

Wage Gap between White Non-Latinos and Latinos by Nativity and Gender in the Pacific Northwest, U.S.A.

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Abstract

We estimate the effects of demographic and socioeconomic factors in the wage income gap between White non-Latinos and Latinos the Pacific Northwest (PNW) of the U.S. by nativity and gender for the period 2005-2007 using data from the American Community Survey (ACS). Linear decomposition of annual wage income showed that age and education are the two most relevant factors that contribute to explain differences in wage income among the U.S. born males and females. Age explains 43% of the differences in males and 55% in females; education explains about 20% for both. In contrast, occupation and education are the most relevant factors that explain wage gap among male and female immigrants; occupations explain about 30% and education about 27%; in addition, while age explains 9% of the wage gap among males, the number of years in the United States explains 11% of the wage gap among females. Among immigrants, the type of occupation explains slightly more of the wage difference than education. Our findings support general recommendations: to urge Latinos in the PNW to successfully complete high school, present to them the availability of apprenticeship programs, but also encourage them to attend college with the possibility of pursuing postgraduate or specialized studies. Lower returns to Latino education at all levels warrant attention to the quality of education in accordance to the demand for a qualified labor force. Further research on returns to education for White non-Latinos and Latinos (including apprenticeship programs) and occupations, together with evaluation instruments to measure the efficacy of educational investments, could benefit both the workforce and employers.

Keywords: Hispanic, White non-Latino, wage, immigrants, occupations, education

1. Introduction

Ten percent of the population in the Pacific Northwest of the United States (PNW, including the states of Idaho, Oregon and Washington) is comprised of Latinos or Hispanics (these two terms are used interchangeably throughout this paper; they include individuals from many national origins, mostly from Latin America, based on ethnicity or language), and they are the largest and fastest growing minority. However, their income continues to lag behind that of White non-Latinos. Hispanics are predominantly hired in low-skilled jobs requiring a low educational attainment. The elevated rates of high school dropouts and low retention rates in higher education compound the challenges for their economic development. Cameron and Heckman (2001) found that long-run factors associated with parental background and environment, and not credit constraints, account for college attainment differentials. But Loftstrom (2007) found that poverty accounts for one half of the difference between Hispanics and whites in high school dropout probability. Yet, little is known about how the Hispanic workforce earns its wage income in the PNW. Steering outreach programs for Latino economic development requires an understanding of the factors that hinder or enhance Latino wage income.

While fewer non-Hispanic workers hold low-skilled jobs, an increasing number of Hispanic workers are in occupations with lower socioeconomic status (Toussaint-Comeau, Smith, & Comeau, 2005), this has been accentuated by the increasing number of immigrants. By their persistent pattern of concentration in specific occupational niches, Hispanics may be filling jobs that are not necessarily chosen by natives. Human capital characteristics, such as formal education, labor market experience, and demographic and socioeconomic factors such as immigration status, have impacts on occupational status (Rivera-Batiz, 1999). In 2000, Latinos accounted for 12.5% of the total U.S. population and 17.5% of the college-age population; however, only 10.8%

of the high school graduates, 9.9% of the associate degree recipients, 6.6% of all bachelor's degrees, and 3.8% of all doctorates were Latinos (Chapa & De La Rosa, 2006).

Toussaint-Comeau et al. (2005) suggested that the observed differences in the effects of schooling by the Hispanic group could be related to the fact that education prior to immigration is not fully transferable to the U.S. labor market, or that the market may value educational attainment from various countries differently. Wage convergence between Mexican immigrants and native-born workers has been the weakest compared to other immigrant groups. This is relevant in the PNW because four out of five Hispanics are of Mexican descent (Pew Hispanic Center, 2008), and the growth rate of Hispanic immigrants in the metropolitan areas in the PNW has been very rapid. According to Hellerstein, McInerney, & Neumark (2009), the city of Boise, Idaho, ranked 1st in terms of growth of non U.S. born Hispanic males between 1990 and 2000 (7,905%), followed by Spokane and Tacoma in the state of Washington (ranked 6th, 768% and 9th, 531%, respectively), and Portland, Oregon/Vancouver, Washington (ranked 18th, 372%). These areas are classified as nontraditional urban destinations of Mexican immigrants (McConnell, 2008). If policies are not undertaken to enhance the skills and education of both native-born Latino workers and Latino immigrants, there could be an even larger number of workers earning lower wages in comparison with White non-Latinos. Thus, there must be substantial improvement in educational attainment and workforce development to significantly contribute to Latino economic development.

This paper quantifies demographic and socioeconomic factors that determine the wage income gap between White non-Latinos and Latinos in the PNW by nativity (U.S. born and immigrants) and gender for the period 2005–2007. It complements a paper on the characteristics of Hispanics in the PNW who are self-employed and how the characteristics explain differences in income with their White non-Latino counterparts (Rodríguez & Devadoss, 2014). We begin by describing the characteristics of Latino wage earners by nativity and gender. Then, an empirical model for wage income is specified. Regression results of contributing factors that explain wage income by ethnicity and nativity are discussed, and decomposition results that quantify the contribution of various sets of variables to explain the ethnic wage gap are presented and discussed. The last section includes a summary and conclusion.

2. Latino Wage Earners in the PNW, 2005–2007

The PNW had a population of 11.72 million in 2007 and 1.15 million were Latinos. Sixty percent of the Latinos were native-born and 40% were foreign born; most Latinos in the PNW (82%) are of Mexican descent (Pew Hispanic Center, 2008). Data from the American Community Survey (ACS) revealed that there were about 5 million individuals of working age in the PNW during the period 2005–2007. U.S. born Latino males in the PNW earn 72% of what White non-Latinos earn, but Latino male immigrants earn only 37% of what White non-Latinos earn. The corresponding figures for U.S. born Latinas and Latina immigrants, respectively, are 76% and 48%. Thus, the ethnic income gap is larger for immigrants than for the U.S. born and larger for males than for females. The data also show that Latinos are six to seven years younger than White non-Latinos. Across the ethnic and nativity groups, 48% to 72% of individuals in the PNW between 18 and 64 years of age are married, 4%–15% are divorced, and 17% to 37% are single. Among Latinos (males), 31% to 37% are single, and among Latinas (females), 22% to 36% are single; however, the proportion of singles among the U.S. born Latinos and Latinas is larger than that of their immigrant counterparts. Latino and Latina immigrants have low school attainment; about 60% of Latinos and 55% of Latinas do not have a high school degree. Latina immigrants have more education than their male counterparts at the college or postgraduate level.

The occupations with the largest shares among the U.S. born males and females, and White non-Latina immigrants, are professional services, transportation, and retail. White non-Latino males and females have the highest proportions of individuals occupied in professional services, 33% and 37%, respectively. This is in sharp contrast with Latino and Latina immigrants occupied in professional services, 5% and 11%, respectively. Hispanic immigrants are largely concentrated in occupations related to agriculture, forestry and fishery: Latinos 24% and Latinas 20%. Latinos are very prominent in occupations with small labor market shares such as agriculture, forestry and fishery, or gardening and landscaping. The average Latino immigrant lives in less urbanized areas than their White non-Latino counterparts; they average 15 years in the United States compared to 20 years of their White non-Latino counterparts and less than one half of them (44% to 48%) believe they speak good English.

3. Empirical Model Specification and Procedures

We use ordinary least squares (OLS) regression to quantify the effects of socioeconomic and demographic variables that determine the wage income (W) gap between White non-Latinos and Latinos by nativity (U.S. born or immigrant) and gender.

$$\ln W_{ij} = X_{ij} \beta + P_{ij} \delta + e_{ij} \quad (1)$$

where $\ln W_{ij}$ is the natural logarithm of annual wage income of individuals of ethnic group i and nativity j , X_{ij} are individual observable characteristics, and P_{ij} are population density and state attributes. β and δ are parameters and e_{ij} is the random error term. Specification (1) has four equations (group i = White non-Latinos or Latinos and group j = U.S. born or immigrants) for males and four equations for females. Variable names and definitions are included in Table 1. Age, age squared, the proportion of metropolitan population, and years of residence in the United States for immigrants, are continuous variables. The rest of the variables are sets of dummy variables with a value of either 1 when an attribute applies to that observation or 0 when that attribute does not apply. Marital status is married, divorced, single, and widowed/separated, with the latter being the base group. Educational attainment is represented by four variables: lack of high school degree, high school graduate, some college or college graduate, and postgraduate or professional degree holder, with lack of high school degree being the base. There are 14 occupational groups: agriculture, forestry and fishery; construction; manufacturing; transportation and communications; wholesale trade; retail trade; finance, insurance and real estate; business services; professional services; personal services; entertainment and recreation; gardening and landscaping; repair; and other occupations (firefighters, police officers, detectives, animal control staffers, among other miscellaneous occupations)—professional services being the reference group. Immigrants' ability to speak good English is captured with a dummy variable (this is a self-assessed question in the ACS, which is subject to the individual's perception of her/his ability to speak English). The fixed effects for states are captured by dummy variables for Idaho, Oregon, and Washington, with the latter being the base.

Table 1. Variable names and definitions

Variable	Definition
wage	Annual wage income, 2007 \$
age	Age in number of years
agesq	Age squared
married	Married
divorced	Divorced
single	Single
hsgrad	High school graduate
hstobsgrad	High school to bachelor's degree
pstgrad	Postgraduate degree
agforfsh	Occupation in agriculture, forestry or fishery
const	Occupation in construction
manuf	Occupation in manufacturing
trancom	Occupation in transportation and communications
wholesale	Occupation in wholesale
retail	Occupation in retail
FIRE	Occupation in finance, insurance and real estate
busserv	Occupation in business services
persserv	Occupation in personal services
entrec	Occupation in entertainment and recreation
profserv	Occupation in professional services
gardland	Occupation in gardening and landscaping
repair	Occupation in repair
other	Other occupations (miscellaneous)
idaho	State of Idaho
oregon	State of Oregon
mpop	Proportion of metropolitan population, fractional value
ysinus	Number of years in the United States (immigrants)
engspkw	Speaks English well, self-assessed (immigrants)

Data from the ACS, 5% Public Use Micro data Sample for 2005, 2006 and 2007 is used for regression analyses including individuals between 18 and 64 years of age. The cases with zero or with negative wage income are excluded. The proportion of metropolitan population (fractional value from 0 to 1) in a cluster of at least 100,000 people occupying part of a county, one county, or more than one county is done following the method provided by Hertz (2010). The Oaxaca-Blinder linear decomposition (Blinder, 1973; Oaxaca, 1973) is used to ascertain differences in labor income between White non-Latinos and Latinos partitions the wage differential into a part that is explained by group differences in attributes, such as education or work experience, and a residual part that cannot be accounted for by such differences in wage determinants. The group differences in the explanatory variables are weighted by the parameters of non-Latinos to ascertain the endowment effect, measuring the expected change in Latino's wage income, if Latinos had White non-Latino's predictor levels. This counterfactual method to decompose explained and unexplained differentials has been used by Mora (2006), Lehner (2011), and Lofstrom (2011), among others.

4. Empirical Results

Results from the wage income regression for males (females) by ethnicity and nativity are included in Table 2 (Table 4) and sample means are included in Table 3 (Table 5). Wage income increases with age at a decreasing rate, reaching a maximum at 45 or 46 years of age for White non-Latinos and U.S. born Latinos; income of Latino immigrants peaks at 42 years of age. The wage income of the U.S. born (males and females) and White non-Latina immigrants increases with urbanization. This can be as high as 0.3% for a one percent increase in the proportion of metropolitan population for White non-Latina immigrants, and as low as 0.1% for a one percent increase in metro population for U.S. born White non-Latinos. Years in the United States significantly increases income for all immigrants; Latinas increase their income by 1.5% annually and their male counterparts only by 0.5% annually. The faster rate of wage income increase of Latina immigrants is due to the relatively lower average wage income compared to that of Latino immigrants (males \$24,376 and females \$15,846). Also, Latina immigrants increase their income with increasing number of years in the United States faster than White non-Latinas (1.5% and 0.9%, respectively). A good English speaking ability is significant for Latina immigrants but not for their male counterparts; in contrast, it is significant for White non-Latino immigrants but not for their female counterparts. Wage income is lower in Idaho and Oregon relative to Washington State. Latino immigrants in Idaho and Oregon, respectively, earn 30% and 24% below their counterparts in Washington State. Likewise, the wage income of White non-Latino U.S. born males and females in Idaho, respectively, is 20% and 23% below that of their counterparts in Washington State.

All males and U.S. born Latinas benefit from being married relative to their widowed or separated counterparts. Divorced and single U.S. born Latinas and White non-Latina immigrants benefit relative to the widowed or separated. This is in contrast to U.S. Latino males who earn less by being single. The majority of the coefficients for educational attainment are significant for both males and females and they are higher for increasing levels of schooling. Most of the coefficients for occupations, relative to professional services, are negative with the exception of wholesale and business services for U.S. born Latinas. Low skilled occupations such as agriculture, forestry and fishery; personal services; entertainment; gardening and landscaping; repair; and other occupations have large and significant negative coefficients relative to professional services. The types of occupations in which Latinos and White non-Latinos earn their wages are different. The dissimilarity index that measures the percentage of Latinos (or White non-Latinos) that would have to change jobs for the occupational distribution of the two groups to be the same (Duncan & Duncan, 1955) is 10% among the U.S. born and 40% among the immigrants (Note 1).

Linear decomposition results are shown in Table 6, which has eight columns representing combinations of gender, nativity, and occupations (the restricted model, No occup, and the unrestricted model, Occup). The differences in wage income between White non-Latinos and Latinos are larger for immigrants than for the U.S. born (in agreement with Stewart & Dixon, 2010). The income of U.S. born Latino males and females, respectively, is 0.3736 and 0.3233 log points below their White non-Latino counterparts; likewise, the income of Latino immigrant males and females, respectively, is 0.7859 and 0.5739 log points below their White non-Latino counterparts. Total explained differences are larger for the U.S. born compared to immigrants (while we are aware that there are major differences in wage income between males and females by ethnicity and nativity, this deserves special attention elsewhere). Among the U.S. born, the explained differences in wage income range from 83.6% to 88.9%; in contrast, the explained differences among immigrants range from 55.8% to 74.6%; as expected, the restricted models explain less of the differences than the unrestricted models. The F values support the use of occupation controls to ascertain the contribution of different variables to explain differences in wage

income between the two ethnic groups. Lehner (2011) uses occupational groups to account for occupational segregation.

Age, marital status, educational attainment, and occupation explain most of the wage income differences among the U.S. born. However, the contribution of marital status is smaller for females than males. Age, marital status, educational attainment, occupation, and years in the United States explain most of the differences in income among immigrants. Age and marital status of male immigrants explain much less of the differences in wage income, compared to the U.S. born. Age explains a very small difference in wage income, differences among female immigrants would be slightly larger if Latina immigrants had the same characteristics as their White non-Latina counterparts (-1.2% in the restricted model and -0.4% in the unrestricted model). The restricted models overestimate the contribution of educational attainment of the U.S. born White non-Latinos by 4.7% (22.4% minus 17.7%) for males and 7.4% (28.4% minus 21.0%) for females. Similarly, the restricted models overestimate the contribution of educational attainment of immigrant White non-Latinos by 12.9% (38.1% minus 25.2%) for males and 16.0% (43.9% minus 27.9%) for females. Even though human capital (school attainment, job experience, good English speaking ability among others) determines the type of occupation, the information in the ACS does not characterize the type of college or graduate education received (liberal arts, technical or scientific, etc.). Thus, occupational characteristics, which reflect a degree of segregation for Latinos vs. White non-Latinos, help to assign a more accurate explanatory value to wage income than education alone for both immigrants and U.S. born. The contributions of education for males and females relative to their counterparts without a high school degree, estimated with the coefficients of the unrestricted models, are depicted in Fig. 1a. Returns to a completed high school degree are highest for the U.S. born males (39%), closely followed by their Latino counterparts (36%), declining to 22% for White non-Latino (WNL) immigrants, and to less than 5% for Latino immigrants. Returns to college education are about 22% for White non-Latino males, 14% for U.S. born Latinos, and 11% for Latino immigrants. Our estimates for Latinos are in the low end of those reported by Kane and Rouse (1995, p. 608): 23% with an associate degree and 53% with a college degree, and by Marcotte (2010, p. 44): 14% with an associate degree and 43% with a college degree. Returns to postgraduate education are about 80% for White non-Latino males, 66% for U.S. born Latinos, and 48% for Latino immigrants. Returns to education in the different subgroups need to be weighted by the frequency of males in the different categories of educational attainment to assess the impact in the overall population category (Fig. 1b). Among Latino male immigrants, 24% have a high school degree, 15% have college education, and only 2% have postgraduate education. About 60% of Latino immigrants do not have a high school degree. In contrast, White non-Latino immigrants have a higher frequency of college and postgraduate educated than their U.S. born counterparts. Less than 10% do not have a high school degree.

Returns to a high school degree for U.S. born White non-Latino females is highest (39%), followed by Latina immigrants (15%), U.S. born Latinas (11%), and negative but not statistically significant for White non-Latina immigrants (Fig. 1a). Returns to college education for U.S. born Latinas is highest (29%), followed by U.S. born White non-Latinas (24%), White non-Latina immigrants (14%), and only 3% for Latina immigrants. However, returns to education of Latinas in the PNW are below the estimates by Kane and Rouse (1995), 36% with an associate degree and 67% with a college degree for females, or those by Marcotte (2010), 40% with an associate degree and 92% with a college degree. Returns to postgraduate education are about the same for White non-Latina and Latina immigrants, and lowest for U.S. born Latinas. Returns to postgraduate education are higher for Latina immigrants than for their male counterparts (72% and 48%, respectively). The opposite holds for the returns to college education; Latino immigrants show considerably higher returns than their female counterparts (11% and 3%, respectively). Similar to Latino immigrants, Latina immigrants have a very small proportion of postgraduate educated individuals (less than 3%).

For immigrants, the number of years in the United States explains 11.4% to 13.6% of the income differences for females and only 3.0% to 3.6% of the income differences for males (Table 6). It is possible that immigrant women are better learners than their male counterparts, this could be related to the type jobs they hold, requiring an ability to adapt to a different culture, for example retail vs. construction or agriculture. Self-assessed good English speaking ability has a small effect; the differences would be slightly larger if Latinos had the same characteristics as their White non-Latino counterparts (-0.3% in the unconstrained model to -0.5% in the constrained model).

Younger Latinos with low educational attainment and immigrant occupational segregation are key factors that explain the differences in wage income between Latinos and non-Latinos in the PNW. Age cannot be modified and marital status may or may not be factor to consider for individuals to improve their income. The ACS data do not provide wage income before marriage and the immigration status of the spouse to enhance the analysis.

However, school attainment is a choice variable, albeit with some limitations (finance and accessibility), which opens options for diverse occupations, including apprenticeship programs that require less or more than a high school degree, sometimes in conjunction with the high school program (Berik, Bilginsoy, & Williams, 2011).

Table 2. OLS regressions of male annual wage income by ethnicity and nativity in the PNW, 2005–2007

Variable	White non-Latino U.S. born		Latino U.S. born		White non-Latino immigrant		Latino immigrant	
	$\hat{\beta}/\hat{\delta}$	t	$\hat{\beta}/\hat{\delta}$	t	$\hat{\beta}/\hat{\delta}$	t	$\hat{\beta}/\hat{\delta}$	t
age	0.1822	16.0	0.1834	87.2	0.1024	13.1	0.1908	15.0
agesq	-0.0020	-14.0	-0.0020	-81.8	-0.0012	-12.4	-0.0021	-13.8
married	0.3916	3.4	0.2647	9.9	0.1252	1.9	0.3192	2.1
divorced	0.1149	0.9	-0.0129	-0.5	-0.0678	-0.8	0.0382	0.2
single	-0.0533	-0.5	-0.2331	-8.4	-0.0423	-0.6	0.0312	0.2
hsgrad	0.3096	5.3	0.3301	21.2	0.0313	1.0	0.2014	2.2
hstobsgrad	0.4043	7.0	0.4670	30.9	0.1307	3.4	0.3837	4.4
pstgrad	0.7737	7.6	0.7159	37.4	0.4692	5.0	0.6893	7.0
agforfsh	-0.6873	-5.6	-0.5133	-17.8	-0.5871	-9.0	-0.7934	-3.7
const	-0.1677	-2.1	-0.2841	-20.5	-0.1798	-2.7	-0.5356	-7.0
manuf	-0.1969	-2.4	-0.2663	-17.7	-0.2811	-4.1	-0.6217	-7.4
trancom	-0.2230	-3.2	-0.3211	-27.4	-0.3029	-4.6	-0.2772	-4.7
wholesale	-0.0742	-0.5	0.0378	1.4	-0.5702	-3.0	-0.2288	-1.3
retail	-0.3473	-4.6	-0.4558	-34.0	-0.4690	-6.7	-0.4690	-5.8
FIRE	-0.3812	-3.6	-0.1590	-8.5	-0.4614	-3.7	-0.2832	-2.6
busserv	0.0207	0.2	-0.0339	-1.5	-0.2136	-1.3	-0.2320	-1.9
persserv	-0.9179	-4.6	-0.8621	-24.1	-0.4798	-2.3	-0.9626	-4.6
entrec	-0.4088	-2.6	-0.5144	-18.2	-0.5912	-2.9	-0.2704	-1.8
gardland	-0.7774	-5.3	-1.0779	-29.1	-0.5523	-7.1	-1.6673	-4.9
repair	-0.2793	-3.4	-0.3689	-25.6	-0.3500	-4.9	-0.6676	-7.4
other	-0.1185	-1.4	-0.3024	-17.6	-0.3450	-2.9	-0.6026	-4.7
idaho	-0.2271	-3.8	-0.1539	-14.0	0.0003	0.0	-0.2979	-3.4
oregon	-0.0556	-1.3	-0.1138	-14.2	-0.0259	-1.0	-0.2398	-5.0
mpop	0.1069	2.0	0.1715	16.9	0.0225	0.7	0.0584	0.8
ysinus					0.0072	4.6	0.0046	2.8
engspkw					0.1341	5.0	0.0470	1.1
constant	6.0613	23.9	6.2145	117.7	7.9721	44.7	6.1048	18.8
No. obs.	67,058		2,549		2,307		4,164	
Adj R2	0.3583		0.3732		0.3125		0.1801	

Source: 2005–2007 American Community Survey.

See Table 1 for variable names and definitions.

Table 3. Male sample means of variables in wage income regressions by ethnicity and nativity in the PNW, 2005–2007

Variable	White non-Latino	Latino	White non-Latino	Latino
	U.S. born	U.S. born	immigrant	immigrant
lnwage	10.3636	9.9899	10.6072	9.8213
wage	49,687	35,704	65,839	24,376
age	41.4	34.7	42.1	35.3
married	0.6249	0.5073	0.7208	0.6177
divorced	0.1078	0.0926	0.0876	0.0408
single	0.2493	0.3711	0.1743	0.3069
hsgrad	0.2604	0.3084	0.1773	0.2440
hstobsgrad	0.5700	0.4684	0.5479	0.1451
pstgrad	0.1052	0.0565	0.2128	0.0204
agforfsh	0.0167	0.0326	0.0091	0.2378

const	0.1047	0.1032	0.1045	0.1676
manuf	0.0802	0.0996	0.0767	0.1117
trancom	0.1736	0.1824	0.1972	0.1400
wholesale	0.0196	0.0149	0.0139	0.0043
retail	0.1125	0.1373	0.0832	0.1047
FIRE	0.0420	0.0428	0.0373	0.0115
busserv	0.0272	0.0216	0.0299	0.0065
persserv	0.0103	0.0098	0.0095	0.0036
entrec	0.0167	0.0161	0.0182	0.0038
profserv	0.2453	0.1518	0.3281	0.0497
gardland	0.0096	0.0200	0.0035	0.0615
repair	0.0896	0.0973	0.0629	0.0843
other	0.0517	0.0706	0.0260	0.0130
idaho	0.1355	0.1338	0.0603	0.1227
oregon	0.3189	0.3138	0.2596	0.3622
mpop	0.7774	0.7921	0.8861	0.7489
yrsinus			18.9	14.8
engspkw			0.4378	0.4786
No. obs.	67,058	2,549	2,307	4,164

Source: 2005-2007 American Community Survey.

See Table 1 for variable names and definitions.

To narrow the ethnic wage gap, Latinos have to access education and apprenticeship programs and complete their training; equally important is to improve the quality of education offered to them. This entails the availability of programs that can accommodate part-time students, or possibly to change the priorities of Latinos from work to education, if student loans were available. Rochin & Mello (2007) found that Latinos tend to work part-time while going to school and take longer to complete a degree; a large number of them attend community colleges prior to their transfer to a four-year university (the proportion of Hispanics attending community colleges is twice their proportion attending a four-year college, Marcotte, 2010). Latinos in general, and especially single-mother working Latinas, need access to educational institutions with flexible programs (Rochin & Mello, 2007). Retention of Latino students should be a priority, acknowledging that immigrant Latinos have educational characteristics that are not readily transferable to the U.S. labor market, and therefore it is necessary to compensate for this reality. This would require tailoring programs to accommodate different educational characteristics, as suggested by Toussaint-Comeau et al. (2005), as one step towards higher returns to Latino education at all levels. The question is not whether this should be done but how it should be done more effectively. A more active participation of employers from all economic sectors is required to ensure that qualifications desired by the industries are integrated in educational and apprenticeship programs. Likewise, these programs need to ascertain their effectiveness. A cost-benefit analysis and the impact of employment and wage income of workforce development programs have been carried out in the state of Washington (Hollenbeck & Huang, 2006), but it is necessary to identify areas for improvement. The effectiveness of apprenticeship programs in Oregon to retain apprentices and their successful incorporation to the labor force from 1991 to 2007 has been assessed by Berik, Bilginsoy, & Williams (2011). Idaho has a workforce development program but has not yet been comprehensively evaluated (even though Idaho is one of the 30 states participating in the Registered Apprenticeship Information System, Bilginsoy, 2007).

The challenge for the Latino community is to improve wage income through improvements into existing human capital to avail the opportunities in the PNW wage labor market. This is even more challenging for immigrants who may not have skills or education transferable to the U.S. wage labor market. To increase the number of qualified Latinos in the knowledge-based economy requires a concerted effort of public and private sectors and civil society groups to make more education accessible to Latinos and increase its quality. The period captured in this study (2005–07) reflects that of a growing economy and it is likely that some changes occurred in the downturn of the economy (2008–10). Future research on coping with the downturn could address the effect of ethnicity and gender on occupational segregation and the difference of additional schooling in improving Latino livelihoods. It should be possible to characterize the Latino earning strategy in the business cycle using ACS data contrasting both periods.

Table 4. Semi-log regressions of female annual wage income by ethnicity and nativity in the PNW, 2005–2007

Variables	White non-Latina U.S. born		Latina U.S. born		White non-Latina immigrant		Latina immigrant	
	$\hat{\beta} / \hat{\delta}$	t	$\hat{\beta} / \hat{\delta}$	t	$\hat{\beta} / \hat{\delta}$	t	$\hat{\beta} / \hat{\delta}$	t
age	0.1962	14.3	0.1563	61.5	0.1715	11.5	0.1379	10.9
agesq	-0.0022	-12.8	-0.0017	-55.3	-0.0019	-10.9	-0.0016	-10.4
married	0.0788	0.7	0.0630	2.7	0.1098	0.8	-0.0335	-0.5
divorced	0.1408	1.1	0.2127	8.6	0.4526	3.1	0.2003	2.0
single	0.1209	1.0	0.1493	5.9	0.4043	2.7	-0.0535	-0.6
hsgrad	0.1112	1.4	0.3262	14.9	-0.0467	-0.4	0.1383	2.7
hstobsgrad	0.3422	4.5	0.4883	23.1	0.0868	0.7	0.1626	2.8
pstgrad	0.6680	5.4	0.8679	34.5	0.5827	4.2	0.6448	5.1
agforfish	-0.7369	-4.1	-0.7012	-11.2	-0.7056	-1.9	-0.5474	-6.5
const	-0.1975	-0.6	-0.2823	-4.8	-0.6106	-1.7	0.2486	1.0
manuf	-0.3802	-3.1	-0.2858	-10.1	-0.0845	-0.7	0.0156	0.2
trancom	-0.1596	-2.3	-0.2527	-20.0	-0.2010	-2.7	-0.0359	-0.4
wholesale	0.2222	0.6	0.1107	2.5	0.1163	0.4	-0.0345	-0.1
retail	-0.3815	-5.3	-0.4371	-33.0	-0.4600	-6.0	-0.1908	-2.4
FIRE	-0.1405	-1.4	-0.0373	-2.3	0.0654	0.7	0.1631	1.3
busserv	0.2291	1.8	0.1867	7.4	0.0967	0.5	0.4081	1.8
persserv	-0.5765	-5.8	-0.8135	-37.2	-0.5007	-4.5	-0.4540	-4.0
entrec	-0.2725	-1.6	-0.4433	-13.8	-0.5926	-3.5	0.1292	0.6
gardland	-0.8319	-1.3	-1.1761	-12.3			-0.5975	-2.7
repair	-0.5359	-3.8	-0.7200	-23.1	-0.6884	-5.6	-0.2236	-2.5
other	0.0494	0.4	-0.2079	-8.6	-0.3738	-2.6	0.0832	0.5
idaho	-0.2004	-2.9	-0.1602	-12.0	-0.0240	-0.2	-0.0959	-1.5
oregon	-0.0526	-1.0	-0.0605	-6.3	0.0182	0.3	-0.0191	-0.4
mpop	0.1716	2.6	0.2081	17.3	0.3015	3.7	0.0363	0.7
yrsinus					0.0087	4.1	0.0148	6.2
engspkw					0.0318	0.6	0.1981	4.3
constant	5.4869	19.0	5.9992	100.8	5.7320	15.9	6.4043	23.8
No. obs.	62,111		2,466		2,064		2,439	
Adj R2	0.2247		0.2385		0.1968		0.2006	

Source: 2005-2007 American Community Survey.

See Table 1 for variable names and definitions.

Table 5. Female sample means of variables in wage income regressions by ethnicity and nativity in the PNW, 2005–2007

Variable	White non-Latina U.S. born	Latina U.S. born	White non-Latina immigrant	Latina immigrant
lnwage	9.8256	9.5022	9.8349	9.2610
wage	30,328	23,176	32,818	15,846
age	41.5	34.5	42.0	36.1
married	0.5823	0.4793	0.6802	0.6363
divorced	0.1538	0.1188	0.1177	0.0677
single	0.2270	0.3573	0.1662	0.2185
hsgrad	0.2326	0.2940	0.2074	0.2247
hstobsgrad	0.6156	0.5219	0.5935	0.2095
pstgrad	0.1063	0.0568	0.1541	0.0287
agforish	0.0047	0.0182	0.0044	0.2001
const	0.0053	0.0049	0.0044	0.0070
manuf	0.0252	0.0422	0.0460	0.1230
trancom	0.1955	0.2007	0.1512	0.1423
wholesale	0.0095	0.0036	0.0063	0.0041
retail	0.1850	0.2117	0.1623	0.1948
FIRE	0.0927	0.0706	0.0766	0.0328

busserv	0.0308	0.0361	0.0179	0.0082
persserv	0.0449	0.0685	0.0562	0.0402
entmnt	0.0185	0.0182	0.0218	0.0094
profserv	0.3313	0.2534	0.3731	0.1087
gardland	0.0020	0.0012	0.0000	0.0086
repair	0.0205	0.0300	0.0489	0.1062
other	0.0341	0.0406	0.0310	0.0148
idaho	0.1339	0.1452	0.0673	0.1201
oregon	0.3261	0.2936	0.2665	0.3362
mpop	0.7738	0.7998	0.8583	0.7451
yrsinus			20.5	15.2
engspkw			0.4506	0.4600
No. obs.	62,111	2,466	2,064	2,439

Source: 2005-2007 American Community Survey.

Table 1 for variable names and definitions.

Table 6. Linear decomposition of annual wage between White non-Latinos (WNL) and Latinos by sex and nativity for restricted and unrestricted models (No Occp and Occp, respectively) in the PNW, 2005–2007

	Male				Female			
	U.S. born		Immigrant		U.S. born		Immigrant	
	No occp	Occp	No occp	Occp	No occp	Occp	No occp	Occp
Difference	-0.3736		-0.7859		-0.3233		-0.5739	
Explained difference	Percentage							
Age	44.8	42.6	8.7	9.2	59.8	55.1	-1.2	-0.4
Marital status	17.4	15.8	2.9	2.4	-0.3	-1.7	2.2	1.8
Educational attainment	22.4	17.7	38.1	25.2	28.4	21.0	43.9	27.9
Occupation		12.2		26.9		16.1		30.9
State	-0.2	-0.2	1.7	1.9	-0.1	-0.05	3.6	0.7
Metropolitan population	-0.8	-0.7	1.3	0.6	-1.8	-1.7		2.6
Years in the United States			3.6	3.0			13.6	11.4
Good command of English			-0.5	-0.3			-0.3	-0.2
Total explained	83.6	87.5	55.8	68.9	86.0	88.9	61.7	74.6
Adj. R2 WNL	0.333	0.358	0.274	0.313	0.189	0.225	0.168	0.197
Adj R2 Latino	0.357	0.373	0.148	0.180	0.218	0.239	0.167	0.201
WNL: No. obs. (F value)	67,058 (225.3)		2,307 (9.5)		62,111 (221.3)		2,064 (6.1)	
Latino: No. obs. (F value)	2,549 (6.2)		4,161 (11.7)		2,466 (6.1)		2,439 (7.8)	

Source: OLS regressions in Tables 2 and 4, OLS results without occupational controls are available from the authors upon request.

F values comparing restricted and unrestricted models.

Age: agep and agesq; Marital status: married, divorced, and single; Educational attainment: hsggrad, hstobsgrad, and postgrad.

Occupation: agforfsh, cnstr, manf, trancom, wholesale, retail, FIRE, busserv, persserv, entrec, gardland, repair, and other.

State: Idaho, Oregon; Metropolitan population: mpop; Years in the United States: yrsinus; Good command of English: engspkw.

5. Summary and Conclusions

Factors that hinder or enhance Latino wage income in the PNW are quantified for the period 2005 to 2007. Individuals earn higher wages as they age, up to 45 years old, and then their income decreases as they age. Latinos in the wage-labor market are younger than White non-Latinos and this, together with other demographic and socioeconomic variables, determines their wage income. Urbanization has a small but significant effect, 0.3% wage increase per one percent increase in the proportion of metropolitan population.

Returns to education relative to those without a high school degree are positive. However, returns are notoriously lower for Latinos than for White non-Latinos at the high school level, suggesting that it is not only the access to education but that a better quality of education is required to augment the well-being of Latinos. Returns to college and postgraduate education for Latino males are lower than those of White non-Latinos, but the differences are larger for the immigrants. Higher educational attainment would enable occupational choices that offer higher levels of income for Latinos.

Wage earners are segregated by occupation and ethnicity. Latinos are over-represented in low-skilled occupations such as agriculture, forestry, and fishery; landscaping and gardening; construction; manufacturing; and repair. In contrast, Latinos are under-represented in high-skilled occupations such as professional services, business services, and wholesale. Linear decomposition of the annual wage income explains most of the wage gap between non-Latinos and Latinos. Among the U.S. born males, age, education, marital status, and occupation explain 88% of the wage differences; among U.S. born females, marital status does not contribute more than 3% to explain the wage differences. Among immigrant males, occupation, education, age, years in the United States, marital status, state, and urbanization explain 69% of the wage differences. Among immigrant females, the same variables, excluding age, explain 75% of the differences in wage income. Also, among immigrants, type of occupation explains slightly more of the wage differences than education. We acknowledge that occupation is likely the consequence of education; in the case of immigrants, occupation helps to assign a more precise weight to the contribution of education to explain the ethnic wage gap.

Returns to a good command of spoken English are four times higher for Latina immigrants than for Latino immigrants; this could be related to the nature of Latina occupations requiring more social interactions than the occupations of their male counterparts. It is very likely that household variables would be needed to explain the context in which Latinas have to navigate in addition to the demands from the labor markets.

Our findings support some general recommendations: urge Latinos to successfully complete high school, present to them the availability of apprenticeship programs, but also encourage them to attend college with the possibility of pursuing postgraduate or specialized studies. Lower returns to Latino education at all levels warrant attention to the quality of education in accordance to the demand for a qualified labor force. Further research on returns to education for White non-Latinos and Latinos (including apprenticeship programs) and occupations, together with evaluation instruments to measure the efficacy of educational investments, could benefit both the workforce and employers. Employers should be encouraged to visit educational institutions, including workforce development programs, to discuss their needs for a qualified workforce. In turn, educators (including workforce programmers) should design or improve curriculum in accordance to the needs of heterogeneous Latino schooling experiences and that are likely to meet labor-market demands, as well to develop or continue to develop evaluation tools. While our findings are restricted to the 2005–07 period when the economy was growing, it would be extremely helpful to compare them with the economic downturn period 2008–10 to characterize Latino strategies related to demographic and socioeconomic variables in the business cycle.

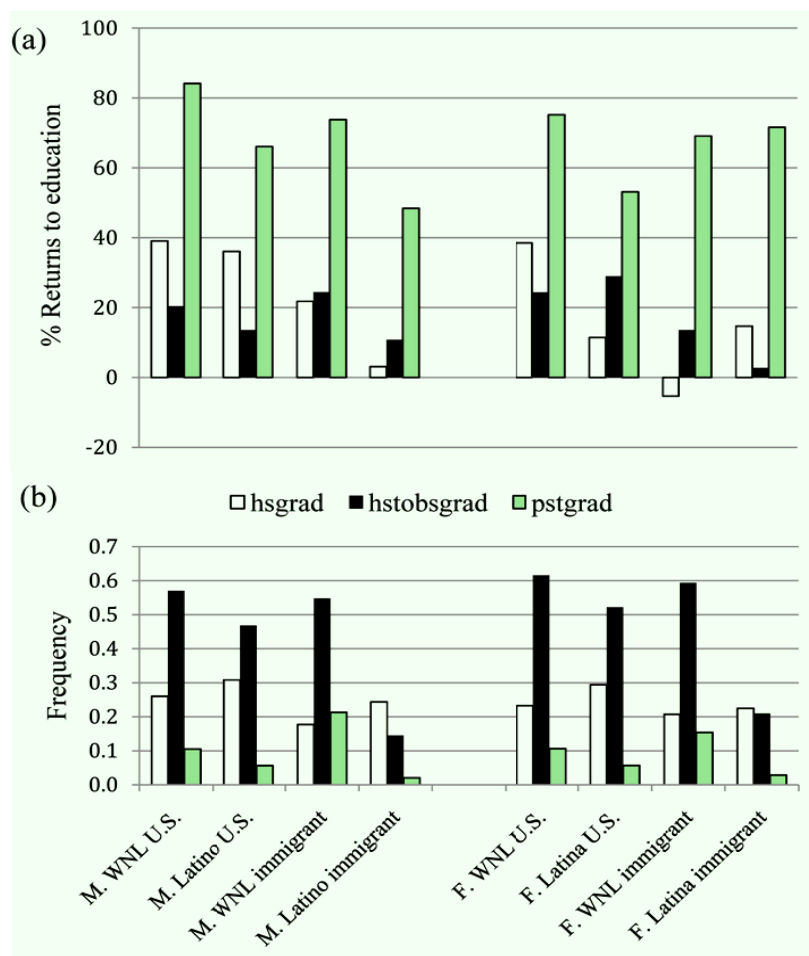


Figure 1a. Returns to education for males (M) and females (F) in the PNW in 2005–2007 by ethnicity (WNL—White non-Latino(a)) and nativity controlling for occupations

Figure 1b. Frequency of different levels of school attainment for each subgroup

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Note

Note 1. Using the aggregated data in Tables 3 and 5, the index is computed as $\frac{1}{2} \sum |L_i - WNL_i|$ where L_i is the percentage of all Latino workers employed in occupation i , and WNL_i is the percentage of all White non-Latino workers employed in occupation i .

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