	0.183	0.176	0.230
	(0.002)	*(0.007)*	*(0.006)*	*(0.005)*	*(0.005)*
Rev per worker	$229,315	$195,765	$192,662	$254,596	$231,712
	(1288.31)	*(6058.45)*	*(4864.99)*	*(4457.11)*	*(12908.70)*
Employee Characteristics					
Ln(# employees)	3.877	3.907	3.889	4.097	4.218
	(0.006)	*(0.028)*	*(0.024)*	*(0.023)*	*(0.022)*
Share Full Time	0.825	0.912	0.821	0.887	0.869
	(0.001)	*(0.003)*	*(0.006)*	*(0.002)*	*(0.003)*
Quit Rate	0.146	0.154	0.223	0.189	0.115
	*(0.*001)	*(0.005)*	*(0.008)*	*(0.005)*	*(0.002)*
Share new hires	0.294	0.314	0.358	0.312	0.221
	(0.002)	*(0.005)*	*(0.008)*	*(0.006)*	*(0.002)*
Share >$80K	0.073	0.093	0.050	0.091	0.083
	(0.001)	*(0.002)*	*(0.001)*	*(0.001)*	*(0.001)*
Human Resource/Benefits					
Staff Out	0.548	0.630	0.472	0.605	0.603
	(0.002)	*(0.012)*	*(0.011)*	*(0.006)*	*(0.006)*
Class Training	0.353	0.313	0.324	0.336	0.332
	(0.002)	*(0.013)*	*(0.008)*	*(0.007)*	*(0.004)*
Job Training	0.317	0.401	0.257	0.271	0.325
	(0.002)	*(0.012)*	*(0.008)*	*(0.005)*	*(0.004)*
Gov't Training Funds Received	0.069	0.097	0.074	0.049	0.041
	(0.001)	*(0.005)*	*(0.006)*	*(0.005)*	*(0.002)*
Pension	0.322	0.270	0.375	0.377	0.350
	(0.002)	*(0.013)*	*(0.008)*	*(0.006)*	*(0.005)*
Dental	0.583	0.649	0.657	0.654	0.654
	(0.002)	*(0.010)*	*(0.010)*	*(0.005)*	*(0.006)*

Entries are weighted averages (utilizing survey weights provided) with bootstrap standard errors in parentheses.

Table 2 – Descriptive Statistics Demographic Characteristics (Males) – Means by Education

	Non-Immigrants		Recent Immigrants		Established Immigrants	
Population	**With Degree**	**No Degree**	**With Degree**	**No Degree**	**With Degree**	**No Degree**
Ln(wage)	3.490	2.922	3.073	2.714	3.314	3.026
	(0.019)	*(0.002)*	*(0.010)*	*(0.019)*	*(0.009)*	*(0.004)*
Diff Language	0.069	0.043	0.658	0.526	0.446	0.300
	(0.002)	*(0.001)*	*(0.009)*	*(0.010)*	*(0.007)*	*(0.005)*
Yrs of Exp	17.097	19.515	12.893	14.163	19.143	22.384
	(0.082)	*(0.055)*	*(0.142)*	*(0.281)*	*(0.140)*	*(0.140)*
Seniority	7.731	9.117	3.096	3.273	7.577	10.675
	(0.140)	*(0.030)*	*(0.040)*	*(0.044)*	*(0.125)*	*(0.081)*
Age	40.455	39.953	37.713	38.824	44.433	46.258
	(0.079)	*(0.058)*	*(0.102)*	*(0.244)*	*(0.160)*	*(0.112)*
# Dependents	1.524	1.140	1.736	1.817	1.564	1.515
	(0.038)	*(0.005)*	*(0.021)*	*(0.037)*	*(0.026)*	*(0.015)*
Single	0.199	0.288	0.123	0.202	0.147	0.134
	(0.004)	*(0.002)*	*(0.005)*	*(0.007)*	*(0.005)*	*(0.005)*
Married	0.758	0.649	0.854	0.770	0.842	0.789
	(0.004)	*(0.002)*	*(0.005)*	*(0.007)*	*(0.006)*	*(0.004)*
Div/wid/sep	0.042	0.062	0.023	0.027	0.011	0.077
	(0.001)	*(0.001)*	*(0.002)*	*(0.002)*	*(0.001)*	*(0.002)*

Entries are weighted averages (utilizing survey weights provided) with bootstrap standard errors in parentheses.

Table 2 – Descriptive Statistics Firm Attributes (Males) – Means by Education

Population	Non-Immigrants		Recent Immigrants		Established Immigrants	
	With Degree	**No Degree**	**With Degree**	**No Degree**	**With Degree**	**No Degree**
Ln(wage)	3.490	2.922	3.073	2.714	3.314	3.026
	(0.019)	*(0.002)*	*(0.010)*	*(0.019)*	*(0.009)*	*(0.004)*
Firm Characteristics						
Foreign Own	14.894	11.456	18.158	2.813	17.212	23.299
	(0.313)	*(0.198)*	*(0.509)*	*(0.136)*	*(0.468)*	*(0.580)*
Exporter	0.251	0.191	0.361	0.176	0.295	0.273
	(0.005)	*(0.002)*	*(0.009)*	*(0.006)*	*(0.008)*	*(0.005)*
R&D Intensity	0.258	0.177	0.278	0.158	0.356	0.150
	(0.006)	*(0.002)*	*(0.007)*	*(0.005)*	*(0.007)*	*(0.004)*
Rev per worker	$275,904	$221,608	$194,138	$193,328	$312,319	$223,471
	(2221.73)	*(1382.64)*	*(2901.89)*	*(6803.89)*	*(7679.58)*	*(5748.19)*
Employee Characteristics						
Ln(employees)	4.226	3.819	4.060	3.756	4.445	4.055
	(0.017)	*(0.007)*	*(0.028)*	*(0.026)*	*(0.025)*	*(0.021)*
Share Full Time	0.865	0.818	0.946	0.772	0.888	0.877
	(0.003)	*(0.002)*	*(0.002)*	*(0.006)*	*(0.003)*	*(0.002)*
Quit Rate	0.114	0.151	0.156	0.237	0.107	0.173
	(0.002)	*(0.001)*	*(0.006)*	*(0.008)*	*(0.002)*	*(0.004)*
Share new hires	0.242	0.303	0.321	0.362	0.246	0.282
	(0.005)	*(0.002)*	*(0.009)*	*(0.006)*	*(0.003)*	*(0.005)*
Share >$80K	0.170	0.057	0.100	0.034	0.144	0.070
	(0.003)	*(0.000)*	*(0.002)*	*(0.001)*	*(0.003)*	*(0.001)*
Human Resource/Benefits						
Staff Out	0.542	0.549	0.533	0.517	0.650	0.590
	(0.009)	*(0.002)*	*(0.010)*	*(0.012)*	*(0.008)*	*(0.005)*
Class Training	0.401	0.346	0.325	0.316	0.350	0.329
	(0.007)	*(0.002)*	*(0.008)*	*(0.010)*	*(0.006)*	*(0.005)*
Job Training	0.448	0.295	0.436	0.195	0.347	0.277
	(0.008)	*(0.004)*	*(0.009)*	*(0.008)*	*(0.007)*	*(0.004)*
Gov't Training Funds Received	0.073	0.068	0.050	0.109	0.047	0.045
	(0.002)	*(0.001)*	*(0.004)*	*(0.007)*	*(0.003)*	*(0.004)*
Pension	0.451	0.301	0.371	0.314	0.395	0.356
	(0.008)	*(0.002)*	*(0.009)*	*(0.009)*	*(0.007)*	*(0.006)*
Dental	0.716	0.561	0.715	0.604	0.695	0.641
	(0.005)	*(0.002)*	*(0.008)*	*(0.012)*	*(0.009)*	*(0.005)*

Entries are weighted averages (utilizing survey weights provided) with bootstrap standard errors in parentheses.

Table 3 – Wage Regressions: Adding Firm Attributes (Males)

Population:	**Non-Immigrants**		**Recent Immigrants**		**Established Immigrants**	
	No Firm Effects	***With Firm Effects***	***No Firm Effects***	***With Firm Effects***	***No Firm Effects***	***With Firm Effects***
Diff Language	0.035**	-0.015*	-0.178**	0.012**	-0.200**	-0.106**
	(0.007)	*(0.006)*	*(0.012)*	*(0.006)*	*(0.010)*	*(0.007)*
Ed (highschool)	0.047**	-0.006	0.125**	-0.281**	0.084**	0.009*
	(0.005)	*(0.004)*	*(0.021)*	*(0.015)*	*(0.010)*	*(0.008)*
Ed (some college)	0.143**	0.050**	0.286**	-0.153**	0.357**	0.066*
	(0.005)	*(0.004)*	*(0.028)*	*(0.017)*	*(0.011)*	*(0.008)*
Ed (college/trade)	0.252**	0.101	0.154**	-0.367**	0.266**	0.058**
	(0.005)	*(0.003)*	*(0.021)*	*(0.016)*	*(0.010)*	*(0.006)*
Ed (bachelor)	0.589**	0.271**	0.441**	-0.307**	0.469**	0.141**
	(0.011)	*(0.022)*	*(0.022)*	*(0.015)*	*(0.014)*	*(0.014)*
Ed (post grad)	0.770**	0.419**	0.624**	-0.330**	0.795	0.331**
	(0.008)	*(0.009)*	*(0.026)*	*(0.018)*	*(0.017)*	*(0.012)*
Yrs of Exp	0.026**	0.010**	0.048**	0.017**	0.029	0.015**
	(0.001)	*(0.001)*	*(0.002)*	*(0.001)*	*(0.001)*	*(0.001)*
Yrs of Exp^2	-0.001**	-0.0001**	-0.001**	-0.0004**	-0.0003**	-0.0002**
	(0.000)	*(0.000)*	*(0.000)*	*(0.005)*	*(0.000)*	*(0.000)*
Seniority	0.011**	0.007**	0.019**	0.010**	0.008**	0.002**
	(0.000)	*(0.000)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.000)*
Age	0.001**	0.001	-0.005**	0.001*	-0.004**	0.002*
	(0.000)	*(0.000)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.000)*
Dependents	0.033**	0.026**	-0.041**	-0.012**	0.016**	0.013**
	(0.002)	*(0.002)*	*(0.004)*	*(0.003)*	*(0.003)*	*(0.002)*
Married	0.203**	0.110**	0.141**	0.088**	0.012**	-0.039**
	(0.004)	*(0.004)*	*(0.020)*	*(0.010)*	*(0.010)*	*(0.008)*
Div/wid/sep	0.085**	0.039**	0.169**	-0.066**	0.089	0.020*
	(0.007)	*(0.006)*	*(0.027)*	*(0.015)*	*(0.017)*	*(0.010)*
Fixed Effects:	Region	Region, Occupation Industry	Region	Region, Occupation Industry	Region	Region, Occupation Industry
R^2	0.3831	0.6346	0.3960	0.6369	0.3911	0.6372
Weighted Pop.	11,753,385	11,753,385	11,753,385	11,753,385	11,753,385	11,753,385

*p< .05, ** p < .01. Bootstrap Standard Errors in parentheses. Region Fixed Effects = binary variables for eight different geographic regions. Occupation Fixed Effects = binary variables for six occupation types. Industry Fixed Effects = binary variables for 14 industry categories.

Table 4 – Wage Regressions (Males), Firm Factor Coefficients

		Recent Immigrants		Established Immigrants	
Population	**Non-Immigrant**	**Traditional**	**Non-Traditional**	**Traditional**	**Non-Traditional**
Firm Characteristics:					
Foreign Own %	0.0002**	-0.003**	0.003**	0.001**	0.001**
	(0.0001)	*(0.0001)*	*(0.000)*	*(0.0001)*	*(0.0001)*
Exporter	-0.014**	-0.144**	0.036**	0.063**	-0.031**
	(0.003)	*(0.012)*	*(0.009)*	*(0.006)*	*(0.005)*
R&D Intensity	0.037**	-0.103**	0.243**	0.040	-0.031**
	(0.003)	*(0.010)*	*(0.009)*	*(0.007)*	*(0.007)*
Rev per worker (x10,000)	0.001**	0.004**	0.001	0.004**	-0.002**
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Union	-0.015**	0.070**	0.004	0.063**	-0.046**
	(0.003)	*(0.013)*	*(0.010)*	*(0.007)*	*(0.008)*
Employee Characteristics:					
Ln(employees)	0.033**	0.065**	0.010**	0.050**	0.067**
	(0.001)	*(0.004)*	*(0.003)*	*(0.002)*	*(0.002)*
Share Full Time	0.264**	0.433**	0.405**	0.176**	0.184**
	(0.011)	*(0.029)*	*(0.019)*	*(0.018)*	*(0.017)*
Quit Rate	-0.084**	-0.688**	-0.001**	0.134**	0.138**
	(0.006)	*(0.030)*	*(0.016)*	*(0.014)*	*(0.020)*
Share new hires	-0.011**	-0.002	-0.029	0.006*	-0.084*
	(0.002)	*(0.020)*	*(0.011)*	*(0.008)*	*(0.012)*
Share >$80K	0.819**	1.023**	0.585**	0.656**	0.825**
	(0.020)	*(0.051)*	*(0.031)*	*(0.029)*	*(0.027)*
HR/Benefits:					
Staff Out	0.022**	-0.007**	-0.105**	0.013	0.132**
	(0.0004)	*(0.011)*	*(0.007)*	*(0.017)*	*(0.006)*
Class Training	0.009*	-0.083**	0.207**	0.135**	0.056**
	(0.004)	*(0.009)*	*(0.006)*	*(0.006)*	*(0.007)*
Job Training	0.036**	0.010*	0.167**	0.064**	0.114**
	(0.003)	*(0.011)*	*(0.007)*	*(0.008)*	*(0.006)*
Gov't Training Funds Received	0.019**	-0.241**	0.118**	-0.007*	-0.170*
	(0.005)	*(0.021)*	*(0.012)*	*(0.013)*	*(0.011)*
Pension	0.030**	0.061**	0.011**	0.007**	0.013*
	(0.005)	*(0.005)*	*(0.007)*	*(0.013)*	*(0.008)*
Dental	0.109**	0.046**	0.098	0.022**	0.096
	(0.005)	*(0.013)*	*(0.008)*	*(0.010)*	*(0.008)*
Fixed Effects:	Region Occupation Industry	Region Occupation Industry	Region Occupation Industry	Region Occupation Industry	Region Occupation Industry
R^2	0.6346	0.6354	0.6404	0.6357	0.6379
Weighted Population	11,753,385	11,170,054	11,163,781	11,088,465	11,146,044

*p< .05, ** p < .01. Bootstrap Standard Errors in parentheses. Region Fixed Effects = binary variables for eight different geographic regions. Occupation Fixed Effects = binary variables for six occupation types. Industry Fixed Effects = binary variables for 14 industry categories.

Table 5 – Wage Regressions (Males), By Degree Status

	Non-Immigrants		Recent Immigrants		Established Immigrants	
Population	**With Degree**	**No Degree**	**With Degree**	**No Degree**	**With Degree**	**No Degree**
Firm Characteristics:						
Foreign Own %	-0.0003**	0.0003**	0.001**	-0.004**	0.001**	0.001**
	(0.0001)	*(0.0001)*	*(0.0001)*	*(0.000)*	*(0.0001)*	*(0.0001)*
Exporter	-0.123**	0.003	0.058**	0.107**	0.149**	-0.020**
	(0.009)	*(0.003)*	*(0.014)*	*(0.009)*	*(0.012)*	*(0.006)*
R&D Intensity	0.106**	0.040**	0.005**	0.024	-0.116	0.033
	(0.007)	*(0.004)*	*(0.012)*	*(0.009)*	*(0.012)*	*(0.006)*
Rev per worker (x 10,000)	0.002**	0.001**	-0.001**	0.002**	-0.001**	-0.004**
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Union	-0.073**	-0.021**	-0.153**	0.163**	-0.111**	0.028**
	(0.010)	*(0.003)*	*(0.020)*	*(0.008)*	*(0.019)*	*(0.006)*
Employee Characteristics:						
Ln(employees)	0.030**	0.033**	0.033	-0.012**	0.041**	0.050**
	(0.002)	*(0.001)*	*(0.005)*	*(0.003)*	*(0.004)*	*(0.002)*
Share Full Time	0.358**	0.257**	0.278	0.463**	-0.068*	0.081**
	(0.020)	*(0.007)*	*(0.044)*	*(0.022)*	*(0.032)*	*(0.014)*
Quit Rate	-0.004	-0.107**	-0.442**	-0.173**	0.355**	0.033**
	(0.014)	*(0.006)*	*(0.031)*	*(0.017)*	*(0.038)*	*(0.011)*
Share new hires	-0.018**	-0.008**	0.113**	0.142**	-0.055**	0.049**
	(0.002)	*(0.002)*	*(0.017)*	*(0.011)*	*(0.015)*	*(0.007)*
Share >$80K	0.636**	0.907**	1.026**	0.197**	0.291**	0.525**
	(0.015)	*(0.021)*	*(0.033)*	*(0.045)*	*(0.036)*	*(0.024)*
HR/Benefits:						
Staff Out	0.057**	0.024**	-0.118**	0.042**	0.170**	0.033
	(0.005)	*(0.003)*	*(0.015)*	*(0.006)*	*(0.010)*	*(0.005)*
Class Training	-0.013*	0.020**	0.172**	0.223**	0.132**	0.090**
	(0.006)	*(0.002)*	*(0.012)*	*(0.006)*	*(0.009)*	*(0.005)*
Job Training	0.010	0.039**	0.206**	0.175**	0.056**	0.067**
	(0.005)	*(0.003)*	*(0.011)*	*(0.011)*	*(0.009)*	*(0.005)*
Gov't Training Funds Received	0.004	0.034**	-0.055*	0.092**	-0.310**	-0.050**
	(0.008)	*(0.005)*	*(0.024)*	*(0.009)*	*(0.023)*	*(0.008)*
Pension	0.049**	0.038**	0.066	0.069**	-0.157**	0.091**
	(0.007)	*(0.003)*	*(0.012)*	*(0.010)*	*(0.010)*	*(0.005)*
Dental	0.174**	0.106**	-0.002**	-0.008**	-0.049**	0.040**
	(0.008)	*(0.003)*	*(0.014)*	*(0.008)*	*(0.014)*	*(0.006)*
Fixed Effects:	Region Occupation Industry	Region Occupation Industry	Region Occupation Industry	Region Occupation Industry	Region Occupation Industry	Region Occupation Industry
R^2	0.6633	0.5782	0.6633	0.5782	0.6613	0.5806
Weighted Population	11,479,314	11,431,469	11,479,314	11,431,469	11,423,413	11,388,044

*p< .05, ** p < .01. Bootstrap Standard Errors in parentheses. Region Fixed Effects = binary variables for eight different geographic regions. Occupation Fixed Effects = binary variables for six occupation types. Industry Fixed Effects = binary variables for 14 industry categories.

Table 6A – Oaxaca Sorting Contribution of Establishment Characteristics: Recent Arrivals by Source Region/Degree (Males)

Population	Traditional	Non-Traditional	With Degree	No Degree	Non-Traditional Degree
Overall:					
Non-Immigrant Wage	3.003**	3.003**	3.490**	2.922**	3.490**
	(0.014)	*(0.016)*	*(0.037)*	*(0.013)*	*(0.038)*
Immigrant Wage	3.142**	2.745**	3.073**	2.714**	2.908**
	(0.070)	*(0.065)*	*(0.065)*	*(0.061)*	*(0.077)*
Difference	-0.140*	0.258**	0.417*	0.208**	0.582**
	(0.071)	*(0.067)*	*(0.076)*	*(0.064)*	*(0.094)*
Firm Characteristics:					
Foreign Own	0.001	0.0002	0.0003	0.002	-0.002
	(0.002)	*(0.002)*	*(0.003)*	*(0.002)*	*(0.008)*
Exporter	0.001	0.0003	0.004	0.00002	0.005
	(0.002)	*(0.001)*	*(0.006)*	*(0.001)*	*(0.006)*
R&D Intensity	-0.003	0.0002	-0.002	0.001	0.001
	(0.003)	*(0.002)*	*(0.005)*	*(0.003)*	*(0.006)*
Rev per worker	0.002	0.003	0.001	0.003	0.002
	(0.002)	*(0.002)*	*(0.002)*	*(0.003)*	*(0.003)*
Employee Characteristics:					
Ln(employees)	-0.001	-0.0004	-0.004	0.002	-0.0003
	(0.001)	*(0.006)*	*(0.007)*	*(0.006)*	*(0.007)*
Share Full Time	-0.023**	0.001	-0.030*	0.012	-0.021
	(0.008)	*(0.009)*	*(0.014)*	*(0.011)*	*(0.013)*
Quit Rate	0.001	0.006	0.006	0.009	0.006
	(0.003)	*(0.005)*	*(0.006)*	*(0.006)*	*(0.008)*
Share new hires	0.0002	0.001	0.001	0.0005	0.003
	(0.001)	*(0.001)*	*(0.007)*	*(0.002)*	*(0.007)*
Share >$80K	-0.016	0.020**	0.048**	0.022**	0.057**
	(0.014)	*(0.007)*	*(0.013)*	*(0.008)*	*(0.011)*
HR/Benefits:					
Staff Out	-0.002	0.002	0.0003	0.001	0.001
	(0.003)	*(0.002)*	*(0.005)*	*(0.003)*	*(0.005)*
Class Training	0.0004	0.001	0.001	0.001	0.001
	(0.002)	*(0.002)*	*(0.003)*	*(0.002)*	*(0.004)*
Job Training	-0.003	0.003	0.001	0.004	0.004
	(0.003)	*(0.003)*	*(0.005)*	*(0.003)*	*(0.006)*
Gov't Training Funds Received	-0.001	-0.00005	-0.002	-0.001	-0.001
	(0.001)	*(0.001)*	*(0.003)*	*(0.002)*	*(0.003)*
Pension	0.001	-0.001	0.003	-0.0004	0.001
	(0.002)	*(0.003)*	*(0.007)*	*(0.003)*	*(0.005)*
Dental	-0.007	-0.008	0.0002	-0.005	-0.004
	(0.009)	*(0.008)*	*(0.009)*	*(0.007)*	*(0.012)*

Entries are derived from Oaxaca decompositions as described in text. *p< .05, ** p < .01. Standard Errors in parentheses.

Table 6B – Oaxaca Sorting Contribution of Establishment Characteristics: Established Immigrants by Source Region/Degree (Males)

Population	Traditional	Non-Traditional	With Degree	No Degree
Overall:				
Non-Immigrant Wage	3.003**	3.003**	3.490**	2.922**
	(0.015)	*(0.015)*	*(0.040)*	*(0.016)*
Immigrant Wage	3.096**	2.991**	3.314**	3.026**
	(0.029)	*(0.039)*	*(0.078)*	*(0.031)*
Difference	-0.093**	0.012	0.176**	-0.104**
	(0.033)	*(0.041)*	*(0.090)*	*(0.035)*
Firm Characteristics:				
Foreign Own	-0.004	-0.002	-0.0002	-0.005
	(0.003)	*(0.003)*	*(0.002)*	*(0.004)*
Exporter	0.001	0.002	0.003	-0.010
	(0.002)	*(0.002)*	*(0.005)*	*(0.007)*
R&D Intensity	-0.0003	-0.001	-0.007	0.001
	(0.001)	*(0.002)*	*(0.006)*	*(0.001)*
Rev per worker	0.001	-0.0002	-0.0004	-0.0002
	(0.001)	*(0.002)*	*(0.002)*	*(0.001)*
Employee Characteristics:				
Ln(employees)	-0.010*	-0.011*	-0.009	-0.001
	(0.004)	*(0.006)*	*(0.008)*	*(0.002)*
Share Full Time	-0.015**	-0.012	-0.010	-0.015**
	(0.005)	*(0.007)*	*(0.013)*	*(0.004)*
Quit Rate	0.0004	-0.003	0.0005	0.001
	(0.002)	*(0.001)*	*(0.002)*	*(0.002)*
Share new hires	-0.0001	-0.001	0.00002	-0.0001
	(0.001)	*(0.001)*	*(0.001)*	*(0.001)*
Share >$80K	-0.011	-0.008	0.018	-0.010
	(0.006)	*(0.008)*	*(0.013)*	*(0.007)*
HR/Benefits:				
Staff Out	-0.002	-0.002	-0.008	-0.001
	(0.001)	*(0.002)*	*(0.007)*	*(0.001)*
Class Training	0.0005	0.0003	0.002	0.0004
	(0.001)	*(0.001)*	*(0.003)*	*(0.001)*
Job Training	0.001	-0.0004	0.006	0.001
	(0.001)	*(0.002)*	*(0.007)*	*(0.002)*
Gov't Training Funds Received	0.0005	0.0002	-0.002	-0.008
	(0.001)	*(0.001)*	*(0.002)*	*(0.004)*
Pension	-0.001	-0.001	-0.001	-0.003
	(0.002)	*(0.002)*	*(0.003)*	*(0.002)*
Dental	-0.007*	-0.008	0.003	-0.008
	(0.004)	*(0.006)*	*(0.010)*	*(0.004)*

Entries are derived from Oaxaca decompositions as described in text. *p< .05, ** p < .01. Standard Errors in parentheses.

Table 7 – Oaxaca Contribution of Adjusted Establishment Skill Level: Recent Arrivals by Source Region/Degree (Males)

Population	Traditional	Non-Traditional	With Degree	No Degree	Non-Traditional Degree
Overall:					
Non-Immigrant Wage	3.003** *(0.014)*	3.003** *(0.016)*	3.490** *(0.037)*	2.922** *(0.013)*	3.490** *(0.038)*
Immigrant Wage	3.142** *(0.070)*	2.745** *(0.065)*	3.073** *(0.065)*	2.714** *(0.061)*	2.908** *(0.077)*
Difference	-0.140* *(0.071)*	0.258** *(0.067)*	0.417* *(0.076)*	0.208** *(0.064)*	0.582** *(0.094)*
Establishment Characteristic:					
Average Payroll	-0.0004 *(0.010)*	0.0225* *(0.010)*	0.0248* *(0.010)*	0.0309** *(0.011)*	0.0306* *(0.014)*
Share >$80K	-0.009 *(0.009)*	0.0121* *(0.005)*	0.0322** *(0.005)*	0.0129* *(0.005)*	0.0368** *(0.005)*
Percent Explained:					
Average Payroll	0.2%	8.9%	6%	15%	5.6%
Share >$80K	6.4%	4.7%	7.7%	6%	6.4%
Total	6.8%	13.6%	13.7%	21%	12%

Entries are derived from Oaxaca decompositions as described in text. *p< .05, ** p < .01. Standard Errors in parentheses.

APPENDIX TABLES

Appendix Table 1A – Oaxaca Sorting Contribution of Worker Characteristics: Recent Arrivals by Source Region/Degree (Males)

Population	Traditional	Non-Traditional	With Degree	No Degree	Non-Traditional Degree
Overall:					
Non-Immigrant Wage	3.003**	3.003**	3.490**	2.922**	3.490**
	(0.014)	*(0.016)*	*(0.037)*	*(0.013)*	*(0.038)*
Immigrant Wage	3.142**	2.745**	3.073**	2.714**	2.908**
	(0.070)	*(0.065)*	*(0.065)*	*(0.061)*	*(0.077)*
Difference	-0.140*	0.258**	0.417*	0.208**	0.582**
	(0.071)	*(0.067)*	*(0.076)*	*(0.064)*	*(0.094)*
Worker Characteristics:					
Diff Language	0.007	0.006	-0.008	0.026	-0.056
	(0.0126)	*(0.022)*	*(0.054)*	*(0.017)*	*(0.072)*
Ed (<highschool)	-0.021	-0.015	---	---	---
	(0.002)	*(0.006)*			
Ed (highschool)	-0.009	-0.011	---	---	---
	(0.006)	*(0.007)*			
Ed (some college)	-0.007	-0.003	---	---	---
	(0.003)	*(0.003)*			
Ed (college/trade)	-0.003	-0.002	---	---	---
	(0.003)	*(0.002)*			
Ed (bachelor)	-0.034**	-0.025	---	---	---
	(0.013)	*(0.010)*			
Ed (post grad)	-0.031	-0.027	---	---	---
	(0.017)	*(0.011)*			
Yrs of Exp	0.051	0.062	0.024	0.053	0.033
	(0.025)	*(0.024)*	*(0.034)*	*(0.026)*	*(0.026)*
Yrs Exp^2	0.028	-0.037	-0.024	-0.026	-0.040
	(0.017)	*(0.017)*	*(0.024)*	*(0.016)*	*(0.022)*
Seniority	0.039	0.044	0.038	0.038	0.044
	(0.007)	*(0.007)*	*(0.018)*	*(0.010)*	*(0.018)*
Age	0.001	0.001	0.026	-0.000	0.025
	(0.005)	*(0.004)*	*(0.014)*	*(0.005)*	*(0.015)*
# Dependents	-0.007	-0.017	-0.005	-0.013	-0.009
	(0.005)	*(0.007)*	*(0.006)*	*(0.007)*	*(0.008)*
Single	-0.006	-0.005	-0.000	-0.005	-0.001
	(0.003)	*(0.003)*	*(0.004)*	*(0.004)*	*(0.005)*
Married	-0.009	-0.008	-0.008	-0.007	-0.012
	(0.004)	*(0.004)*	*(0.005)*	*(0.004)*	*(0.007)*
Div/wid/sep	-0.000	-0.000	-0.002	0.000	-0.002
	(0.001)	*(0.001)*	*(0.002)*	*(0.001)*	*(0.002)*

Entries are derived from Oaxaca decompositions as described in text. *p< .05, ** p < .01. Standard Errors in parentheses.

Appendix Table 1B – Oaxaca Sorting Contribution of Worker Characteristics: Established Immigrants by Source Region/Degree (Males)

Population	Traditional	Non-Traditional	With Degree	No Degree
Overall:				
Non-Immigrant Wage	3.003**	3.003**	3.490**	2.922**
	(0.015)	*(0.015)*	*(0.040)*	*(0.016)*
Immigrant Wage	3.096**	2.991**	3.314**	3.026**
	(0.029)	*(0.039)*	*(0.078)*	*(0.031)*
Difference	-0.093**	0.012	0.176**	-0.104**
	(0.033)	*(0.041)*	*(0.090)*	*(0.035)*
Worker Characteristics:				
Diff Language	0.022	0.018	0.039	0.017
	(0.010)	*(0.015)*	*(0.030)*	*(0.007)*
Ed (<highschool)	-0.008	-0.008	---	---
	(0.003)	*(0.004)*		
Ed (highschool)	-0.005	-0.010	---	---
	(0.003)	*(0.004)*		
Ed (some college)	-0.001	-0.003	---	---
	(0.002)	*(0.002)*		
Ed (college/trade)	0.000	0.000	---	---
	(0.001)	*(0.001)*		
Ed (bachelor)	-0.008	-0.015	---	---
	(0.003)	*(0.004)*		
Ed (post grad)	-0.010	-0.012	---	---
	(0.004)	*(0.005)*		
Yrs of Exp	-0.028	0.022	-0.009	-0.031
	(0.011)	*(0.013)*	*(0.016)*	*(0.012)*
Yrs Exp^2	0.012	-0.018	0.005	0.014
	(0.007)	*(0.012)*	*(0.011)*	*(0.008)*
Seniority	-0.007	-0.003	0.002	-0.009
	(0.004)	*(0.004)*	*(0.010)*	*(0.005)*
Age	0.002	-0.001	-0.034	0.005
	(0.011)	*(0.007)*	*(0.018)*	*(0.012)*
# Dependents	-0.008	-0.017	-0.001	-0.007
	(0.003)	*(0.005)*	*(0.006)*	*(0.003)*
Single	-0.006	-0.007	0.002	-0.009
	(0.003)	*(0.003)*	*(0.010)*	*(0.004)*
Married	-0.007	-0.009	-0.005	-0.007
	(0.002)	*(0.003)*	*(0.004)*	*(0.002)*
Div/wid/sep	0.000	-0.000	-0.003	-0.000
	(0.000)	*(0.000)*	*(0.002)*	*(0.001)*

Entries are derived from Oaxaca decompositions as described in text. *p< .05, ** p < .01. Standard Errors in parentheses.

Appendix Table 2A – Oaxaca Differential Premia Contribution of Establishment Characteristics: Recent Arrivals by Source Region/Degree (Males)

Population	Traditional	Non-Traditional	With Degree	No Degree	Non-Traditional Degree
Overall:					
Non-Immigrant Wage	3.003**	3.003**	3.490**	2.922**	3.490**
	(0.014)	*(0.016)*	*(0.037)*	*(0.013)*	*(0.038)*
Immigrant Wage	3.142**	2.745**	3.073**	2.714**	2.908**
	(0.070)	*(0.065)*	*(0.065)*	*(0.061)*	*(0.077)*
Difference	-0.140*	0.258**	0.417*	0.208**	0.582**
	(0.071)	*(0.067)*	*(0.076)*	*(0.064)*	*(0.094)*
Firm Characteristics:					
Foreign Own	-0.0200	-0.0267	-0.0168	0.0125*	-0.0939*
	(0.014)	*(0.019)*	*(0.023)*	*(0.006)*	*(0.048)*
Exporter	0.0430	-0.0115	-0.0564	-0.0109	-0.0640
	(0.088)	*(0.019)*	*(0.044)*	*(0.014)*	*(0.048)*
R&D Intensity	0.0378	-0.0378*	0.0285	0.0005	0.0012
	(0.033)	*(0.019)*	*(0.032)*	*(0.016)*	*(0.032)*
Rev per worker	0.0904	-0.0066	0.1086	-0.0168	-0.0061
	(0.067)	*(0.037)*	*(0.063)*	*(0.036)*	*(0.059)*
Employee Characteristics:					
Ln(employees)	-0.1356	0.0871	0.0049	0.1699	0.1638
	(0.195)	*(0.122)*	*(0.206)*	*(0.117)*	*(0.232)*
Share Full Time	-0.1364	-0.1143	0.0291	-0.0993	-0.0307
	(0.342)	*(0.166)*	*(0.386)*	*(0.206)*	*(0.467)*
Quit Rate	0.0906	-0.0179	0.0647	0.0124	0.0135
	(0.052)	*(0.035)*	*(0.045)*	*(0.037)*	*(0.059)*
Share new hires	0.0024	0.0066	-0.0472	-0.0492	-0.0056
	(0.080)	*(0.046)*	*(0.068)*	*(0.058)*	*(0.075)*
Share >$80K	-0.018	0.0111	-0.0471	0.0236	0.0200
	(0.044)	*(0.014)*	*(0.032)*	*(0.018)*	*(0.027)*
HR/Benefits:					
Staff Out	0.0149	0.0601	0.0908	-0.0249	0.0654
	(0.089)	*(0.034)*	*(0.061)*	*(0.037)*	*(0.051)*
Class Training	0.0284	-0.065**	-0.0610	-0.0620*	-0.0941
	(0.033)	*(0.023)*	*(0.041)*	*(0.031)*	*(0.052)*
Job Training	0.0103	-0.0340	-0.0891	-0.0268	-0.0779*
	(0.048)	*(0.020)*	*(0.057)*	*(0.020)*	*(0.037)*
Gov't Training Funds Received	0.0254	-0.0073	0.0078	-0.0029	0.0014
	(0.021)	*(0.011)*	*(0.015)*	*(0.013)*	*(0.017)*
Pension	-0.0097	0.0063	-0.0072	-0.0167	0.0001
	(0.038)	*(0.027)*	*(0.042)*	*(0.031)*	*(0.051)*
Dental	0.0336	0.0073	0.1240	0.0378	0.2113
	(0.020)	*(0.054)*	*(0.110)*	*(0.041)*	*(0.130)*

*p< .05, ** p < .01. Standard Errors in parentheses. Region Fixed Effects = binary variables for eight different geographic regions. Occupation Fixed Effects = binary variables for six occupation types. Industry Fixed Effects = binary variables for 14 industry categories.

Appendix Table 2B – Oaxaca Differential Premia Contribution of Establishment Characteristics: Established Immigrants by Source Region/Degree (Males)

Population	Traditional	Non-Traditional	With Degree	No Degree
Overall:				
Non-Immigrant Wage	3.003**	3.003**	3.490**	2.922**
	(0.015)	*(0.015)*	*(0.040)*	*(0.016)*
Immigrant Wage	3.096**	2.991**	3.314**	3.026**
	(0.029)	*(0.039)*	*(0.078)*	*(0.031)*
Difference	-0.093**	0.012	0.176**	-0.104**
	(0.033)	*(0.041)*	*(0.090)*	*(0.035)*
Firm Characteristics:				
Foreign Own	-0.0114	-0.0122	-0.0163	-0.0084
	(0.013)	*(0.012)*	*(0.019)*	*(0.010)*
Exporter	-0.0198	0.0035	-0.0412	0.0070
	(0.014)	*(0.013)*	*(0.026)*	*(0.010)*
R&D Intensity	-0.0022	0.0155	0.0363	0.0012
	(0.010)	*(0.012)*	*(0.030)*	*(0.007)*
Rev per worker	0.0069	0.0166	0.0166	0.0116
	(0.011)	*(0.012)*	*(0.018)*	*(0.008)*
Employee Characteristics:				
Ln(employees)	-0.0810	-0.0138*	-0.1775	-0.0787
	(0.075)	*(0.067)*	*(0.147)*	*(0.055)*
Share Full Time	0.0913	0.0595	-0.0026	0.1604
	(0.139)	*(0.154)*	*(0.340)*	*(0.097)*
Quit Rate	-0.0367*	-0.0269	-0.0432	-0.0222
	(0.018)	*(0.021)*	*(0.040)*	*(0.017)*
Share new hires	-0.0060	0.0150	0.0185	-0.0160
	(0.019)	*(0.022)*	*(0.037)*	*(0.015)*
Share >$80K	0.0124	-0.0018	-0.0497	0.0256*
	(0.016)	*(0.014)*	*(0.042)*	*(0.012)*
HR/Benefits:				
Staff Out	0.0035	-0.0632	-0.0977	-0.0068
	(0.030)	*(0.026)*	*(0.052)*	*(0.024)*
Class Training	-0.0435**	-0.0162	-0.0501	-0.0234
	(0.015)	*(0.015)*	*(0.026)*	*(0.012)*
Job Training	-0.0061	-0.0263	-0.0289	-0.0069
	(0.014)	*(0.015)*	*(0.029)*	*(0.010)*
Gov't Training Funds Received	0.0008	0.0078	0.0150	0.0037
	(0.004)	*(0.005)*	*(0.009)*	*(0.003)*
Pension	0.0038	0.0083	0.0684*	-0.0216
	(0.018)	*(0.017)*	*(0.032)*	*(0.014)*
Dental	0.0544	0.0100	0.0482	0.0415
	(0.041)	*(0.033)*	*(0.113)*	*(0.025)*

*p< .05, ** p < .01. Standard Errors in parentheses. Region Fixed Effects = binary variables for eight different geographic regions. Occupation Fixed Effects = binary variables for six occupation types. Industry Fixed Effects = binary variables for 14 industry categories.