Does Self-Employment Increase the Economic Well-Being of Low-Skilled Workers?

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ABSTRACT

Low-skilled workers do not fare well in today's skill intensive economy and their opportunities continue to diminish. Given that individuals in this challenging skill segment of the workforce are more likely to have poor experiences in the labor market, and hence incur greater public expenses, it is particularly important to seek and evaluate their labor market options. Utilizing data from the Survey of Income and Program Participation, this paper provides an analysis of the economic returns to business ownership among low-skilled workers and addresses the essential question of whether self-employment is a good option for low-skilled individuals that policymakers might consider encouraging. The analysis reveal substantial differences in the role of self-employment among low-skilled workers across gender and nativity – women and immigrants are shown to be of particular importance both from the perspectives of trends and policy relevance. We find that although the returns to low-skilled self-employment among men is higher than among women, the analysis shows that wage/salary employment is a more financially rewarding option for most low-skilled workers.

JEL Classification: J15, J16, J31, L26

Keywords: Self-employment, entrepreneurship, low-skill, women, immigrants

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1. Introduction

The number of self-employed has steadily increased in the U.S. over the last decades, from roughly 9.9 million in 1980 to approximately 17.3 million in 2007 (Lofstrom, 2009).¹ The strong growth is partially responsible for the common perception that self-employment and small businesses are engines of growth in the economy. Importantly, self-employment is frequently viewed as a route to upward economic mobility. This is particularly relevant for low-skilled workers – a group who face limited labor market opportunities in today's skill intensive economy. Beyond the concern of the economic well-being of less skilled workers and their families, policy makers are also worried by the associated greater social economic costs. Workers with lower skills and less education earn less, are more likely to be unemployed and on welfare than workers with at least some college education. These are just some examples of the negative outcomes associated with lower skills.

Identifying policy tools capable of improving labor market outcomes of low-skilled workers is undoubtedly important. An effort to increase skills (including formal schooling, vocational training and English courses for English learners) is one option likely to improve the economic well being of low-skilled workers. However, it may be difficult to entice individuals to participate in such programs. This is likely to be particularly difficult among low-skilled working age adults, most who have not been in school for years and many who face the constraint of being bread winners in the family. Whether low-skilled self-employment should be encouraged by self-employment assistance policies depends on a number of factors related to the expected economic contributions of entrepreneurs, including how it affects their earnings and whether there is evidence of business start-up barriers and possible other inefficiencies in the labor market.

In this paper we address the fundamentally important issue of whether self-employment is an economically rewarding option for low-skilled workers. Our objective is to shed light on the question of whether self-employment should be considered a policy tool to broaden the labor market alternatives of individuals with only a high school diploma or less (defined here to be low-skilled). However, before policies designed to assist workers in this challenging segment of the skill distribution who are contemplating entry into self-employment are implemented or

¹We use the terms self-employed, entrepreneur and business owner synonymously in this paper.

expanded, we need to explore evidence of the degree of success realized by those choosing selfemployment -- what kinds of earnings expectations are realistic and how do they compare to those of similar workers in regular employment? For targeting purposes, it is also important to identify factors associated with earnings success, or possibly, lack-thereof, among present and potential low-skilled entrepreneurs.

The economic returns to self-employment have previously been rather extensively examined. Studies from the 1980s find that potential wages and wage growth of entrepreneurs are higher or not significantly different from the wages and growth of paid employees (for example, Brock and Evans, 1986; Rees and Shah, 1986 and Evans and Leighton, 1989). However, in Hamilton's (2000) seminal paper he finds that most entrepreneurs have both lower initial earnings and lower earnings growth than they would receive in paid employment. He finds that earlier results indicating relatively high returns to self-employment may be influenced by a handful of high-income entrepreneurial "superstars". The observed higher average earnings may thus not characterize the self-employment returns of most business owners. He also points out that previous studies relied on data which lacked important information on the length of time in business. Differences in the returns to education and skill between entrepreneurs and wage/salary workers have also been addressed in the self-employment literature. This strand of the entrepreneurship literature generally finds that the earnings rewards to education are higher in self-employment than wage/salary employment (e.g. Parker and Van Praag (2006); Van der Sluis et al., (2008) and Hartog et al. (2010)).²

Entrepreneurship may play a particularly important role among immigrants and studies generally find that immigrants are more likely to be self-employed than natives (e.g. Borjas, 1986; Yungert, 1996; Fairlie and Meyer, 1996 and Lofstrom, 2002). Importantly, self-employment is also frequently believed to play an important role in immigrant labor market integration and may facilitate upward economic mobility (see for example Glazer and Moynihan, 1970 and Cummings, 1980). Recent support for this notion is found in Lofstrom (2002), who finds that self-employed immigrants on average have significantly higher earnings in the U.S. labor market than wage/salary immigrants.

² Although estimates are not presented in this paper, the pattern of higher returns to education among business owners is also found in the primary data utilized in this paper, the Survey of Income and Program Participation (SIPP).

Surprisingly, existing research on low-skilled self-employment, and specifically the performance of low-skilled entrepreneurs, is relatively scant. Exceptions include Fairlie (2004 and 2005). In these papers Fairlie analyzes earnings of disadvantaged entrepreneurs, based on both parental education and the individual's education. Fairlie (2004) studies young less-educated business owners and finds that after a few initial years of slower growth, the average earnings for the self-employed grow faster over time than the average earnings for wage/salary workers. Fairlie (2005) defines disadvantaged differently and focuses on family background (parents' education). He finds some evidence that disadvantaged self-employed business owners earn more than wage/salary workers from disadvantaged families. Also relevant is Holtz-Eakin, Rosen and Weathers (2000). They analyze possible links between entrepreneurship and earnings mobility and find that low-income self-employed individuals moved ahead in the earnings distribution relative to those who remained in wage/salary work.

This paper contributes to the limited existing research on the returns to low-skilled entrepreneurship in several ways. First, unlike Fairlie's studies, we do not restrict our analysis to young workers (ages 22 to 39) but include individuals of all working ages (defined here to be ages 18 to 64). Like Fairlie (2005) but unlike Holtz-Eakin, Rosen and Weathers (2000), we utilize individual fixed effects models to account for individuals' differences in important time invariant unobservable factors such as ability and motivation. Lastly but importantly, as the results will show, this is the first study, to our knowledge, that addresses whether the returns to self-employment differ between low-skilled immigrant and native workers.

2. Data

The majority of our analysis relies on nationally representative individual longitudinal data from the 1996, 2001 and 2004 panels of the Survey of Income and Program Participation (SIPP). We also use data from the decennial census and the American Community Surveys (ACS) to provide information about some notable self-employment trends.

The self-employment trends are generated using the 1980, 1990, and 2000 U.S. Census 5 percent Public Use Microdata Samples (PUMS). We rely on the 2005, 2006, and 2007 ACS for more recent accurate statistics. These data are more likely to generate reliable estimates of the number of self-employed workers, and their share in the labor force, than the smaller SIPP

samples. In these data, individuals are defined to be self-employed if they report, in the class of worker question, being self-employed in an incorporated or not-incorporated establishment. In our descriptive analysis, we restrict the sample to individuals between the ages of 16 and 67, but impose no further restriction in generating the counts of self-employed individuals. However, for calculation of the self-employment rates we impose the restriction that individuals are in the labor force.

The SIPP data contain individual demographic information as well as detailed information on labor market activities, business ownership and business characteristics. The surveys are conducted every four months (representing a "wave") for, depending on the panel, roughly 37,000 to 47,000 U.S. households in each panel. The length of the panel is four years for the 1996 and 2004 panels while the 2001 panel followed individuals for only three years. Importantly given the focus on disadvantaged groups, SIPP panels over-sampled low-income households. The data are nationally representative when the provided sampling weights are used. Each wave in the SIPP panels contain both core questions, common to each wave, and topical questions that are not updated in each wave. In addition to the key variables found in the core modules, we use information from two topical modules; immigration (which includes information on country of origin, citizenship status and year of arrival, collected in the 2nd wave in each panel) and assets and liabilities (containing wealth and asset data, including business equity, collected once a year in each panel).³

We define an individual to be self-employed in the SIPP data if the survey respondent reported owning a business in the sample month and usually working at least 15 hours per week in that business. The 15 hour restriction is meant to exclude "casual" self-employment and those whose main labor market activity is not self-employment. We also used a 25 hour restriction and found that the main results and conclusion are unchanged. Similarly, individuals are defined to be wage/salary workers, or employees, if they do not report owning a business but work at least 15 hours per week in their current job.

We also include controls for lagged labor market status in some of our model specifications. These are defined in the following way. Individuals reporting owning a business but devoting less than 15 hours per week to it are defined to be part-time self-employed. Part-time wage/salary

³ Although the 2004 Panel was originally set to have 12 waves with a full set of topical modules, due to budget constraints, the topical modules were not collected for waves 9-12. Furthermore, the sample was cut by half for this time period.

workers are those not owning a business reporting working for less than 15 hours per week in the reference month. We define a person to be unemployed if they reported experiencing at least one week of unemployment during the month and did not satisfy the criteria for being classified as self-employed or a wage/salary worker. A person is defined to be a welfare recipient if they received Supplemental Security Income (SSI), Aid to Families with Dependent Children (AFDC)/Temporary Assistance for Needy Families (TANF) or food stamps and did not satisfy the definition criteria for self-employment, wage/salary work or unemployment. Lastly, survey respondents who do not meet these criteria are defined to be not in the labor force.

The SIPP sample utilized is restricted to low-skilled individuals (i.e. to persons with no more than a high school education), men and women, between the ages of 18 and 64 in the survey period. We restrict our sample to individuals for whom immigration status is available and who are observed at least over a one-year period. The latter restriction is necessary for our earnings analysis relying on an individual fixed effects specification as well as models controlling for lagged labor market status.

3. Trends in Low-Skilled Self-employment

We begin our analysis by providing a brief overview of low-skilled self-employment prevalence and trends in the U.S. As mentioned above, business ownership grew substantially over the last few decades - Overall, the total number of self-employed individuals increased by more than 7 million between 1980 and 2007. A closer look at the data reveals that over this period the composition of business owners changed quite substantially in a number of ways and that women and immigrants play increasingly important roles. These trends can be gleaned from Tables 1 and 2.

First, female self-employment is a significant source of the growth in business ownership. Quite remarkably - given the lower albeit increasing female labor force participation rate slightly less than half of the increase in the number of self-employed from 1980 to 2007 are women. As a result, although women represented slightly less than 24 percent of the total number of self-employed workers in 1980, they now represent 36 percent.

Second, the skill composition of business owners has changed. In 1980, 58 percent of business owners had no more than a high school diploma. This group of low-skilled

entrepreneurs now represents about 40 percent of self-employed Americans. Although the latter shows that the country's entrepreneurs are more skilled today than they were in previous decades it masks - due to the overall increase in educational attainment - the fact that low-skilled individuals are more likely to choose self-employment today than they were 25 years ago. This is particularly true for women for whom the low-skilled self-employment rate increased from 3.9 percent in 1980 to 6.9 percent in 2007. Among low-skilled men the self-employment rate also increased, from 10 percent to 11.3 over the same period. While the male college graduate self-employment rate is quite high, men in this skill group are less likely to choose self-employment in 2007 (14.5 percent) than they were in 1980 (15.2 percent). However, among female college graduates, the self-employment rate increased from 5.1 percent in 1980 to 8.3 percent in 2007.

Third, foreign born entrepreneurs play an increasingly important role. In 1980, approximately 7 percent of the self-employed were foreign born. In 2007, slightly more than 21 percent were born abroad, significantly above the 13 percent foreign born share of the population in the U.S. The data show that the number of U.S born self-employed individuals increased by slightly more than five million over this period while the number of self-employed immigrants increased by about 2.3 million. While the growth in native born self-employment was exclusively among individuals with at least some college training, low-skilled self-employment dominates the increase in immigrant entrepreneurship. Roughly one-half of the increase in foreign born self-employment.

Importantly, these data show that the entire growth in low-skilled self-employment is due to immigrant entrepreneurs. In fact, there are fewer native born low-skilled today compared to 1980.⁴ The decline in the number of low-skilled U.S. born business owners is due to the overall increase in educational attainment.⁵ This is evident from the observation that the self-employment rate for both native born low-skilled men and women increased from 1980 to 2007, from 10.1 to 11 percent and 3.9 to 6.1 percent respectively for men and women. The self-employment rate among the low-skilled foreign born population increased over the same period from 9.8 to 10.5 percent and 4.2 to 10.6 percent for men and women respectively. It is clear from this that self-employment now plays a particularly important role among low-skilled immigrants,

⁴ Table 1 shows that although the number of low-skilled native born women increased, it decreased by more among native born men.

⁵ The decrease in the low-skilled labor force participation rate may also contribute the decline in low-skilled native born entrepreneurs.

especially foreign born women who are now slightly more likely to be self-employed than foreign born men.

The above descriptive statistics show that low-skilled business owners are an important source of the growth in self-employment in the U.S., particularly among women and immigrants and that the low-skilled self-employed represent a sizeable share of the state's entrepreneurs. The current (as of 2007) total number of low-skilled entrepreneurs is approximately about 6.9 million, a greater number than that of business owners with at least a college degree, 5.6 million. The labor market performance of the large number of self-employed workers with low schooling levels is clearly of interest.

4. Comparing Earnings of the Self-Employed and Wage/Salary Workers

The main objective of the paper is to assess the relative success of low-skilled entrepreneurs compared to low-skilled wage/salary workers. The measures of success used are based on total annual earnings because these outcome measures closely reflect the overall economic well being of individuals.

An important issue to consider when comparing earnings between self-employed and wage/salary workers is the fact that self-employment earnings do not only represent returns to human capital but also returns to financial capital invested in the business. That is, reported self-employment earnings partially reflect a return to owner investments made in the business while wage/salary earnings do not (e.g. Hamilton, 2000 and Parker 2009). In addition to using total annual earnings, we therefore generate two additional earnings measures. The first simply adds to annual earnings annual asset income received from financial capital, i.e. stocks, bonds, real estate and other investments, which is observed for both the self-employed and wage/salary workers. Total annual earnings and capital income is hence an income measure that includes returns to physical and financial capital for self-employed individuals as well as workers in wage/salary employment.

A second alternative approach entails subtracting a portion of the earnings of the selfemployed, which roughly represents owner returns to investments of resources – cash, inventory, equipment, and the like, net of debt -- in their small businesses. Hence, we utilize the reported dollar amount of business equity information available in our data (discussed below) and subtract

from annual earnings an amount equal to five percent of this business equity, representing an inflation adjusted real return to a relatively risky investment. Use of the five percent figure is a reflection of the opportunity cost of capital. By assumption, alternative investments into which this business equity dollar amount could be deployed would be expected to earn a five percent real rate of return, roughly equivalent of a nominal return of eight to nine percent. By way of example, an owner reporting a \$50,000 business equity amount, along with annual net profits of \$40,000, would be assumed to have earned \$2,500 as a return on her/his business equity investment. The balance – profits of \$37,500 – is attributed to the owner's returns for time spent working in her small business. We refer to this measure as "business equity-adjusted" earnings, which we interpret as an income measure that reflects only returns to human capital for both employed workers and the self-employed.

Although we argue above that the use of a five percent real discount rate is reasonable in this setting, clearly the specific choice of a return to business equity to subtract from the reported annual earnings is ad hoc. The impact of alternative returns is that a higher interest rate leads to lower business equity adjusted earnings while a lower discount rate leads to more favorable comparison for the self-employed (a zero discount rate generates a measure identical to our total annual earnings measure). Lastly, we note that the use of an assumed real return of five percent is similar to Fairlie's (2004) and Van Praag et al (2009) approach and that given the relatively low levels of business equity among low-skilled entrepreneurs, the results are not sensitive to minor changes in the assumed discount rate, nor do we find that the conclusions in this report are sensitive to the earnings measure utilized.

5. Descriptive Statistics

We start by examining our annual earnings measures to see whether low-skilled entrepreneurs on average earn more or less than wage/salary earners, shown in Tables 3 and 4. Our data show that low-skilled entrepreneurs have higher average annual earnings than workers in wage/salary employment and that this holds among immigrant and native born men as well as foreign born women. However, female U.S. born business owners earn less on average than U.S. born women wage/salary earners. The magnitude of the differences in average annual earnings depends on the earnings measure. For example, among native born men, the self-employment

advantage ranges between approximately one percent (business equity adjusted earnings) and 17 percent (total annual earnings including capital income) while for native born women the selfemployment earnings disadvantage ranges from about three percent (total annual earnings including capital income) and 22 percent (business equity adjusted earnings). Foreign born male business owners earn on average between 13 and 27 percent more than immigrant men in wage/salary employment. The corresponding average female self-employment advantage is somewhat lower, between 7 and 12 percent. Although immigrants earn less on average than their native counterparts, the mean earnings differences above indicate that self-employment is a more financially rewarding option for foreign born entrepreneurs than it is for U.S. born business owners.

A comparison of average earnings can be misleading if the success story among entrepreneurs is one of relatively few very successful business owners. A comparison of earnings by selected percentiles reveals that there is truth to this assertion among the low-skilled. The median annual earnings of low-skilled entrepreneurs - U.S. and foreign born men and women are lower than that of low-skilled employees in the same group.⁶ Although the magnitudes of the self-employment disadvantage differ across our three measures, there is no instance in which median earnings are higher among business owners. The comparison of median earnings differences between wage/salary workers and business owners also indicate lower earnings among immigrants than natives. However, the self-employment disadvantage is smaller among immigrants, indicating that self-employment is a relatively more rewarding for the foreign born than it is among the U.S. born, a similar conclusion to the one reached by comparing average earnings.

The observation that the average earnings are higher among low skilled business owners while the opposite is true when median earnings are compared shows the most successful entrepreneurs have higher earnings than the most successful workers in the wage/salary sector. A question that follows is; does this apply to relatively few very successful business owners or are there relatively many entrepreneurs who outperform wage/salary workers? To answer this

⁶ A look at the overall mean log of total annual earnings difference shows that the total annual earnings of business owners is about 10 percent lower than the earnings of wage/salary workers. The log transformation of total annual earnings reduces the influence of the highest earning individuals. Hence the difference in mean log annual earnings is closely in line with a comparison of median annual earnings.

question we look at and compare the distributions of earnings, or more specifically, selected percentiles of the distributions.

The data reveal that the top 25 percent low-skilled native born male entrepreneurs have higher earnings than the top 25 percent wage/salary workers. Among foreign born men the self-employment advantage stretches further down in the earnings distribution and approximately the top half of business owners do as well or outperform the top half of wage/salary earners. As expected, once self-employment earnings are adjusted for returns to capital invested in the business, self-employment is less rewarding compared to wage/salary work. Nonetheless, both among native and foreign born, the top 25 percent of low-skilled business owners have higher earnings than the top 25 percent of wage/salary earners.

Among U.S. born women we find that only the top 10 percent of entrepreneurs outperform the top 10 percent wage/salary workers. In fact, when we adjust earnings for business equity, native born self-employed women throughout the distribution have lower earnings than their employee counterpart. Low-skilled female immigrant entrepreneurs do somewhat better when compared to immigrant wage/salary workers. The top 25 percent entrepreneurs have roughly the same or higher earnings than their foreign born counterparts who work in the wage/salary sector.

The above descriptive statistics indicate that the economic returns to self-employment are lower for women than men and that they are higher for immigrants than natives. The latter point is important since much of the growth in low-skilled self-employment is among immigrants and that low-skilled immigrants have higher self-employment rates than low-skilled natives. The relative attractiveness of self-employment is one plausible reason for this.

Some of the observed earnings differences between entrepreneurs and employees may not be attributable to self-employment but may be due to differences in earnings relevant demographic traits (such as education, age, family composition, ethnic composition) or workforce characteristics (such as the number of hours worked, previous periods employment status and workforce experience).

The differences in the above characteristics between workers in the two sectors (shown in Appendix Tables A1 and A2) imply that differences in these factors do not account for the lower earnings among most low-skilled business owners. Overall, the data indicate that the self-employed are on average older and work more hours per week than employees. Also, on average, they have been running their businesses longer than wage/salary employees have been at their

current job. Entrepreneurs are also under-represented by disadvantaged minority groups such as Hispanics and African-Americans. Among immigrants, the self-employed have been in the U.S. longer than wage/salary workers. These are factors usually associated with higher earnings and hence the descriptive statistics suggest that differences in the observable characteristics do not explain lower earnings among most of the self-employed when compared to wage/salary workers.

6. Empirical Model Specification

We use ordinary least squares (OLS) to estimate regression models of the log of total annual earnings, y_{ijt} , of individual *i* in state *j* at year *t*. This measure is defined as the log of the sum of wage/salary earnings and self-employment earnings. We use a self-employment dummy variable (*SE*_{*it*}) to capture earnings differences. Recognizing possible self-employment returns differences between immigrants and natives, we include an interaction term of the two indicator variables immigrant (*IMM*_{*i*}) and self-employment. The model specifications, similar to Fairlie (2005), can be represented as;

$$y_{ijt} = \alpha_1 S E_{it} + \alpha_2 S E_{it} * IMM_i + \alpha_3 IMM_i + \mathbf{X}_{it} \mathbf{\beta} + \mathbf{LFS}_{it-1} \mathbf{\delta} + \gamma_j + \tau_t + \varepsilon_{ijt}$$
(1)

where;

- \mathbf{X}_{it} = Matrix containing individual characteristics such as age, educational attainment, marital status, family composition and ethnicity.
- $LFS_{it-1} = Matrix containing controls for lagged the labor force status, i.e. whether the person was observed in wage/salary work, part-time self-employment, part-time self-employment, unemployed, welfare participation or not in the labor force. The matrix also includes controls for number of years at job for wage/salary workers and years in business for the self-employed.$

 γ_j = State fixed effect

 τ_t = Year fixed effect

To reduce the endogeneity concern that self-employment is correlated with earnings relevant characteristics absorbed by the disturbance term, we use model specifications intended to address some of these concerns, such as including controls for work history and fixed effects specification. The use of lagged labor force status in our earnings model deserves some justification. These controls are intended to purge the data of the impact of previous labor market outcomes or decisions on earnings and hence reduce omitted variable bias of parameters of interest.⁷ Since repeated individual observations are not assumed to be independent, all estimates are clustered on individuals. We also note that since the analysis is based on a sample in which individuals are not randomly assigned to different labor market states, the presented estimates are not clearly causal. Given that no available credible instruments exist in our data, we do not model the selection into these groups.

7. Empirical Results

We begin our empirical analysis of the relative success of low-skilled entrepreneurs, compared to low-skilled wage/salary workers, by estimating pooled models of low-skilled workers.⁸ Low-skilled self-employed men earn slightly less on average, about four percent, than wage/salary workers, column (1) in Table 5.^{9,10} The slight earnings gap holds for both native and immigrant men. The unadjusted difference, however, understates the gap since on average low-skilled entrepreneurs possess more favorable labor market characteristics (see Table A1). For example, the regression results in column (2) show, as expected, that characteristics like age, education, experience and hours work have positive impacts on earnings. Once these factors are accounted for, the estimates indicate that self-employment for low-skilled men is not a very remuneratively rewarding option. Both native and foreign born men earn about 23 percent less than observationally similar low-skilled employees.

The self-employment earnings disadvantage is greater among low-skilled women. The estimates in Table 5's column (4) indicate that a native born low-skilled self-employed woman

⁷ When lagged labor market status controls are added to a specification that includes all other factors described in the model above, the point estimates indicate roughly ten percent smaller earnings differences between low-skilled wage/salary workers and entrepreneurs. Importantly, the conclusions discussed below do not hinge on the incorporation of these variables.

⁸ Since men and women may make different labor supply decision, leading to differential non-random labor force participation selection, the models are estimated separately for men and women.

 $^{^{9}}$ The estimates in columns (1) and (3) do not exactly reflect the unadjusted differences since year effects are included in the specifications.

¹⁰ We use e^{b} -1, where *b* is the estimated coefficient, to convert the log point estimates into percentages.

earns approximately 40 percent less than her observationally identical counterpart in wage/salary employment. Low-skilled female immigrant entrepreneurs fare better in a comparison with their employee counterparts. The estimated adjusted self-employment earnings gap is roughly 14 percentage points smaller.

The results in table 5 quite clearly show that self-employment is associated with lower earnings than wage/salary employment for low-skilled workers, a relationship that holds across gender and nativity. What the results do not clearly reveal is whether the observable characteristics affect earnings differently for low-skilled entrepreneurs. To shed light on this issue we estimate models, similar to Hartog et al (2010) and Van Prag et al (2009), where selfemployment is interacted with all factors in matrices X_{it} and LFS_{*it-1*}. We replace continuous variables (age, weekly work hours and tenure) with interval dummies for ease of interpretation of the estimated coefficient of greatest interest. The estimated self-employment variable coefficient in these specifications represents the earnings difference between observationally similar reference entrepreneurs and employees, where the reference individual is a married white native born high school graduate who is between the ages of 36 and 45, with 5 to 10 years of experience in the current business or job and typically works between 35 and 45 hours per week. Although the choice of the reference person may appear quite arbitrary, the choices represent the modal values for our sample of low-skilled workers.

The results from the interacted models (Table 6) indicate that low-skilled men with similar work history, work hours and socioeconomic characteristics have about 26 percent lower earnings in self-employment compared to in wage/salary work. The estimates show that lowskilled minorities have lower earnings than low-skilled whites but they also, mostly, fail to reveal differences in the returns to low-skilled self-employment by ethnicity or nativity. The results do, however, show that for low-skilled African-Americans, self-employment is a particularly poorly financially rewarding option, about 16 percent less so than it is for otherwise observationally similar low-skilled white business owners.

Low-skilled women in self-employment have substantially lower earnings than women in wage/salary work with similar background and characteristics. The self-employment earnings disadvantage is about 35 percent among native women. The gap among observationally similar immigrant women is about 18 percentage points smaller. That is, the results show that although self-employment is associated with significantly lower earnings among low-skilled women, the

return is higher among foreign born females. Lastly, the patterns of ethnic earnings differences mimic those of low-skilled men and hence fail to reveal evidence that the self-employment option offers a path to overcome the minority-white earnings gap. Interestingly, and unlike among low-skilled men, the results show a greater return to graduating high school among women in self-employment than observationally similar women in wage/salary employment.

Overall, the data and our analyses indicate that most low-skilled business owners have lower earnings than those of workers in the wage/salary sector. This is reinforced by the observation that entrepreneurs are more likely to possess characteristics, workforce background and skills associated with higher earnings. In other words, the self-employment earnings disadvantages are greater once these factors are considered.¹¹ Although the OLS model specifications utilized include numerous controls for earnings related factors, it is possible that the proxies used do not adequately control for unobservable characteristics correlated with the self-employment decision, leading to biased estimates of the earnings differences between business owners and employees.

To account for individuals' differences in important time invariant unobservable earnings related factors, such as innate ability and motivation, we also estimate individual fixed effects model specifications. In these model specifications, we do not include lagged labor force status, since it is time invariant for certain sub-groups, including all individuals who stayed in business or remained in the same job for the full sample period. We do however include controls for age and hours worked per week. It is also possible to include additional controls for variables that may change over time, such as family composition and geographic location. However, the estimated coefficients of these variables are unlikely to represent causal impacts since they are identified through variation in the arguably selective sub-sample for whom these variable values change. Furthermore, including these variables does not appreciably affect the estimated earnings differences between low-skilled entrepreneurs and wage/salary workers. Lastly, year

¹¹ We also utilized an Oaxaca earnings decompositions to more specifically analyze how observable earnings related factors affect the earnings differences between wage/salary workers and the self-employed. To do so, we estimated separate regression models by gender and nativity. This exercise also show that for all groups the self-employment earnings disadvantages are greater once observable factors are considered (results are not shown here but are presented in Lofstrom (2009)).

fixed effects are included to control for macroeconomic changes.¹² The fixed effects estimates are shown in Table 7.

We first utilize a fixed effects specification including a simple self-employment dummy variable to capture the earnings gap. It should be pointed out that a potential short coming of this approach is that the parameter of interest is entirely identified off individuals who are observed entering or exiting self-employment over the three to four year sample period. It is possible that this selective sub-sample is not representative of low-skilled entrepreneurs in general, and hence the approach not yielding unbiased estimates of the earnings differences. Nonetheless, the relatively high turnover rate of low-skilled businesses (Lofstrom, 2010) suggests that the sub-sample of observed entrants or leavers may be relatively representative of the overall sample of low-skilled business owners. With this caveat in mind, we turn to the results shown in the top panel of Table 7.

The fixed effects results support the above finding that among both low-skilled men and women, self-employment is associated with lower earnings, but possibly less so among immigrants. However, the estimates mostly indicate a smaller low-skilled earnings disadvantage than the ones discussed above. The estimated earnings gap among native men is approximately 17 percent while it is a statistically insignificant 11 percent for immigrant men. The estimates indicate that native born female low-skilled business owners earn about 22 percent less than their employee counterpart. The estimated self-employment earnings gap is slightly less among low-skilled immigrant women - roughly 20 percent – slightly greater than the 16 percent pooled interaction estimate.

Given the consistent picture of low returns to low-skilled entrepreneurship, it naturally follows to ask the question: If low-skilled entrepreneurs typically have lower earnings than wage/salary earners, why chose self-employment? There are a number of plausible reasons, such as preferences for work autonomy and flexibility, wanting to be one's own boss and the lure of high earnings. The latter appears plausible since top entrepreneurs earn more than top wage/salary workers but it is also possible that the long-term benefits of business ownership are attracting workers.

 $^{^{12}}$ Since immigrant status is time invariant, all fixed effects models are estimated separately for immigrants and natives.

To address this issue, we also analyze earnings growth to investigate whether the prospect of expected higher future earnings may motivate individuals to start their own business. To do so, we use an extension of the fixed effects specification discussed above, using age variables to estimate earnings growth over the work life. ¹³ We interact these variables with self-employment status but do not include an uninteracted self-employment dummy. This approach has the advantage that identification does not require change in self-employment status while still accounting for unobservable individual heterogeneity.

The estimates, presented in the middle panel of Table 7, do not reveal evidence of differences in earnings growth between immigrant low-skilled business owners and employees, both men and women. The interaction (age and with self-employment) coefficients are not significant at traditional significance levels. The estimates do point to some differences across sectors among natives, although it is difficult to determine whether these differences imply lower or greater earnings growth. To assess this, we used the estimates and generated predicted age-earnings profiles, shown in Figures 1 and 2. Among native men, Figure 1 reveals a slight decline in the self-employment earnings disadvantage over the work life, by approximately 10 percentage points from age 25 to age 50. Low-skilled native born female entrepreneurs are predicted to reduce the earnings gap substantially over the same age range but are not predicted to catch-up with their wage/salary counterparts.¹⁴

We also explore the following earnings scenario of two hypothetical individuals in each group – one who just started her/his own business and the other who instead of entering selfemployment started a new job in the wage/salary sector. We again rely on the fixed effects specification but in place of age variables we utilize years of owning the current business and years at current job. The results are shown in the bottom panel of Table 7. With the exception of immigrant women, the estimates indicate that the earnings of low-skilled entrepreneurs follow a different trajectory, with respect to firm or business specific experience, than the earnings of low-skilled wage/salary workers. Again, we use the estimates to generate earnings predictions,

¹³ For each group we performed F-tests to determine the appropriate functional form of earnings growth. The best fits appear to uniformly be a third order degree polynomial.

¹⁴ Figure 2 misleadingly indicates that female immigrant business owners will fare worse over their work life compared to their employee counterparts. However, the estimates in the middle panel of Table 7 fail to reveal any differences in earnings growth.

and plot the estimates over time. Since the focus is on earnings growth, we assume that business owners and traditional employees start out at the same earnings level.

Figure 3 indicate initially slower earnings growth for self-employed men but also that earnings increase somewhat faster in the subsequent years. The estimates suggest roughly equal earnings after about 14-15 years among immigrant men but no convergence within 15 years among native born men. Figure 4 indicates a similar relationship for low-skilled native women, who also experience a steeper earnings trajectory, after having experienced slower growth during the first few years in business. The figure also suggests that self-employed immigrant women experience slower earnings growth than employees. However, it is important to note that the estimates in Table 7 fail to reject equal earnings trajectories between female immigrant entrepreneurs and employees. We also note that the earnings growth analysis with respect to experience understate the self-employment earnings gap since we assume, for ease of exposition, the same starting point, an assumption that the data do not support.¹⁵

Lastly, we note that the earnings analysis to some extent overstates the performance of business owners since we have not applied any discounting of the returns to financial capital to our analysis. However, the typically relatively low levels of business equity among low-skilled entrepreneurs suggest that the potential upward bias of their performance is likely to be comparatively minor. Our analysis using our business equity adjusted earnings measure supports the latter but also indicates a relatively less favorable comparison for the self-employed.¹⁶

8. Summary and Conclusions

Self-employment has grown steadily over the last few decades in the U.S. This paper shows that women and immigrants play important roles in this growth but they do so in different skill segments. Among college graduates, U.S. born women accounted for the greatest increase in the number of business owners while immigrant men contributed the greatest boost to the number of low-skilled entrepreneurs. Although the self-employment rate of low-skilled native born increased over this period, the data reveal that all of the net increase in the number of low-

¹⁵ Given the possibility that the experience coefficients are only weakly identified in a fixed effects model with year dummies, in a robustness check, we also estimated the models with no year fixed effects. The estimates generate patterns almost identical to those shown in Figures 1-4 and the above conclusions remain unaltered.

¹⁶ The results are not included but are available upon request from the author.

skilled business owners is due to immigrants. We also show that today there are more low-skilled business owners than there are entrepreneurs with a college degree.

Recognizing the limited labor market opportunities for low-skilled workers, we address the question of whether self-employment should be considered a policy tool to broaden the labor market alternatives of individuals with low schooling levels. Policymakers may want to consider encouraging self-employment as a policy tool to increase the economic well being of low-skilled workers, if self-employment brings earnings on par with earnings in the wage/salary sector and/or if there is evidence of barriers to self-employment entry (presumably due to market inefficiencies, such as limited access to business start-up capital). It is also possible that encouraging self-employment is desirable if there is evidence that low-skilled workers face difficulty finding employment in the wage/salary sector, and that such barriers are difficult to remove through public policies.

Our earnings analysis reveals that the earnings of most low-skilled workers is higher in wage/salary employment than self-employment but also that top earning entrepreneurs have higher earnings than top earning wage/salary workers. The research also points to different economic returns to self-employment among low-skilled men and women.

Our estimates of the low-skilled mean earnings disadvantage among native born men range from about 17 percent in a fixed effects specification to about 26 percent in a pooled interacted OLS specification. The average earnings disadvantage appears to be somewhat smaller among foreign born men, possibly as low as 11 percent according to our fixed effects estimates. Our analysis of earnings growth indicates that low-skilled men partially overcome the lower earnings over time. Overall, among low-skilled men, self-employment is a somewhat financially rewarding employment option leading to similar earnings to those in wage/salary employment, particularly among immigrants. The economic return to self-employment is a plausible factor attracting low-skilled men to business ownership.

The economic rewards to self-employment among low-skilled women are lower than those among low-skilled men. We find that wage/salary employment is a substantially more financially rewarding option for most women, particularly among natives. The self-employment earnings disadvantage ranges between 22 and 40 percent for native born women, with the fixed effects specification yielding she smallest gap. We estimate that immigrant women observed in self-employment earn between 16 and 25 percent less than their counterparts in wage/salary

employment. Although, native born female entrepreneurs appear to experience faster earnings growth than U.S. born employees, this is not sufficient to reach earnings parity over a 15 to 25 year period. We find no evidence of different earnings trajectories, with respect to age and experience, among low-skilled immigrant women.

Although the findings do not provide strong support for policy intervention that directly encourages business ownership among low-skilled workers, it is important to point out that several potentially important benefits of low-skilled self-employment have not been addressed. Our analyses have not examined other possible measures of success, including wealth accumulation. Our data do suggest that business owners' mean and median household net worth are higher than those of wage/salary workers. Given that our data only include wealth information at the household level, we cannot reliably ascertain that this relationship is a consequence of the individual's self-employment performance, and not due to, for example spousal economic activity. Wealth accumulation is an important topic for future research. Additionally and importantly, the research has not analyzed whether low-skilled self-employment leads to greater job creation. This is a topic that the data utilized here are not well suited to address but given potential implications, it is an important issue for future research to address.

Lastly, given the lack of strong evidence in favor of additional self-employment assistance among low-skilled workers, what are alternative policies which can provide upward mobility for this economically vulnerable part of the workforce? No simple solution exists but it is likely that efforts aimed at increasing skills and educational attainment are the ones most likely to lead to lasting improved economic outcomes among the current population with low schooling levels. However, few adult workers who did not complete high school are likely to return to school to complete their secondary education. Similarly, enticing adult high school graduates, who have not been in school for years, to enroll in college level classes to obtain higher levels of educations is also likely to prove challenging. This point to the importance of ensuring that current and future students are provided with ample opportunities to not only complete secondary education, but to also obtain skills at the post-secondary level.

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Tables

 Table 1

 Number of Self Employed Individuals in the U.S., 1980 to 2007, by Skill Group.

	······································) = == == = = = = = = =		-> -> -> -> -> -> -> -> -> -> -> -> -> -	J 2000 00 00 00 00 00 00 00 00 00 00 00 0			
	High School	Some	College		High School	Some	College	
Year	or Less	College	Graduate	All	or Less	College	Graduate	All
				U.S.	Born			
		Me	en			Woi	men	
1980	4,059,900	1,248,500	1,752,300	7,060,700	1,346,720	467,920	373,980	2,188,620
1990	3,443,392	2,037,443	2,247,791	7,728,626	1,711,725	1,221,160	879,587	3,812,472
2000	3,382,087	2,331,583	2,574,546	8,288,216	1,681,781	1,535,579	1,282,279	4,499,639
2005	3,559,399	2,578,303	3,012,577	9,150,279	1,720,593	1,690,777	1,650,717	5,062,087
2006	3,683,961	2,544,878	3,000,674	9,229,513	1,693,497	1,706,371	1,709,890	5,109,758
2007	3,636,241	2,548,555	3,013,403	9,198,199	1,683,663	1,692,124	1,734,436	5,110,223
Period								
Change	-423,659	1,300,055	1,261,103	2,137,499	336,943	1,224,204	1,360,456	2,921,603

Foreign Born

Men			Women					
1980	277,160	73,260	139,160	489,580	102,700	32,580	33,820	169,100
1990	400,782	175,984	252,590	829,356	231,302	101,856	97,763	430,921
2000	651,069	252,403	377,102	1,280,574	411,347	167,993	187,230	766,570
2005	837,368	341,776	534,838	1,713,982	546,335	225,259	301,712	1,073,306
2006	914,416	342,237	545,850	1,802,503	586,858	236,005	308,357	1,131,220
2007	944,585	352,100	561,402	1,858,087	603,127	222,939	321,871	1,147,937
Period								
Change	667,425	278,840	422,242	1,368,507	500,427	190,359	288,051	978,837

Source: 1980, 1990 and 2000 U.S. Census; 2005-2007 American Community Survey.

	High School	Some	College	High School	Some	College
Year	or Less	College	Graduate	or Less	College	Graduate
			U.S.	Born		
		Men			Women	
1980	10.1%	11.0%	15.2%	3.9%	4.5%	5.0%
1990	10.2%	10.6%	14.7%	5.7%	6.1%	7.1%
2000	10.4%	10.6%	14.3%	6.0%	6.3%	7.4%
2005	11.2%	11.5%	15.2%	6.1%	6.8%	8.2%
2006	11.0%	11.2%	14.9%	6.0%	6.6%	8.3%
2007	11.0%	11.0%	14.6%	6.1%	6.5%	8.1%
			Foreiç	gn Born		
		Men			Women	
1980	9.8%	10.6%	14.9%	4.2%	5.1%	6.3%
1990	9.5%	12.2%	15.1%	7.0%	7.3%	8.4%
2000	9.1%	11.5%	12.8%	8.4%	7.6%	7.9%
2005	10.0%	13.4%	14.2%	9.9%	8.7%	9.3%
2006	10.3%	13.0%	13.7%	10.4%	8.9%	9.2%
2007	10.5%	13.5%	13.8%	10.6%	8.4%	9.4%

Table 2.	
U.S. Self-Employment Rates,	1980 to 2007, by Skill Group.

Source: 1980, 1990 and 2000 U.S. Census; 2005-2007 American Community Survey.

				Percentile				
	Mean	10	25	Median	75	90		
		U.S. Born						
		Total Annual Earnings						
Self-Employment	38,177	6,537	14,083	27,475	46,028	76,640		
Wage/Salary	32,825	9,768	18,175	28,941	42,524	58,127		
Difference (\$)	5,352	-3,231	-4,092	-1,466	3,504	18,514		
Difference (%)	16.3%	-33.1%	-22.5%	-5.1%	8.2%	31.9%		
		Total Anr	nual Earnin	ngs & Capit	al Income			
Self-Employment	38,768	6,781	14,527	27,948	46,702	79,358		
Wage/Salary	33,028	9,850	18,244	29,060	42,756	58,551		
Difference (\$)	5,740	-3,069	-3,717	-1,112	3,946	20,807		
Difference (%)	17.4%	-31.2%	-20.4%	-3.8%	9.2%	35.5%		
	Tot	al Annual I	Earnings, l	Business E	quity Adjus	sted		
Self-Employment	33,252	3,364	11,244	23,949	42,612	70,846		
Wage/Salary	32,825	9,768	18,175	28,941	42,524	58,127		
Difference (\$)	427	-6,403	-6,930	-4,993	88	12,719		
Difference (%)	1.3%	-65.6%	-38.1%	-17.3%	0.2%	21.9%		
			-	D				
Self-Employment	33 //51	5 655	11 785	181 Earriing: 22 352	38 669	70 055		
Wage/Salary	26 / 52	10 292	16 17/	22,352	32 /16	16.038		
Difference (\$)	6 999	-/ 637	-// 389	-811	6 253	74 017		
Difference (%)	26 5%	-45 1%	-27 1%	-3 5%	19.3%	52.2%		
Difference (70)	20.570	43.170	27.170	5.570	19.970	52.270		
		Total Anr	ual Farnir	nas & Canit	al Income			
Self-Employment	33.719	5.839	12.014	22.568	38.898	70.208		
Wage/Salary	26.548	10.325	16.194	23.208	32.508	46.191		
Difference (\$)	7.172	-4.486	-4.180	-640	6.389	24.017		
Difference (%)	, 27.0%	-43.4%	-25.8%	-2.8%	19.7%	52.0%		
2								
	Tot	al Annual I	Earninas. I	Business E	guity Adius	sted		
Self-Employment	30,010	3,949	10,823	20,568	36,949	63,932		
Wage/Salary	26,452	10,292	16,174	23,163	32,416	46,038		
Difference (\$)	3,558	-6,343	-5,351	-2,596	4,533	17,894		
Difference (%)	13.4%	-61.6%	-33.1%	-11.2%	14.0%	38.9%		

Table 3Summary Statistics, Total Annual Earnings Measures, Low-Skilled Men

Source: 1996, 2001 and 2004 Panels of the Survey of Income and Program Participation (SIPP).

	,		0	,				
				Percentile				
	Mean	10	25	Median	75	90		
	U.S. Born							
			Total Annı	al Earnings	6			
Self-Employment	21,092	2,897	6,574	13,824	26,146	45,298		
Wage/Salary	22,287	6,098	11,577	19,492	29,203	40,212		
Difference (\$)	-1,195	-3,201	-5,003	-5,668	-3,057	5,086		
Difference (%)	-5.4%	-52.5%	-43.2%	-29.1%	-10.5%	12.6%		
		Total Ann	ual Earnir	ngs & Capita	al Income			
Self-Employment	21,764	3,035	7,024	14,475	26,997	46,889		
Wage/Salary	22,509	6,217	11,677	19,678	29,530	40,552		
Difference (\$)	-745	-3,183	-4,653	-5,203	-2,533	6,337		
Difference (%)	-3.3%	-51.2%	-39.8%	-26.4%	-8.6%	15.6%		
	Tot	al Annual I	Earnings, I	Business E	quity Adjus	sted		
Self-Employment	17,437	1,264	4,925	11,961	22,735	39,535		
Wage/Salary	22,287	6,098	11,577	19,492	29,203	40,212		
Difference (\$)	-4,850	-4,834	-6,653	-7,531	-6,468	-677		
Difference (%)	-21.8%	-79.3%	-57.5%	-38.6%	-22.1%	-1.7%		
	Foreign Born							
0 K = 1	24 400	2.226	I otal Annu	al Earnings	3 7 7 4	44.420		
Self-Employment	21,400	3,226	6,912	13,584	23,/34	41,136		
Wage/Salary	19,189	5,640	10,362	16,477	24,464	35,045		
Difference (\$)	2,211	-2,414	-3,450	-2,892	-/30	6,091		
Difference (%)	11.5%	-42.8%	-33.3%	-17.6%	-3.0%	17.4%		
		T= (= A			- / /			
	21 620	1 Otal Ann	iuai Earnir	igs & Capita		41 600		
Self-Employment	21,038	5,435	10 294	15,728	23,813	41,099		
vvage/Salary	19,343	5,722 2 2 2 7	10,384		24,041	33,328 6 171		
Difference (\$)	2,295	-2,207	-3,352 27 20/	-2,027 17 10/	-020	0,1/1		
Difference (%)	11.9%	-40.0%	-32.3%	-17.1%	-3.4%	17.470		
	Tat	ol Annual I	Forningo	Rusinasa F	auity Adies	otod		
Solf_Employment	100 20 570	ai Annual I 2 524	an in ys, i ק מאפ	20311835 E	70 652	20 052 20 052		
Wage/Salary	10,579	2,J24 5 610	10 262	16 / 77	22,055	35 015		
Difference (\$)	1 200	-3 115	_Δ Δ1Λ	-3 208	-1 817	5 007		
Difference (φ)	7 20/	-55 2%	-12 6%	-21 2%	_7 /0/	1/1 20/		
	1.2/0	-55.270	- 4 2.0/0	-21.0/0	-/.4/0	14.J/0		

 Table 4

 Summary Statistics, Total Annual Earnings Measures, Low-Skilled Women

Source: 1996, 2001 and 2004 Panels of the Survey of Income and Program Participation (SIPP).

<u></u>	<u> </u>	en	Wo	men
Variable	(1)	(2)	(3)	(4)
Self-Employed	-0.038	-0.263	-0.333	-0.519
	(2.03)	(9.56)	(11.09)	(11.91)
Self-Employed*Immigrant	-0.007	0.023	0.189	0.145
	(0.17)	(0.58)	(3.23)	(2.94)
Immigrant	-0.173	-0.058	-0.167	-0.017
J	(16.40)	(5.42)	(12.90)	(1.48)
High School Graduate		0.199		0.237
		(21.67)		(22.01)
Age		0.182		0.091
		(18.86)		(9.50)
Age Squared/100		-0.367		-0.171
		(14.83)		(6.94)
Age Cubed/1000		0.023		0.009
		(11.51)		(4.62)
Hispanic		-0.137		-0.085
		(10.59)		(5.99)
African-American		-0.173		-0.103
		(14.43)		(9.10)
Asian		-0.182		-0.012
		(5.81)		(0.46)
Other Ethnic Group		-0.105		-0.071
		(4.22)		(2.63)
Typical Weekly Hours Worked		0.013		0.019
		(40.48)		(45.74)
Tenure		0.055		0.079
		(20.74)		(26.66)
Tenure Squared/100		-0.229		-0.327
		(11.97)		(14.81)
Tenure Cubed/1000		0.031		0.044
		(8.54)		(9.92)
Previous Year's Labor Force Status		()		()
Wage/Salary		0.597		0.691
		(28.37)		(33 36)
Self-Employment		0.509		0.676
		(14.98)		(14 77)
Part-Time Wage/Salary		0 022		0 130
Fart fine Wage, calary		(0.44)		(3.54)
Part-Time Self-Employment		0.366		0.464
		(5 55)		(6,00)
Unomployed		(3.33)		(0.00)
onempioyea		0.121		U.190 (5 70)
Molforo		(3.00)		(0.79)
wellale		-0.320		-U. 189
		(4.72)		(5.06)

Table 5

Pooled Ordinary Least Squares Models, Log of Total Annual Earnings.

Number of Observations	45,687		37,310	
R-squared	0.011	0.396	0.015	0.451

Notes: All model specifications include year fixed effects, while specification (2) also includes state fixed effects and a dummy variable for metropolitan resident. The model specifications in Column (2) and (4) also include controls for marital status, children, age of children and number of persons in the household. The t-statistics, shown in parentheses, are based on standard errors adjusted for individual repeated observations, i.e. clusters.

Table 6

Pooled Ordinary Least Squares Models with Self-Employment Interaction, Log of Total Annual Earnings.

		Men	Women	
	Wage/	Self-	Wage/	Self-
Variable	Salary	Employed	Salary	Employed
Self-Employed		-0.303		-0.433
		(4.15)		(3.64)
Less than High School	-0.202	0.086	-0.224	-0.120
	(22.42)	(2.25)	(21.59)	(2.09)
Age 16 to 25	-0.303	0.072	-0.181	-0.269
	(22.31)	(0.82)	(13.17)	(2.09)
Age 26 to 35	-0.066	0.118	-0.035	-0.016
	(6.48)	(2.73)	(3.19)	(0.21)
Age 46 to 55	-0.008	-0.003	-0.018	-0.111
	(0.81)	(0.07)	(1.70)	(1.77)
Age Greater than 55	-0.070	-0.095	-0.095	-0.114
	(5.41)	(1.86)	(7.10)	(1.51)
Immigrant	-0.053	-0.030	-0.030	0.172
	(4.99)	(0.72)	(2.75)	(2.61)
Hispanic	-0.144	-0.018	-0.101	-0.057
	(11.25)	(0.35)	(7.24)	(0.79)
African-American	-0.146	-0.176	-0.102	-0.277
	(12.62)	(2.78)	(9.63)	(2.88)
Asian	-0.162	-0.092	-0.012	-0.083
	(5.67)	(0.82)	(0.43)	(0.77)
Other Ethnic Group	-0.085	-0.092	-0.083	0.082
	(3.37)	(1.01)	(3.14)	(0.69)
Typically Work 15 to 25 Hours/Week	-0.876	0.163	-0.797	0.472
T	(38.26)	(2.54)	(60.55)	(6.87)
Typically Work 25 to 35 Hours/Week	-0.429	0.241	-0.380	0.386
	(19.45)	(4.15)	(35.49)	(5.64)
lypically Work More than 45 Hours/Week	0.203	0.068	0.143	0.165
— 1 (1 (1))	(26.61)	(1.90)	(12.29)	(2.93)
Tenure Less than 1 Year	-0.246	0.050	-0.356	0.086
	(21.63)	(0.94)	(29.34)	(0.98)
Tenure 1 to 5 Years	-0.039	-0.027	-0.103	0.004
	(3.93)	(0.58)	(10.31)	(0.06)
Tenure 10 to 15 Years	(2.40)	0.068	0.070	-0.039
Tanuna Marathan 15 Vaara	(3.16)	(1.27)	(5.28)	(0.46)
renure more than 15 Years		-0.067	0.200	-0.070
Draviaua Vaaria Labar Faraa Statua	(14.11)	(1.59)	(17.43)	(0.91)
Wege/Seleny	0 001	0.016	0 1 2 0	0 126
wage/Salary	(2,20)	-0.010	(2.22)	-0.130
Part-Time Wage/Salany	(2.30) _0 261	(U.20) -1 /95	(2.32) -0 336	(1.39) -0 352
i ant inne wage/Salary	-0.301	-1.400	-0.330	-0.30Z (1 16)
Part-Time Self-Employment	(0.32) 0.021	(2.04) -0 155	(4.97) -0.016	(1.10) _0 192
	(0.024 (0.24)	-0.100	-0.010	-0.102
	(0.34)	(1.50)	(0.17)	(1.10)

Unemployed	-0.339	-0.258	-0.316	-0.382
	(7.60)	(1.96)	(4.87)	(1.63)
Welfare	-0.787	-0.121	-0.679	-0.528
	(10.56)	(0.57)	(10.06)	(1.98)
Not in the Labor Force	-0.486	0.056	-0.498	-0.399
	(11.69)	(0.53)	(7.96)	(3.12)
Number of Observations	45.687		37,310	
R-squared	0.4	426	0.480	

Notes: All model specifications include year fixed effects, while specification (2) also includes state fixed effects and a dummy variable for metropolitan resident. The model specifications also include interacted controls for marital status, children, age of children and number of persons in the household. The t-statistics, shown in parentheses, are based on standard errors adjusted for individual repeated observations, i.e. clusters.

Individual I fred Effects foodels,	<u>Bog Pillidai B</u>	en	Wo	men
	Native	Foreign	Native	Foreign
Variable	Born	Born	Born	Born
	F	arnings Leve	el Difference	<i>.</i>
Self-Employed	-0.185	-0.111	-0.243	-0.226
	(5.90)	(1.52)	(4.24)	(2.11)
Age	0.571	0.679	0.451	0.563
-	(14.93)	(8.86)	(11.28)	(5.66)
Age Squared/100	-1.247	-1.474	-0.924	-1.098
	(13.17)	(7.37)	(9.59)	(4.76)
Age Cubed/1000	0.087	0.106	0.060	0.069
	(11.26)	(6.34)	(7.81)	(3.78)
Typical Weekly Hours Worked	0.005	0.006	0.008	0.011
	(13.16)	(7.98)	(18.21)	(10.29)
R squared within	0.045	0.082	0.065	0.117
R squared between	0.280	0.127	0.167	0.110
R squared overall	0.215	0.127	0.145	0.112
	Earni	ngs Growth	Difference -	Age
Age	0.578	0.674	0.458	0.565
	(15.20)	(8.63)	(11.47)	(5.71)
Age Squared/100	-1.270	-1.461	-0.947	-1.092
	(13.51)	(7.14)	(9.85)	(4.75)
Age Cubed/1000	0.090	0.105	0.062	0.068
0	(11.64)	(6.11)	(8.11)	(3.73)
Self-Employed*Age	-0.027	0.001	-0.056	0.026
	(2.28)	(0.05)	(3.00)	(0.61)
Self-Employed*Age/100	0.095	-0.029	0.203	-0.184
	(1.67)	(0.21)	(2.31)	(0.99)
Self-Employed*Age/1000	-0.009	0.004	-0.019	0.024
	(1.40)	(0.28)	(1.86)	(1.21)
Typical Weekly Hours Worked	0.005	0.006	0.008	0.011
	(13.15)	(7.98)	(18.23)	(10.28)
R squared within	0.045	0.082	0.065	0.118
R squared between	0.280	0.127	0.167	0.109
R squared overall	0.214	0.127	0.145	0.111
	Earning	gs Growth Di	ifference - T	enure
Tanana	0.070	0.000	0.444	0.445
renure	0.078	0.099	0.111	0.115
	(18.12)	(10.49)	(21.13)	(9.45)
renure Squared/100	-0.493	-0./1/	-0.771	-0.787
T 0 1 1/1000	(14.13)	(8.27)	(15.79)	(6.50)
Tenure Cubed/1000	0.082	0.136	0.137	0.138

Table 7Individual Fixed Effects Models, Log Annual Earnings

	(11.71)	(6.42)	(12.03)	(4.79)
Self-Employed*Tenure	-0.056	-0.063	-0.063	-0.043
	(4.14)	(2.55)	(2.61)	(1.16)
Self-Employed*Tenure Squared/100	0.444	0.606	0.553	0.118
	(4.00)	(2.98)	(2.46)	(0.37)
Self-Employed*Tenure Cubed/1000	-0.084	-0.117	-0.115	-0.020
	(3.91)	(2.96)	(2.17)	(0.33)
Typical Weekly Hours Worked	0.006	0.007	0.009	0.011
	(14.35)	(9.12)	(19.37)	(10.51)
R squared within	0.039	0.082	0.080	0.128
R squared between	0.267	0.064	0.254	0.090
R squared overall	0.184	0.082	0.195	0.115
Number of Observations	53,458	19,578	45,063	12,885

Notes: All model specifications include year fixed effects. The t-statistics, shown in parentheses, are based on standard errors adjusted for individual repeated observations, i.e. clusters.

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Note: The predicted log annual earnings are generated from the fixed effects estimates presented in the middle panel of Table 7.





Note: The predicted log annual earnings are generated from the fixed effects estimates presented in the middle panel of Table 7.





Note: The predicted log annual earnings are generated from the fixed effects estimates presented in the bottom panel of Table 7.





Note: The predicted log annual earnings are generated from the fixed effects estimates presented in the bottom panel of Table 7.

Appendix

Table A1Descriptive Statistics, Low-Skilled Men

	U.S. Born		Foreign Born	
	Self-	Wage/	Self-	Wage/
Variable	Employed	Salary	Employed	Salary
Years of Schooling	11.51	11.58	10.32	10.05
Less than High School	17.0%	16.0%	32.1%	38.7%
High School Graduate	83.0%	84.0%	67.9%	61.3%
Age	44.04	38.17	42.54	36.68
Youngest Child Younger Than 1	11.3%	10.8%	17.3%	18.5%
Youngest Child Aged 1	3.0%	3.1%	5.8%	5.4%
Youngest Child Between Ages 2 and 3	4.4%	5.1%	7.8%	7.6%
Youngest Child Between Ages 4 and 5	4.3%	4.0%	6.9%	5.9%
Youngest Child Between Ages 6 and 12	15.2%	14.6%	13.4%	15.6%
Youngest Child Teenager	5.5%	6.1%	4.8%	4.6%
Single	31.0%	46.5%	28.7%	43.8%
Persons in Household	3.18	3.23	3.95	4.04
Metropolitan Resident	64.1%	72.0%	83.4%	86.1%
White	87.1%	74.8%	34.9%	26.0%
Hispanic	5.5%	10.4%	48.8%	59.6%
African-American	5.6%	12.7%	4.3%	6.7%
Asian	0.6%	0.4%	8.6%	5.2%
Other Ethnic Group	1.2%	1.7%	3.5%	2.5%
Years Since Migration			19.2	16.4
Not Naturalized Citizen			44.4%	51.0%
Years at Job	11.02	7.75	7.64	5.43
Typical Weekly Hours Worked	50.37	43.5	48.43	42.83
Previous Year's Labor Force Status				
Wage/Salary	9.1%	87.6%	14.5%	87.5%
Self-Employed	83.3%	1.3%	76.0%	1.3%
Wage/Salary, Less than 15 Hours/Week	0.1%	0.8%		0.5%
Self-Employed, Less than 15 Hours/Week	3.3%	0.3%	1.9%	0.2%
Unemployed	1.2%	3.7%	1.6%	3.8%
Welfare	0.5%	1.1%	0.7%	1.3%
Not in the Labor Force	2.6%	5.2%	5.3%	5.3%
Number of Observations	4,466	29,394	1,198	9,063

Source: 1996, 2001 and 2004 Panels of the Survey of Income and Program Participation (SIPP).

	U.S. Born		Foreign Born	
	Self-	Wage/	Self-	Wage/
Variable	Employed	Salary	Employed	Salary
Years of Schooling	11.59	11.69	10.09	10.4
Less than High School	15.3%	13.3%	33.6%	32.4%
High School Graduate	84.7%	86.7%	66.4%	67.6%
Age	44.77	40.1	43.45	39.32
Youngest Child Younger Than 1	10.9%	10.1%	10.4%	13.7%
Youngest Child Aged 1	3.3%	3.8%	5.0%	5.6%
Youngest Child Between Ages 2 and 3	4.6%	5.8%	9.3%	7.4%
Youngest Child Between Ages 4 and 5	4.7%	5.2%	6.8%	7.0%
Youngest Child Between Ages 6 and 12	18.2%	17.3%	19.0%	21.0%
Youngest Child Teenager	6.4%	6.6%	7.4%	5.8%
Single	28.6%	47.9%	36.6%	45.1%
Persons in Household	3.15	3.17	3.83	3.88
Metropolitan Resident	70.3%	73.9%	93.0%	87.2%
White	83.9%	73.1%	27.0%	28.9%
Hispanic	6.0%	8.8%	49.1%	48.6%
African-American	7.7%	15.7%	6.1%	9.6%
Asian	0.3%	0.4%	14.1%	9.5%
Other Ethnic Group	2.1%	1.9%	3.7%	3.5%
Years Since Migration			18.9	17.9
Not Naturalized Citizen			49.2%	45.4%
Years at Job	8.06	6.85	6.49	4.89
Typical Weekly Hours Worked	43.08	38.49	41.1	38.58
Draviava Vaaria Labar Faraa Status				
Wege/Selen/	0.0%	95 10/	0.20/	90.00/
Wage/Salary	9.9%	0.7%	9.3%	80.0%
Sell-Employed	74.3%	0.7%	73.7%	0.9%
Wage/Salary, Less than 15 Hours/Week	0.5%	1.6%	0.3%	1.6%
Self-Employed, Less than 15 Hours/week	5.6%	0.3%	2.8%	0.2%
Unemployed	1.8%	3.0%	2.3%	3.9%
	1.4%	2.8%	2.2%	3.3%
NOT IN THE LADOR FORCE	6.5%	6.5%	9.4%	10.2%
Number of Observations	1,922	26,818	589	6,368

Table A2

Descriptive Statistics, Low-Skilled Women

Source: 1996, 2001 and 2004 Panels of the Survey of Income and Program Participation (SIPP).