Entrepreneurs and Workers*
(Preliminary version, comments welcome)

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Abstract

Using an extensive panel of 350,000 individuals over 12 years, we estimate earnings functions for workers and entrepreneurs in Finland. When controlling for the level of education, entrepreneurs usually have lower median income but higher average income. Earnings equations explain a considerably smaller share of variation of income for entrepreneurs. Surprisingly, entrepreneurs with high school or vocational education earn less than entrepreneurs with only basic education or less, while average earnings for workers increase in the level of education. We conclude with tentative policy implications concerning education policy and entrepreneurship.

Keywords: Entrepreneurs; Workers; Occupational choice; Finnish labor market; Education; Gender differences

JEL Codes: J24, J31, J32, C23, H20

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"The whole of the advantages and disadvantages of the different employments of labour and stock must, in the same neighborhood, be either perfectly equal or continually tending to equality." Adam Smith, The Wealth of Nations, Book I, Chapter X.

1 Introduction

Entrepreneurship is a fundamentally different occupational choice than most salaried jobs. Apart from unemployment risk, workers typically enjoy a career path associated with a low level of income uncertainty. Entrepreneurs, on the other hand, are by definition residual claimants. Their income derives from uncertain profits. Even more, entrepreneurs often need to accept a considerable wealth risk, using their private wealth as a collateral for loans needed to finance business projects. Knight (1921) even defines entrepreneurship as fundamentally risk-bearing, accepting uninsurable possibility of failure in exchange for a compensation in the form of expected profits. Bearing risks can then be interpreted as a factor of production, combined with labor and capital in firms.

Research on entrepreneurship again gained momentum in the late 1970s.[1] Lucas (1978) showed that ability differences may explain differences in enterprise size and growth. Kihlström and Laffont (1979) suggested that less risk-averse agents become entrepreneurs. As people are typically risk-averse, leaving lottery aside, an economist would then expect that entrepreneurship should offer some compensation for these risks, either in form of higher expected income or some non-monetary benefits. These non-monetary benefits may derive from independence associated with entrepreneurship, being one's own boss. On the other hand, non-monetary aspects of entrepreneurship need not be primarily positive. Whereas workers are able to leave their job behind during holidays, entrepreneurs often do not have that option, or exercising it would be much more costly. Entrepreneurs generally work longer hours and have shorter holidays than most workers. (Uusitalo 2001) Taking sabbatical may even amount to closing down the business. Moskowitz and

[1] Ilmakunnas and Kanniainen (2001) provide a thorough survey on literature analyzing entrepreneurship, as well as empirical evidence on the effects of economic policy on entrepreneurship across OECD countries.

Vissing-Jørgensen (2002) also find that in the United States, returns to private equity are not larger than returns to public equity. They also report that about 75 percent of all private equity is owned by households for whom it constitutes at least half of their total net worth. They suggest as alternative explanations for this puzzle the presence of large nonpecuniary benefits from investment in privately controlled company, a preference for skewness as well as the possibility of overconfidence.

In this paper, we aim to answer what observable characteristics explain the income of entrepreneurs, and how this process differs from that of workers. We estimate income equations separately for workers and entrepreneurs in order to find out to what extent education, gender, and age explain the variation in income, and whether workers and entrepreneurs exhibit systematic differences. Our data set consists of micro level panel data covering the period 1987-1998. The sample of 350 000 individuals originates from Employment Statistics and other data bases. The Statistics Finland constructed the data by combining information from several data bases. The data covers all individuals aged 15-75 in 1997 with permanent residence in Finland. Earlier, Uusitalo (2001) has analyzes the determinants of self-employment in Finland. He uses data on psychological tests, indicating that those becoming entrepreneurs are less risk-averse. Our focus is different, as we do not aim to answer who becomes entrepreneur in the first place, but how the incomes of entrepreneurs and workers of given observed characteristics differ. Our approach relying on microdata is also complementary to Ilmakunnas and Kanniainen (2001), who find evidence supporting the Knightian view on entrepreneurship from OECD cross-country macrodata. Their central finding is that lower degree of risk-sharing by the government for entrepreneurs than for workers is statistically significantly detrimental to entrepreneurship.

Kangasharju and Pekkala (2002) found that business cycle affects the relative closure rates of firms run by self-employed with any level of education. Self-employed with higher education have lower exit-probability during bust and higher in the upturn. This results from two facts. First, running a small firm is argued to be less attractive choice to wage work for highly educated due to the lower earnings prospects, less stable stream of earnings and the tradition of working in large firms. Second, self-employed with higher education have a higher outside demand for their labour than the less educated during economic boom. In addition, firms run by entrepreneurs with higher education have higher growth probabilities than those run by less educated ones. However, Kangasharju and Pekkala don't estimate earnings estimates

for workers and entrepreneurs with different characteristics.

In our basic model, we explain the incomes of workers and entrepreneurs by education, gender and age. Therefore, we are able to distinguish how the returns to education as well as the effects of gender differ across the two groups. We perform the calculations for different years, allowing us to control whether there has been changes in the earnings functions of the two groups over time. In the next step, we add dummies for different industries and different types of education. We then perform analysis controlling for the size of enterprise by excluding the firms above a given size. Effectively, this would exclude those workers having very high earnings due to stock options in Nokia or other large companies. We also include regional dummies, as well as study separately those who switch between occupational categories and those who do not. Finally, we use the panel data structure to shed further light on how observable characteristics explain the earnings process of those who stay as workers or entrepreneurs in the period 1993 to 1998.

The stylized findings are as follows. As we would expect, entrepreneurship is associated with considerably higher income risks than what workers face. Entrepreneurs have generally higher average reported income, but lower median reported income than workers of similar observed characteristics. The return to education is significantly higher for workers than for entrepreneurs. Furthermore, income distributions of entrepreneurs of any given level of education is log-linear, while that of workers is not. Observable characteristics that we analyze explain 31 to 52 percent of the earnings of workers, but only 10 to 15 percent of earnings of entrepreneurs. [interpretation of results with panel data still in progress]

Our paper is organized as follows. In section 2, we briefly summarize the implications of the maximization of the expected utility for the career choice, and stylized facts of the earnings and earnings risks of entrepreneurs and workers. In section 3, we evaluate earnings equations for the two groups. In section 4, we report results with a given specific group, namely engineers. We choose this group as it contains a large number of both workers and entrepreneurs. Section 5 sheds further light on those who change from being a worker to entrepreneurship or vice versa. Section 6 presents panel data analysis. Section 7 concludes.

2 Theory and Stylized Facts

2.1 Occupational Choice and Expected Utility

Economic theory predicts that choices, including that of occupation, are made in order to maximize the expected utility. Already Adam Smith noted that, in a society with free occupational choice, if in a given location "there was any employment evidently either more or less advantageous than the rest, so many people would crowd into it in the one case, and so many would desert it in the other, that its advantages would soon return to the level of other employments." (Smith 1776, reprinted 1999, p. 201) This implies that if careers as workers or entrepreneurs would not differ in non-monetary terms, and people are risk-averse, then the one associated with higher income risks would also have to offer higher expected income to compensate for risk-taking. Knight (1921) even argues entrepreneurship as being fundamentally risk-bearing. Roy (1951) has modelled sectorial choice so that people form expectations of their earnings in the alternative sectors, then choosing the one offering a higher expected utility. An important caveat to be kept in mind is that as we observe only choices made, entrepreneurs and workers are likely to differ in some unobserved characteristics in addition to observed ones. This implies that we cannot assume that the income that someone having chosen entrepreneurship would have earned as a worker is even in expected value equal to that of those with same observed characteristics and having chosen a career as worker. Therefore, we will estimate earnings functions separately for workers and entrepreneurs. This allows us to compare the effects of education, gender, age, and other characteristics on earnings in the two occupations. Such differences reveal important characteristics of these two occupational choices. For example, we can expect that the observed characteristics would explain a smaller fraction of the earnings of entrepreneurs than that of workers. This would result from the presence of unobserved entrepreneurial talent. The difference in the share of the variance explained by earnings equations would then be suggestive of the relative importance of unobservable characteristics, including entrepreneurial talent.

When starting to write this paper, our aim was to study the effect of income redistribution on the choice between being worker or entrepreneur using theoretical results by Boadway et al. (1991) and Poutvaara (2002). While there is widespread consensus of the need to promote entrepreneurship and risk-taking, there are conflicting views on how government policies,

most notably as concerns income redistribution, affect entrepreneurship and risk-taking. There is a long-standing tradition viewing the welfare state as an insurance mechanism, sharing both costs and benefits of risky projects. Domar and Musgrave (1944), Eaton and Rosen (1980), and Sinn (1995) have identified conditions under which linear redistribution schemes encourage productive risk-taking. Boadway et al. (1991) generated results to account for non-monetary differences, and Poutvaara (2002) to allow for income risks in both alternative careers. These results require that the income distribution in the two career choices belongs to the same linear distribution class.[2] We found, however, that incomes of workers and entrepreneurs do not belong to the same linear distribution class. Thus, theoretical results in Boadway et al. (1991) and Poutvaara (2002) on the effects of income redistribution on career choices cannot be applied even under restrictive assumption of no systematic unobservable differences between workers and entrepreneurs. Nonetheless, understanding the determination of incomes of entrepreneurs and workers allows tentative policy conclusions of importance as concerns education.

2.2 Stylized Facts

The empirical analysis is based on micro level panel data covering the period 1987-1998. The data was constructed by Statistics Finland. The sample on 350 000 individuals were drawn from Employment Statistics. The data covers all individuals aged 15-75 in 1997 with permanent residence in Finland. The Statistics Finland has constructed the data by combining information from several administrative registers and other data bases. For example, information on individuals' employment have origins in the registers of the Ministry of Labour.

The definition of occupational status of those aged 15 to 74 is based on activities during the last week or working day of the year, as well as informa-

[2]Two variables belong to the same linear distribution class if for all choice variables, the realization has a standardized form which does not depend on the choice variable. Formally, let Y be the realization of a random variable. Let μ be the expected value of Y, σ the standard deviation of Y and d a vector of choice variables. The random variable Y belongs to a linear distribution class, if Y can be presented in a standardized form $X = \frac{Y-\mu}{\sigma}$, whose properties are independent of the choice variable d. For example, if the realization of income in two different careers is a career-specific random variable times a function of underlying ability, the realizations of income in the two careers belong to the same linear distribution class. For analytical results on linear distribution classes, see Sinn (1983, 1990).

tion on annual income. First of all, those being in military or civil service, students or retired during the last week of the year are defined to be outside of labor force. Of the remaining population, those registered as unemployed job searchers during the last working day of the year are counted as unemployed. Of the remaining population, those having either an employment contract or contributing towards self-employed persons' pension during the last week of the year are counted as employed. The employed are divided into workers and entrepreneurs according to in which category they have received more income.[3] The data contains information on each individual's age, gender, home municipality, occupational status and industry. There is also annual information on individuals' earned income, income from entrepreneurship, unemployment benefits and taxes. By combining these incomes we find out annual after-tax income and pre-tax taxable income. The average age of all workers is 39, while that of entrepreneurs is 43. Among those aged 18 to 64 in 1998, the median age of workers is 39, while that of entrepreneurs is 44.

Our sample contains 13381 entrepreneurs and 157979 wage earners working in any other sector except agriculture. Agriculture is excluded due to its special feature of being almost exclusively inherited rather than chosen occupation. Including agriculture could then bias the estimates of entrepreneurial earnings. We divide people into four educational categories. The lowest category is basic education or less, corresponding to at most 10 years of schooling. This suggests only obligatory schooling, as comprehensive school consists of 9 obligatory classes and an optional 10th class, most often taken by those unable to continue directly to high school or vocational education. The second category is high school or vocational education, implying in total 10-12 years of schooling. In Finland, most pupils take high school (and matriculation exam) in three years. Vocational education includes, f.ex., basic nurses, nurses, commercial school graduates, clerks, and artisans. The third category, undergraduate education, includes those with only Bachelor degree in university, as well as technicians, engineers and specialist nurses. Typically, obtaining education in this category takes 13 to 15 years. Finally, graduate education includes those with Master's degree or more, and lasting 16 years or more. (Kyyrä 1999, p. 23) In Tables 1.a and 1.b, we summarize our data. We present data separately for a subgroup of those aged 30 to 39,

[3]Those who are not in military of civil service, students, retired or unemployed during the last week of the year and do not have a labor contract or entrepreneurial insurance in force during the last week of the year are counted as workers or entrepreneurs if their annual labor or entrepreneurial income exceeds a given threshold.

as that is the focus of our subsequent analysis of relative income variance.

Table 1.b. Number of all entrepreneurs and wage earners (year 1998)

	Workers	Entrepreneurs
Total number	157979	13381
(of which females)	79374	4649
Basic education or less	36217	4165
High school or vocational education	66787	5691
Undergraduate education	40155	2715
Graduate education	14820	810

Table 1.b. Number of entrepreneurs and wage earners of age between 30-39 (year 1998)

	Workers	Entrepreneurs
Total number	43130	3394
(of which females)	20938	1175
Basic education or less	5516	663
High school or vocational education	19058	1786
Undergraduate education	13022	764
Graduate education	5534	181

We summarize the main results of Table 1.a as:

Result 1. *Of the population aged 15 to 74, 45 percent are workers and 4 percent entrepreneurs.*

Result 2. *Entrepreneurs have in average lower education than workers: 22 percent of workers and 31 percent of entrepreneurs have only basic education or less, while 35 percent of workers and 26 percent of entrepreneurs have undergraduate or graduate education. The share of those with high school or vocational education is 43 percent in both groups.*

Lower educational status of entrepreneurs reflect partly age differences. However, this explanation is only partial. Of entrepreneurs aged 30 to 39, 28 % have higher education, while 43 % of workers have higher education in the same age group.

We graph the kernel density estimates of income of all workers and entrepreneurs with different levels of education as Figures 1 to 4. In those figures, we have censored first incomes of zero and then one percent from the bottom

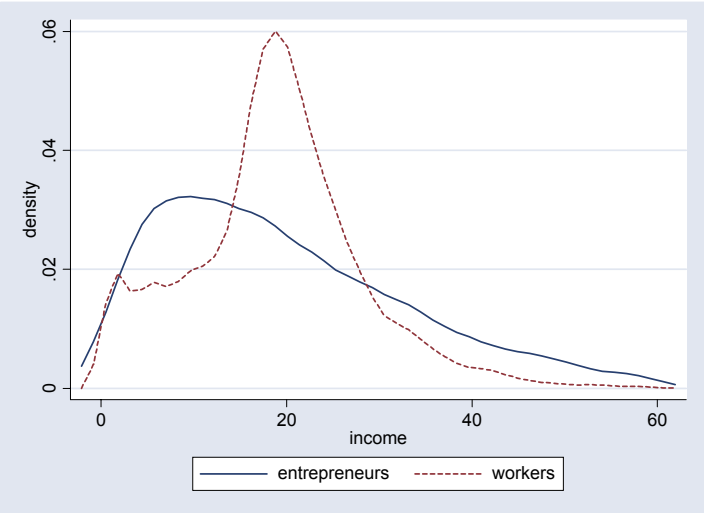

Figure 1: Earnings with basic education or less

and one percent from the top of both workers and entrepreneurs for each education group. Minimum income is then more than zero.[4]

While the earnings distribution of entrepreneurs with basic education or less can be approximated with a log-normal distribution, the same does not hold for workers. The relatively flat portion of workers' income distribution reflects unemployment compensations as well as wage bargaining. Of workers with income at or below € 18,000, 30,1 percent received unemployment benefits, while of those above that income, only 4,1 percent received unemployment benefits. Therefore, centralized wage bargaining and unemployment benefits can be interpreted to push workers income distribution to differ from that of their productivity distribution. The income distribution of entrepreneurs, on the other hand, is likely to reflect more closely their productivity distribution.[5]

The mean income of workers is € 19,200 while the mean income or entrepreneurs is € 23,300. The median income of workers is € 18,800, and the median income of entrepreneurs is € 18,000. Thus, workers have 4,5 percent

[4] In Figures 1 to 4, minimum income appears to be negative. This results from that kernel density function attaches a small area around every observation, so that observations at zero result in the figure seeming to start to the left of that point.

[5] An alternative explanation for differences arises from differences in hours worked.

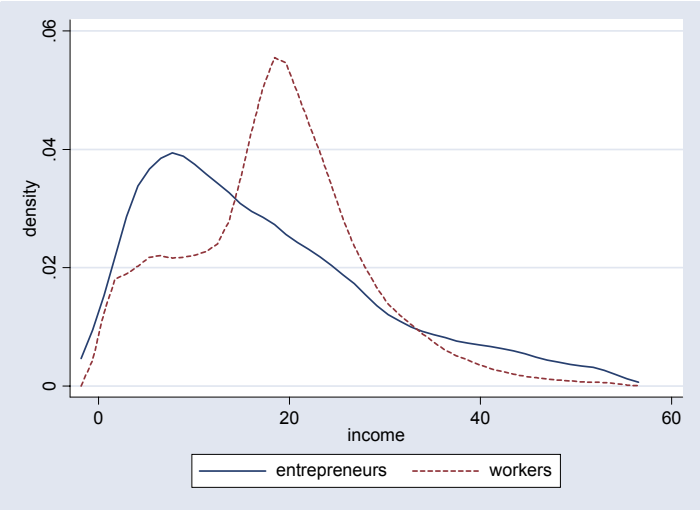

Figure 2: Earnings with high school or vocational education

higher median income than entrepreneurs, but entrepreneurs have more than 20 percent higher average income than workers.[6] This supports the view that entrepreneurship is a riskier career choice than being worker, while also suggesting that entrepreneurs would, in return, enjoy higher average income. However, such differences may also reflect unobserved differences.

Income distribution for entrepreneurs and workers with high school or vocational education closely resemble distribution for those with basic education or less. The mean income of workers is € 18,900 while the mean income or entrepreneurs is € 20,700. The median income of workers is € 18,600, and the median income of entrepreneurs is € 15,300. Thus, workers have 21,5 percent higher median income than entrepreneurs, but entrepreneurs have 9,5 percent higher average income than workers. What is surprising is that those with high school or vocational education earn less than those with only basic education or less, both as workers and entrepreneurs, and whether focusing on average or median incomes. This may partly reflect age differences: those with only basic education or less have an average age of 43 years and a median age of 46 years, while those with high school or vocational education

[6] While mean and median incomes are reported rounded to the closest hundred, percentage differences are calculated based on exact numbers.

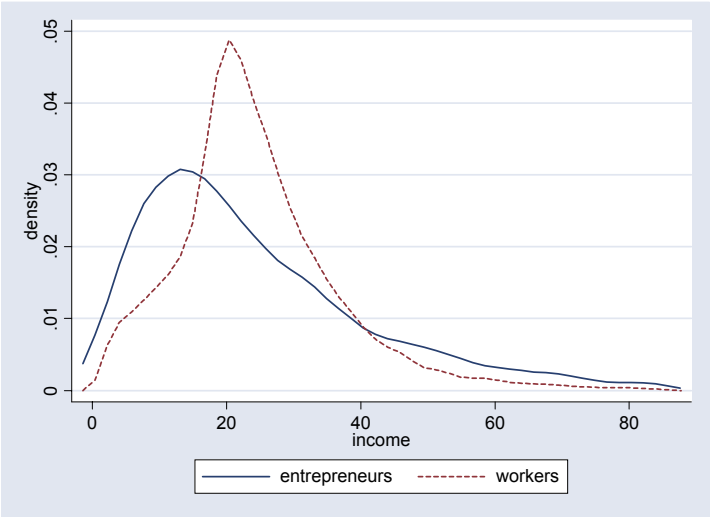

Figure 3: Earnings with undergraduate education

are in average only 37 years old, the same being also their median age.[7]

The income distribution of entrepreneurs with undergraduate education resembles log-normal distribution as the income distribution of entrepreneurs with lower levels of education. The income distribution of workers, however, differs from the distribution of groups of lower levels of education. In particular, the density of workers with income below € 15,000 decreases monotonically when earnings approach zero, while with lower educational groups, that was not the case. The mean income of workers is € 25,500 while the mean income of entrepreneurs is € 29,400. The median income of workers is € 22,700, and the median income of entrepreneurs is € 20,300. Thus, workers have 12 percent higher median income than entrepreneurs, but entrepreneurs have 15,5 percent higher average income than workers.

Also entrepreneurs with graduate level of education have income distribution that is close to following log-linear distribution. Surprisingly, earnings distribution of workers in that educational group, unlike in other educational groups, is close to being log-normal. The mean income of workers is € 40,100 while the mean income or entrepreneurs is € 50,300. The median income of

[7]Median ages are calculated for the age group 18 to 64.

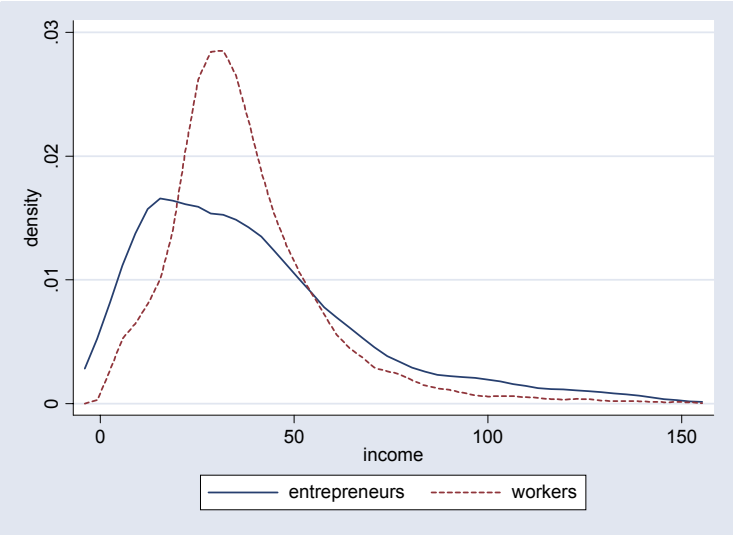

Figure 4: Earnings with graduate education

workers is € 33,600, and the median income of entrepreneurs is € 33,800. Thus, entrepreneurs and workers have almost same median income, but entrepreneurs have 25,5 percent higher average income than workers.

Certain common characteristics of income distributions warrant a further comment. First of all, the higher average incomes of entrepreneurs are driven in all groups by higher average capital income. If capital income would be excluded, then workers would always have higher average income. The shapes of distribution, however, would not change in any important manner. The share of those receiving capital income varied for workers between 12 percent (basic education or less) and 30 percent (graduate education), and for entrepreneurs between 63 percent (high school or vocational education) and 71 percent (graduate education). Omitting those with zero capital income, average capital income of those receiving it varied for workers between € 4,400 (High school or vocational education) and € 9,500 (graduate education), and for entrepreneurs between 6,600 (High school or vocational education) and € 18,500 (graduate education). The share of those receiving unemployment benefits varied for workers between 8,5 (graduate education) percent and 18,1 percent (High school or vocational education), and for entrepreneurs 3,8 percent (graduate education) and 8,9 percent (High school or vocational education). The main findings can be summarized as:

Result 3. *Controlling only for education, entrepreneurs have higher average income in each group, while workers have higher median income in other groups than graduates.*

In Table 2.a and 2.b, we present average reported income for workers and entrepreneurs belonging to the categories presented in Table 1.

Table 2.a. Average income (euros in 1998 value) of entrepreneurs and wage earners of age between 30-39 (year 1998)

	Workers average	Entrepreneurs average
All	22880	21540
(Females)	18420	15580
Basic education or less	19290	22210
High school or vocational education	20510	19200
Undergraduate education	23310	24340
Graduate education	33600	30380

Table 2.b. Average income (euros in 1998 value) of entrepreneurs and wage earners of age between 40-49 (year 1998)

	Workers average	Entrepreneurs average
All	25860	26470
(Females)	21330	19620
Basic education or less	21050	23020
High school or vocational education	22280	22280
Undergraduate education	28480	30900
Graduate education	46060	53060

And the median incomes are given by

Table 2.c. Median income (euros in 1998 value) of entrepreneurs and wage earners of age between 30-39 (year 1998)

	Workers median	Entrepreneurs median
All	20820	16790
(Females)	17970	11920
Basic education or less	18810	17800
High school or vocational education	19480	15110
Undergraduate education	21330	19140
Graduate education	29730	23510

Table 2.d. Median income (euros in 1998 value) of entrepreneurs and wage earners of age between 40-49 (year 1998)

	Workers median	Entrepreneurs median
All	22340	19310
(Females)	19820	14440
Basic education or less	19980	18140
High school or vocational education	20820	17210
Undergraduate education	25020	22340
Graduate education	38460	36440

Main results of Tables 2.a - 2.d can be summarized as:

Result 4. *Among those aged 30 to 39, workers have in some educational groups higher and in others lower average income than workers. Among those aged 40 to 49, entrepreneurs have the same or higher average income than workers in all groups. In both age groups, workers have higher median income than entrepreneurs with all levels of education.*

Even though we observed a larger variance across entrepreneurs than across workers in a cross-section, what remains to evaluate is the magnitude of idiosyncratic risks. In this, we exploit the panel data. We calculate relative variance of pre tax income, measured with respect to average income over years 1993-1998. To control for different income levels when measuring the variance of income, we normalize the income of any individual by dividing the income in each year by the average income over the period analyzed. To account for transitions between occupational status as worker or entrepreneur, we compare the income of both those who stayed as entrepreneurs or workers over the whole period (tables 3.a. and 3.b.), as well as those who were initially entrepreneurs (workers) both in the years 1993 and 1994 (tables 4.a. and 4.b.). In the analysis, we add those with undergraduate and those with graduate level together due to the small sample size for entrepreneurs in those groups.

Table 3.a. Relative variance of pre tax income (entrepreneurs, 1993-1998)

	Basic education or less	High school or vocational education	Undergraduate or graduate education
Age: 30–39	0.313704	0.35267467	0.32371354
Age: 40–49	0.58012896	0.50466815	1.20092018

Table 3.b. Relative variance of pre tax income (workers, 1993-1998)

	Basic education or less	High school or vocational education	Undergraduate or graduate education
Age: 30–39	0.217262	0.236288	0.237346
Age: 40–49	0.228368	0.232348	0.317015

Table 4.a. Relative variance of pre tax income (entrepreneurs, 1993 and 1994)

	Basic education or less	High school or vocational education	Undergraduate or graduate education
Age: 30–39	0.350299	0.417246	0.324307
Age: 40–49	0.589228	0.851728	1.041595

Table 4.b. Relative variance of pre tax income (workers, 1993 and 1994)

	Basic education or less	High school or vocational education	Undergraduate or graduate education
Age: 30–39	0.236069	0.253609	0.249530
Age: 40–49	0.246241	0.245498	0.319333

Whichever definition of the groups of workers and entrepreneurs is used, the qualitative results remain the same:

Result 5. *Entrepreneurs have higher variance of their income across years than workers.*

We also find a surprising result that the variance of income across age groups is non-monotonic in the level of education:

Result 6. *Among those with basic education or less or undergraduate or graduate education, those aged 30-39 have in both occupational groups lower variance than those aged 40-49. Among those with high school or vocational education, this is not always case.*

As one could expect, the groups consisting of those with a stable career choice as either worker or entrepreneur over the whole six-year-period have generally experienced lower variance of their income than those who have changed from being workers to entrepreneurs or vice versa. As Tables 4.a and 4.b follow individuals being initially workers or entrepreneurs also in case they leave the labor force, they take into account any income risks arising from unemployment.

Unemployment rates vary considerably in different groups. Unemployment rate of individuals with basic education is 16 percent, whereas, unemployment rate of individuals with undergraduate or graduate education is only 6 percent. Unemployment rates differ also across age groups. Unemployment rates are higher among young, reaching 32 percent in the age group 15-19, 20 percent in the aged group 20-24, and only 9 percent in the age group 35-54. (Statistics Finland, Labour Force Survey) Finally, we report the share of workers receiving also entrepreneurial income and of entrepreneurs receiving also wage income as Table 5. In this Table, only those with an income of at least € 6,000 in their main activity are taken into account.

Table 5. Shares of workers receiving also at least € 1,000 entrepreneurial income and of entrepreneurs receiving at least € 1,000 wage income (year 1998)

	Workers	Entrepreneurs
All	3.94	19.87
Basic education or less	3.64	15.68
High school or vocational education	3.42	17.45
Undergraduate education	3.99	28.2
Graduate education	6.74	41.11

Note: Only those earning at least € 6,000 in their main category are included.

While only a small minority (in average 4 percent) of workers receive also entrepreneurial income above € 1,000, a substantial fraction (in average 20 percent) of entrepreneurs received also wage income above € 1,000.

3 Earnings Equations

3.1 Basic Model

The main observed explanatory variables of income are education, gender, age and occupation. We define income as the sum of earned income, consisting mainly of wages and salaries, entrepreneurial income, unemployment benefits and capital income. While there may be interaction terms between these, such effects are likely to be of second-order.[8] Under the assumption that the effects of the explanatory variables are multiplicatively separable,

[8]Results including interaction terms are available upon requests. For example, the interaction term between being female and higher education turns out to be negative.

we may logarithmize earnings in order to obtain an additively separable regression model. We estimate earnings equations separately for workers and entrepreneurs. Independent variables are age, gender and education. As in the previous section, those in agricultural sector are excluded. We include in the analysis only those aged 18 to 64, including only those whose occupational status was either worker or entrepreneur in 1998.

Table 6.a. Ols-estimates for log incomes (workers)

	Coeff	Robust std. err.
Constant	-1.007	0.029
Female	-0.376	0.003
Age	0.177	0.001
Age squared	-0.002	0.000
High school or vocational education	0.114	0.005
Undergraduate education	0.349	0.005
Graduate education	0.696	0.006
Adjusted R^2	0.3736	
N	155572	

Table 6.b. Ols-estimates for log incomes (entrepreneurs)

	Coeff	Robust std. err.
Constant	0.642	0.152
Female	-0.450	0.018
Age	0.094	0.007
Age squared	-0.001	0.000
High school or vocational education	-0.051	0.020
Undergraduate education	0.222	0.024
Graduate education	0.617	0.043
R^2	0.1045	
N	13363	

Our basic model yields several interesting results. First of all, a basic model is able to explain a significantly larger share of variation in the income of workers than in that of entrepreneurs:

Result 7. *The level of education, gender and age explain 37 percent of variation of income for workers, but only 10 percent for entrepreneurs.*

While R^2 of workers is 0.37, that of entrepreneurs is only 0.10. Therefore, most of the variation in the income of entrepreneurs cannot be captured by age, gender, and education. This is in line with our earlier result of entrepreneurs also facing much larger variance of individual income across years. Secondly, we find that the effects of education differ between the two groups. For workers, earnings increase monotonically in the achieved level of education. For entrepreneurs, on the other hand, those with only basic education have higher earnings than those with otherwise similar observable characteristics, but high school or vocational education. Higher and highest education increase earnings for both groups, though more for workers. The effects of education can be summarized as:

Result 8. *Workers gain 11 percent from high school or vocational education, 35 percent from undergraduate education, and 70 percent from graduate education. Entrepreneurs lose 5 percent from high school or vocational education, gain 22 percent from undergraduate education and gain 62 percent from graduate education.*

Results summarized above can reflect several factors. An obvious one, consistent with the earnings equation having a much lower explanatory power for entrepreneurs, is a missing variable of entrepreneurial talent. Secondly, higher earnings for workers may reflect screening effect of education, employers being willing to pay for degree. In entrepreneurship, there should be no such signalling effects of education, certain professions like lawyers and doctors excluded. We also find that the effects of gender are approximately the same for workers and entrepreneurs:

Result 9. *Women earn as workers (entrepreneurs) in average 37,6 (45,0) percent less than men of similar observed characteristics.*

Our regression suggests much wider gender differences than what Hauhio and Lilja (1996), Lilja (1997), Vartiainen (2002) and Korkeamäki and Kyyrä (2002) find with Finnish data. In these studies, the focus is on comparing the wages of men and women performing similar tasks. We do not control for tasks inside given occupations, as our aim is to understand differences between careers as worker or entrepreneur. Thus, our result should not be

interpreted as a claim concerning gender discrimination. Furthermore, we use a wider income concept than is used in studies focusing on gender discrimation. This reflects a smaller number of control variables in our study.

Finally, earnings profile of workers is much steeper in age than that of entrepreneurs. Assuming that experience affects the productivity of workers and entrepreneurs in the same way, this suggests that experience increases wages at a faster rate than it increases productivity. Alternatively, experience would increase the productivity of entrepreneurs at a slower pace than that of workers. A third potential explanation would be that those with lower productivity tend to switch to entrepreneurship over time. Such a phenomenon would then suggest a lower productivity increase from entrepreneurs, simply following from change in the composition of that group. While our analysis is not able to conclude which of these explanation is the most important, at least one of these must hold in the framework of the maximization of expected utility.

3.2 Extensions

In our basic model, we did not control for the field of education, the industry of occupation, or residence. We have studied whether the results of our sparsimonious model hold with more detailed analysis, in which we add either study field or industry dummy to earnings equations. We add these in separate equations due to multicollinearity problem. We report earnings equations controlling for the industry of occupation as Tables 7.a and 7.b.

Ols-estimates adding industry dummy for the two groups

Table 7.a. Ols-estimates for log incomes (workers)

	Coeff	Robust std. err.
Constant	0.054	0.025
Female	-0.315	0.003
Age	0.138	0.001
Age squared	-0.001	0.000
High school or vocational education	0.111	0.004
Undergraduate education	0.323	0.004
Graduate education	0.681	0.006
Industry (reference = manufacturing):		
Construction industry	-0.148	0.005
Commerce	-0.157	0.005
Commercial life services	-0.212	0.006
Other service	-0.269	0.008
Transport	-0.089	0.005
Public administration	-0.224	0.005
Social- and health service	-0.194	0.005
Finance	0.058	0.008
Unclassified or missing	-1.139	0.008
R^2	0.5209	
N	155572	

Table 7.b. Ols-estimates for log incomes (entrepreneurs)

	Coeff	Robust std. err.
Constant	0.887	0.149
Female	-0.331	0.020
Age	0.082	0.007
Age squared	-0.001	0.000
High school or vocational education	-0.006	0.020
Undergraduate education	0.257	0.025
Graduate education	0.634	0.047
Industry (reference = manufacturing):		
Construction industry	0.087	0.035
Commerce	0.010	0.033
Commercial life services	0.049	0.038
Other services	-0.308	0.040
Transport	0.355	0.033
Public administration	-0.238	0.081
Social- and health service	0.112	0.045
Finance	0.048	0.305
Unclassified or missing	-0.426	0.037
R^2	0.15	
N	13363	

Tables 7.a and 7.b reveal that the stylized differences that we found in the basic model are not driven by omitting the industry in which workers and entrepreneurs are employed. Workers' income is increasing in the level of highest education achieved, while entrepreneurs with high school or vocational education do not earn more than those with only basic education. Wage profile of workers rises steeper with age (and experience) than that of entrepreneurs. Comparisons of tables 4 and 5 reveal that controlling for industry reduces earnings differentials between males and females both as entrepreneurs and as workers. The effects of the level of education do not change in any significant manner, apart from the negative effects of high school or vocational education for entrepreneurs losing its significance at the 5 percent confidence level. Simultaneously, the share of variance explained increases to 52 percent for workers and 15 percent for entrepreneurs. We also find out that the effects of industry differ across workers and entrepreneurs. Workers in manufacturing tend to earn more than those workers with otherwise identical observed characteristics in other industries, finance excluded.

Entrepreneurs in the manufacturing sector, on the other hand, earn less than entrepreneurs in construction, transport and social and health service and more in than other service, public administration and unclassified.

Controlling for educational field leads into results corresponding to those obtained when controlling for industry. We report below Ols estimates for log incomes for workers and entrepreneurs who have undergraduate or graduate level of education.[9]

Ols-estimates adding educational field dummy for the two groups

Table 8.a. Ols-estimates for log incomes (workers with undergraduate or graduate education)

	Coeff	Robust std. err.
Constant	0.265	0.054
Female	-0.331	0.007
Age	0.123	0.003
Age squared	-0.001	0.000
Graduate education	0.387	0.006
Educational field (ref=Education):		
Humanities and Arts	-0.117	0.014
Social sciences, Business and Law	0.047	0.010
Science	0.052	0.015
Engineering, Manufacturing and Construction	0.163	0.011
Agriculture	-0.074	0.023
Health and Welfare	0.071	0.011
Services	0.033	0.016
R^2	0.3083	
N	54872	

Table 8.b. Ols-estimates for log incomes (entrepreneurs with undergraduate or graduate education)

[9] We do not calculate corresponding results for the group of high school or vocational education, as most in that category are classified to have participated in general programs.

	Coeff	Robust std. err.
Constant	0.497	0.368
Female	-0.363	0.040
Age	0.094	0.017
Age squared	-0.001	0.000
Graduate education	0.346	0.044
Educational field (ref=Education):		
Humanities and Arts	-0.127	0.152
Social sciences, Business and Law	0.242	0.125
Science	0.061	0.208
Engineering, Manufacturing and Construction	0.228	0.130
Agriculture	-0.174	0.166
Health and Welfare	0.582	0.127
Services	0.050	0.166
R^2	0.1093	
N	3522	

Controlling for education, those with graduate education earn 39 percent more than those with undergraduate education as workers, and 35 percent more as entrepreneurs. Females earn 33 percent less than males with similar observed characteristics as workers, and 36 percent less as entrepreneurs. Earnings profile rises more steeply for workers. The share of variance explained is 31 percent for workers and 11 percent for entrepreneurs.

We have also estimated earnings equations with a regional dummy and when industry and regional dummies are included simultaneously. In all cases, gender dummy for females exerts a downward pressure, wage profile of workers increases faster, and entrepreneurs are penalized of high school or vocational education relative to those with only basic education, while workers' income is increasing in their level of highest education completed. Finally, we also focused on smaller firms by excluding those with turnover above € 168,000. Earnings profile for workers increases faster than that of entrepreneurs also in smaller firms, and qualitative effects of education are the same, entrepreneurs losing and workers gaining from high school or vocational education.[10]

We can summarize our results:

[10] All regressions are available upon request.

Result 10. *The income profile of workers rises steeper. The gender dummy for females exerts a stronger negative influence for entrepreneurs than for workers, whether controlling for industry of occupation, the field or education, or neither. In all cases, Ols estimate accounts for a much larger share of variance of the income of workers than of entrepreneurs.*

4 Career Changes

In this section, we study who change their careers. We start by a descriptive analysis, and then study the explanatory power of a Logit model of career changes. We separate four subgroups of the population: (a) those who stayed as workers (entrepreneurs) all years 1995 through 1998, (b) those who stayed as entrepreneurs all years 1995 through 1998, (c) those who were workers in 1995 and 1996 but became entrepreneurs in 1997 and 1998 and (d) those who were entrepreneurs in 1995 and 1996 but became workers in 1997 and 1998. We report in Table 9 the distribution of educational status in these four groups in 1995 and 1998. As the classification changed in 1997 so that engineers and nurses were reclassified as undergraduate level instead of high school or vocational education, educational shares between the two years are not directly comparable.

Table 9: Educational shares of the four career choices in 1995 (in parentheses 1998)

	Workers	Entrepreneurs	Workers to entrepreneurs	Entrepreneurs to workers
Basic or less	22.87 (22.38)	36.17 (36.11)	21.52 (21.34)	28.94 (28.74)
High school or vocational	53.96 (39.02)	55.01 (45.46)	55.73 (41.27)	53.54 (40.35)
Undergraduate	12.88 (27.66)	5.21 (14.77)	12.52 (26.46)	11.02 (23.23)
Graduate	10.30 (10.94)	3.61 (3.65)	10.23 (10.93)	6.50 (7.68)

Table 9 tells us that while those switching from workers to entrepreneurs did not differ substantially from those who stayed as workers, those switching from entrepreneurs to workers had in average higher education than those who stayed as workers. Their education,however, was still in average lower than that of those who were initially employed as workers. Table 10 reports the share of those receiving unemployment benefits in 1996 and 1997 in different groups. We find that the incidence of unemployment is much higher among those switching between the two occupational categories than among

those staying in one category.

Table 10: Shares of those receiving unemployment benefits in 1996 (1997)

	Workers	Entrepreneurs	Workers to entrepreneurs	Entrepreneurs to workers
Basic or less	5.76 (4.56)	0.39 (0.18)	5.74 (9.92)	5.44 (6.85)
High school or vocational	6.47 (5.66)	1.16 (0.37)	10.86 (13.83)	5.97 (11.36)
Undergraduate	6.42 (5.86)	1.10 (0.24)	15.28 (23.29)	3.45 (3.33)
Graduate	3.84 (3.31)	0.53 (0.18)	6.67 (6.45)	2.86 (0.00)

Figures 5-8 report the development of average earnings in the four occupational categories. In all categories of education, median income is in the first two years lowest for those who subsequently switch from entrepreneurship to being workers. Apart from graduates, median income is highest in all four years among those who stayed as workers the whole period. Among graduates, median income is initially highest and finally lowest in the group switching from workers to entrepreneurs. As this group consists of only 62 observations, this pattern should be interpreted with caution. In all groups, the growth in median income is largest in the group switching from being entrepreneurs to being workers. Those switching from workers to entrepreneurs, on the other hand, had either relatively flat path of median income.

We present logit estimates for career changes in Tables 11.a and 11.b. Women as entrepreneurs change career less likely than men (exp(-0,290)=0,75). Entrepreneurs with graduate education change career 1,6 times likely than entrepreneurs with only basic education (exp(0,466)). Entrepreneurs in unclassified or missing change career more likely than entrepreneurs in manufacturing, while, entrepreneurs in other service and finance and transport change career less likely. Working women change career less likely than men too. Workers in construction industry, commerce, commercial life services, transport and unclassified or missing change career more than workers in manufacturing. The explanatory power of Logit models is, however, quite small.

Table 11.a. logit-estimates for career changes (entrepreneurs -> workers 1997)

	Coeff	Robust std. err.
Constant	-0.614	0.348
Female	-0.290	0.136
Age	-0.062	0.007
High school or vocational education	-0.159	0.135
Undergraduate education	0.550	0.199
Graduate education	0.466	0.227
Industry (reference = manufacturing):		
Construction industry	-0.051	0.237
Commerce	0.083	0.210
Commercial life services	0.317	0.235
Other service and Finance	-0.708	0.330
Transport	-0.584	0.266
Public administration	0.218	0.607
Social- and health service	0.189	0.297
Unclassified or missing	0.838	0.217
Correct predictions, %	65,4	
Pseudo R^2	0.0613	
N	9481	

Table 11.b. Logit-estimates for career changes (workers -> entrepreneurs 1997)

	Coeff	Robust std. err.
Constant	-4.903	0.249
Female	-0.471	0.109
Age	-0.020	0.005
High school or vocational education	-0.074	0.122
Undergraduate education	-0.061	0.179
Graduate education	0.143	0.192
Industry (reference = manufacturing):		
Construction industry	1.083	0.183
Commerce	0.983	0.154
Commercial life services	0.855	0.176
Other service and public administration	0.284	0.183
Transport	0.673	0.187
Social- and health service	-0.068	0.228
Finance	-0.208	0.436
Unclassified or missing	1.798	0.344
Correct predictions, %	62,8	
Pseudo R^2	0.0267	
N	105042	

5 Engineers as Workers and Entrepreneurs

In this section, we compare entrepreneurs and workers who are engineers. Concentrating analysis on a subgroup of population with a similar education helps to narrow down the role of unobserved ability differences. When both workers and entrepreneurs have completed similar education, it is likely that differences in their earnings reflect mostly compensating differentials for non-monetary aspects of different occupations as well as potentially compensation for income risks. We concentrate on engineers as there is a large number of those both as workers and entrepreneurs. In 1998, there were 1048 engineers with graduate or undergraduate level of education as engineers and 12533 as workers. Their average earnings are reported as Table 12. We find out that workers earn less than 5 percent more than entrepreneurs. Such a remarkable

difference suggests that either those engineers working as entrepreneurs attach a considerable value to non-monetary benefits of being an entrepreneur, or, alternatively, they would fare worse in the labor market than workers in average do.

Table 12 Mean income 1998 (engineers with undergraduate or graduate education)

	Mean income	Median income
Workers	36949	31404
Entrepreneurs	35311	24519

We report in Tables 13.a and 13.b estimates of log incomes for engineers as workers and entrepreneurs. We find that females earn significantly less than males both as workers and especially as entrepreneurs, and that earnings rise steeper for workers. The share of variance of income explained by gender and age is, however, only 15 percent for workers and a minuscule 5 percent for workers.

Table 13.a. Ols-estimates for log incomes (workers, engineers with undergraduate or graduate education)

	Coeff	Robust std. err.
Constant	0.701	0.109
Female	-0.302	0.021
Age	0.120	0.005
Age squared	-0.001	0.000
R^2	0.1549	
N	12533	

Table 13.b. Ols-estimates for log incomes (entrepreneurs, engineers with undergraduate or graduate education)

	Coeff	Robust std. err.
Constant	0.987	0.629
Female	-0.580	0.131
Age	0.081	0.030
Age squared	-0.001	0.000
R^2	0.0521	
N	1048	

Including regional dummy does not change qualitative results.[11] With

[11] Tables with regional dummies are available upon request.

regional dummies, the R^2 is 18 percent for workers and 6 percent for entrepreneurs.

In 1998, there were 2655 engineers with vocational education as engineers and 27448 as workers. Their average earnings are reported as Table 14. We find out that entrepreneurs have a higher mean income and a lower median income than workers. Therefore, differences in earnings between workers and entrepreneurs are much smaller among engineers with vocational education than among engineers with undergraduate or graduate education.

Table 14 Mean income 1998 (engineers with vocational education)

	Mean income	Median income
Workers	21325	21160
Entrepreneurs	22434	18137

6 Earnings Equations - Panel Models

In this chapter we use panel data methods and model log incomes in the period 1993-1998. Individuals aged 18 to 64 are included in the analysis, including only those whose occupational status was either worker or entrepreneur over the whole period. As earlier income is defined as the sum of earned income, consisting mainly of wages and salaries, entrepreneurial income, unemployment benefits and capital income. We use the notation

$$\log(income)_{it} = XB + u_i + e_{it}.$$

That is, u_i is fixed or random effect and e_{it} is the pure residual, for units i=1,..,n measured at times t=1993,...,1998. In the table 15 (16) we model log incomes of those with a stable career choice as entrepreneur (worker) over the whole six-year-period. The second column is simply pooled ols. In the third column we allow different intercepts for our units, but constraint the slopes to be same across units (fixed effects model). In the between effects model cross sectional information reflected in the changes between subjects.[12] Finally in the random effects model we are taking a weighted average of the fixed effects and between effects estimates. In this model random error term u_i, which indicates the deviation from the constant of the cross sectional unit (individual), must be uncorrelated with the errors of the variables.

Based on Breusch-Pagan Lagrange multiplier test statistic (table 15) we

[12]Results of the between effects model are available upon requests.

conclude that pooled ols is inappropriate for these data.[13] The result of the test is to reject the null hypothesis in favor of the random effects model. In the Hausman test the hypothesis that individual effects are uncorrelated with other regressors is rejected.[14] We conclude that fixed effects model is better choice than random effects model. However the explanatory power of the fixed effects model is small. Test results for the workers (table 16) are similar. Despite the test results random effects model suits better for the purpose of this study, because fixed effects model is estimated using time-series information of the data and we are rather interested in cross-sectional information.[15] Nonetheless differences in values of the coefficients are quite small between all models. At least they have same signs.

In the previous chapters entrepreneurs lose from high school or vocational education. In tables 15 and 16 all educational dummies have positive effect on log income. In the entrepreneurs' fixed effects model education dummies are not significant while education dummies are significant and positive for worker models. Otherwise signs are like in previous chapters.

Women earn as entrepreneur and worker less than men. According to the pooled ols model women earn as entrepreneurs (workers) 43,7 (31,7) percent less than men. In random effects model women earn as entrepreneurs (workers) 43,5 (30,5) percent less than men. Entrepreneurs (workers) belonging to the age groups 30-49 years and 50-64 years earn more than 18-29-year-old entrepreneurs (workers). Year indicators are positive and significant for all worker models. Entrepreneurs have negative and significant year dummies in 1995. In 1996 year-dummies are insignificant for entrepreneurs. We conclude that workers' income increased all the time while entrepreneurs' income also decreased during the period.

Table 15 Estimation results (entrepreneurs 1993-1998)

[13] Breusch-Pagan tests the existence of individual effects. Ols regression on pooled data is enough if no individual effects are found.

[14] Hausman tests the difference of fixed and random effects estimates. The zero hypothesis is that difference in coefficients is not systematic.

[15] In addition, Hausman test depends on the difference between two separately estimated covariance matrices being positive definite under assumptions of the test. However, the difference is sometimes not positive and then we have to discuss how to interpret the result.

	Pooled Ols	Fixed effects	Random effects
Constant	2.650**	2.646**	2.698**
Female	-0.437**	-	-0.435**
Age (reference=18-29)			
30-49	0.167**	0.100**	0.118**
50-64	0.186**	0.089**	0.121**
Education (reference = basic or less)			
High school or vocational education	0.069**	0.034	0.082**
Undergraduate education	0.328**	0.025	0.163**
Graduate education	0.836**	0.254	0.820**
Year (reference=1993)			
1994	0.085**	0.088**	0.087**
1995	-0.043**	-0.037**	-0.039**
1996	-0.006	0.002	-0.001
1997	0.089**	0.100**	0.096**
1998	0.077**	0.114**	0.101**
n=10086			
R^2 (total)	0.076	0.021	0.074
R^2 (Within)		0.013	0.013
R^2 (Between)		0.034	0.101
F test that all u_i=0:		F(10085,50420) =10.33**	
ρ (Fraction of variance due u_i)		0.653	0.608
Preusch-Pagan chi2(1) = 55785.01**			
Hausman chi2(3) = 48.83**			

* Significant at 5 % level; ** Significant at 1 % level
Table 16 Estimation results (workers 1993-1998)

	Pooled Ols	Fixed effects	Random effects
Constant	2.821**	2.886**	2.970**
Female	-0.317**	-	-0.305**
Age (reference=18-29)			
30-49	0.255**	0.040**	0.097**
50-64	0.346**	0.012**	0.110**
Education (reference = basic or less)			
High school or vocational education	0.069**	0.080**	0.079**
Undergraduate education	0.297**	0.114**	0.179**
Graduate education	0.571**	0.476**	0.555**
Year (reference=1993)			
1994	0.0315**	0.042**	0.038**
1995	0.0742**	0.095**	0.089**
1996	0.1034**	0.134**	0.125**
1997	0.1200**	0.161**	0.148**
1998	0.1030**	0.182**	0.157**
n=80227			
R^2 (total)	0.323	0.160	0.299
R^2 (Within)		0.112	0.108
R^2 (Between)		0.175	0.349
F test that all u_i=0:		F(80226,401125) =13.53**	
ρ (Fraction of variance due u_i)		0.751	0.670
Preusch-Pagan chi2(1) = 5.2e+5**			
Hausman chi2(3) = 9049.30**			

* Significant at 5 % level; ** Significant at 1 % level

7 Conclusion

In this paper, we have estimated the earnings equations for Finnish workers and entrepreneurs. As we would expect, entrepreneurship is associated with considerably higher income risks than what workers face. Income of entrepreneurs follows approximately log-normal distribution in all levels of

education, while that of workers does not. The return to education is significantly higher for workers. We even find that entrepreneurs with high school or vocational education have lower average earnings than those with only basic education or less, suggesting that formal education is much more significant for workers. This is likely to reflect the importance of the omitted variable of entrepreneurial talent, and also suggests that education may provide signaling benefits. We also find that the earnings profile of workers is much steeper in age than that of entrepreneurs. Assuming that experience affects the productivity of workers and entrepreneurs in the same way, this suggests that experience increases wages at a faster rate than it increases productivity. This would be consistent with the views that in many jobs, workers are encouraged to stay at their current employer with wage profile rising steeper than productivity profile. Alternatively, experience would increase the productivity of entrepreneurs at a slower pace than that of workers. A third potential explanation would be that those with lower productivity tend to switch to entrepreneurship over time. We also found significant gender differences among both workers and entrepreneurs in all levels of education.

Entrepreneurs are typically viewed as engines of economic growth. The emergence of new businesses and the decline or even bankruptcies of existing ones are the gist of creative destruction, viewed by Schumpeter (1944) as almost synonymous to economic progress. Therefore, encouraging entrepreneurship is often viewed as an important policy aim both in the long run as concerns economic growth as well as in the shorter term as a means of boosting employment. Our results suggest tentative policy implications concerning education. We didn't find evidence that vocational education would significantly boost the income of entrepreneurs. Our regressions even suggested that entrepreneurs with vocational education earned somewhat less than entrepreneurs with only basic education. The results should be interpreted with caution. For example, entrepreneurs with only basic education are in average older and it might be that even controlling for age would not sufficiently capture the role of experience. This would be an obvious topic for further research. Nonetheless, our result calls for a more through cost-benefit analysis to be applied to widely agreed aims to boost quantitative targets in education. Assuming that more education always leads to a higher productivity may be a wasteful fallacy, especially as concerns schooling for those prone to become entrepreneurs. We also found that entrepreneurs typically have less education than workers, implying that the policy aims of expanding education and of promoting entrepreneurship may be in conflict.

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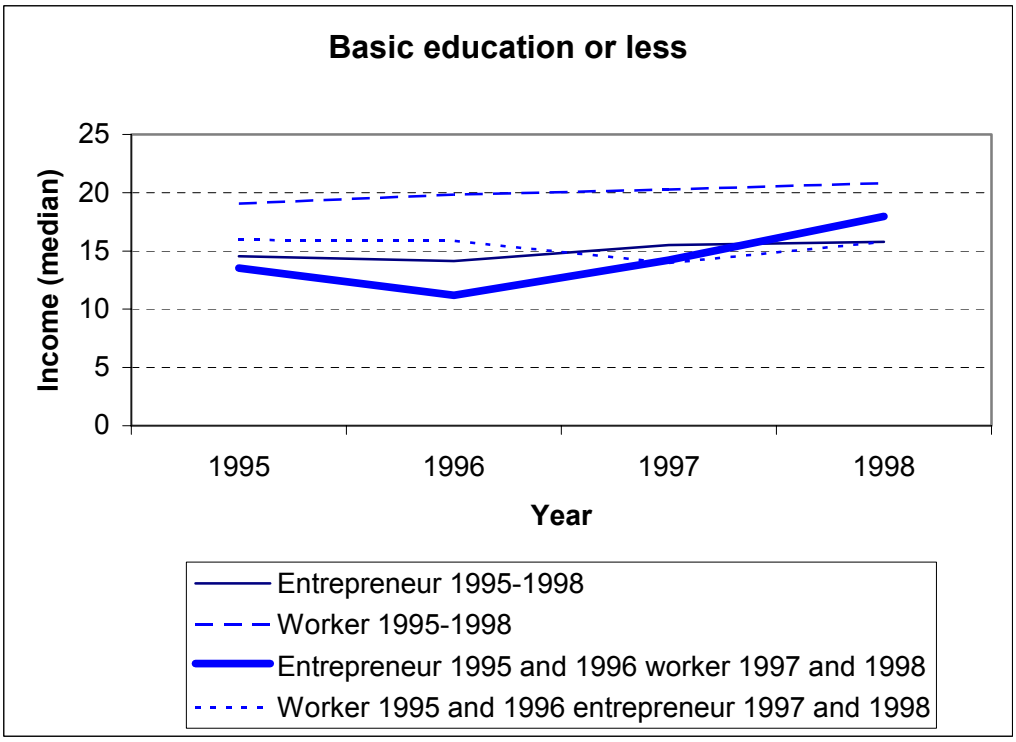
Basic education or less
Income (median)
25
20
15
10
5
0
1995
1996
1997
1998
Year
Entrepreneur 1995-1998
Worker 1995-1998
Entrepreneur 1995 and 1996 worker 1997 and 1998
Worker 1995 and 1996 entrepreneur 1997 and 1998

Figure 5

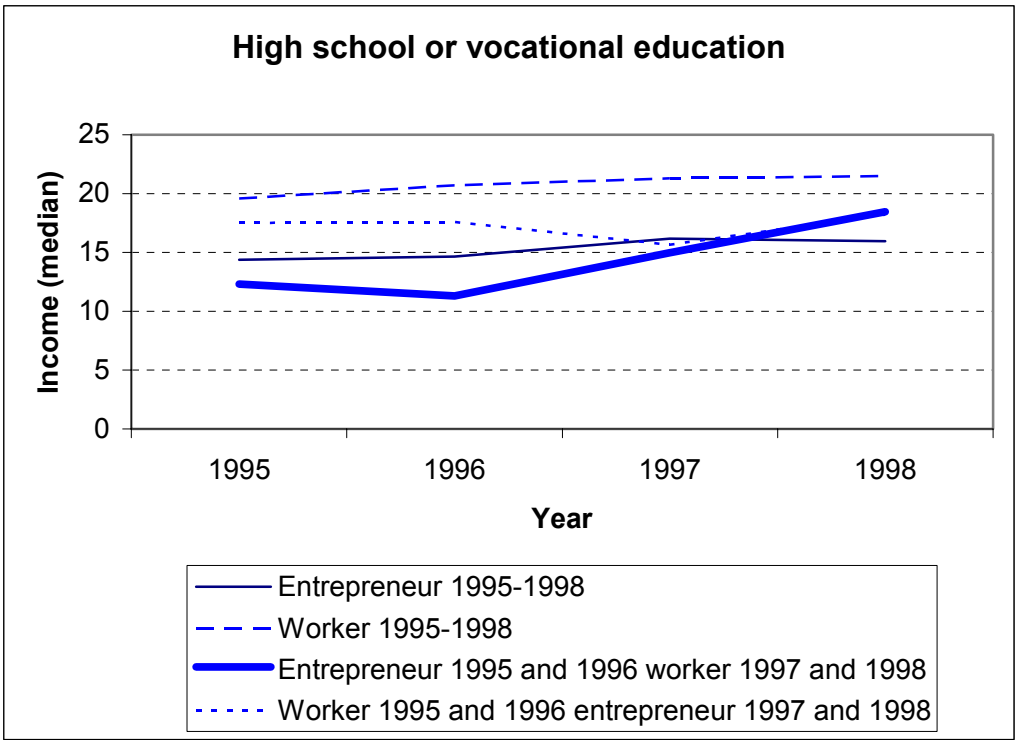
High school or vocational education
Income (median)
25
20
15
10
5
0
1995
1996
1997
1998
Year
Entrepreneur 1995-1998
Worker 1995-1998
Entrepreneur 1995 and 1996 worker 1997 and 1998
Worker 1995 and 1996 entrepreneur 1997 and 1998

Figure 6

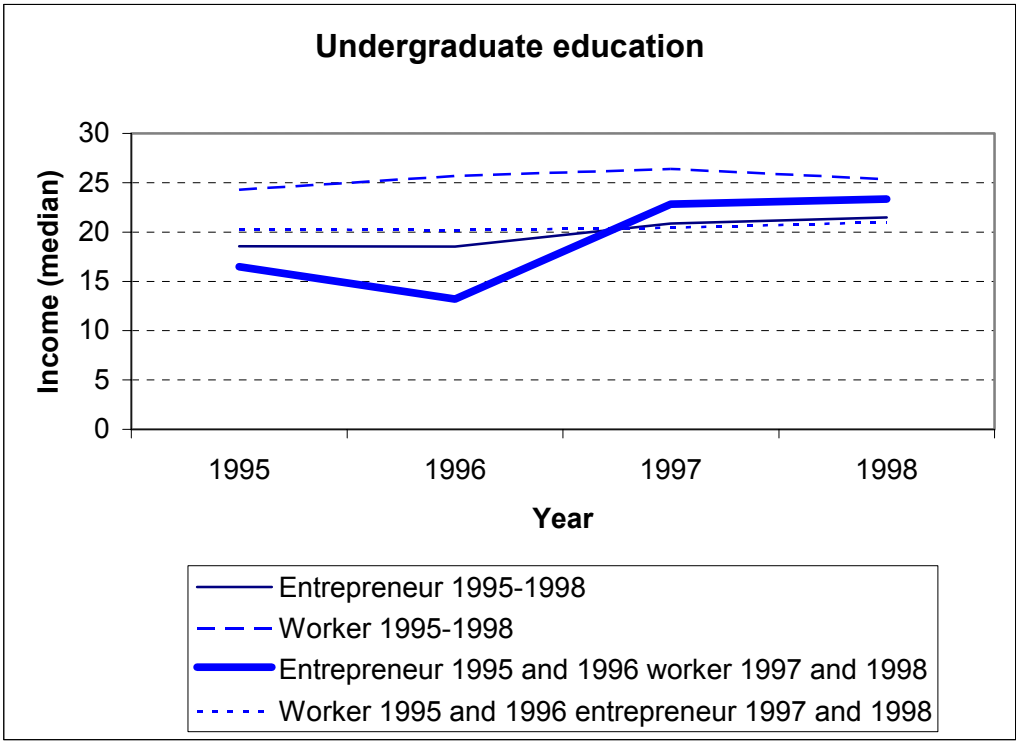
Undergraduate education
Income (median)
30
25
20
15
10
5
0
1995
1996
1997
1998
Year
Entrepreneur 1995-1998
Worker 1995-1998
Entrepreneur 1995 and 1996 worker 1997 and 1998
Worker 1995 and 1996 entrepreneur 1997 and 1998

Figure 7

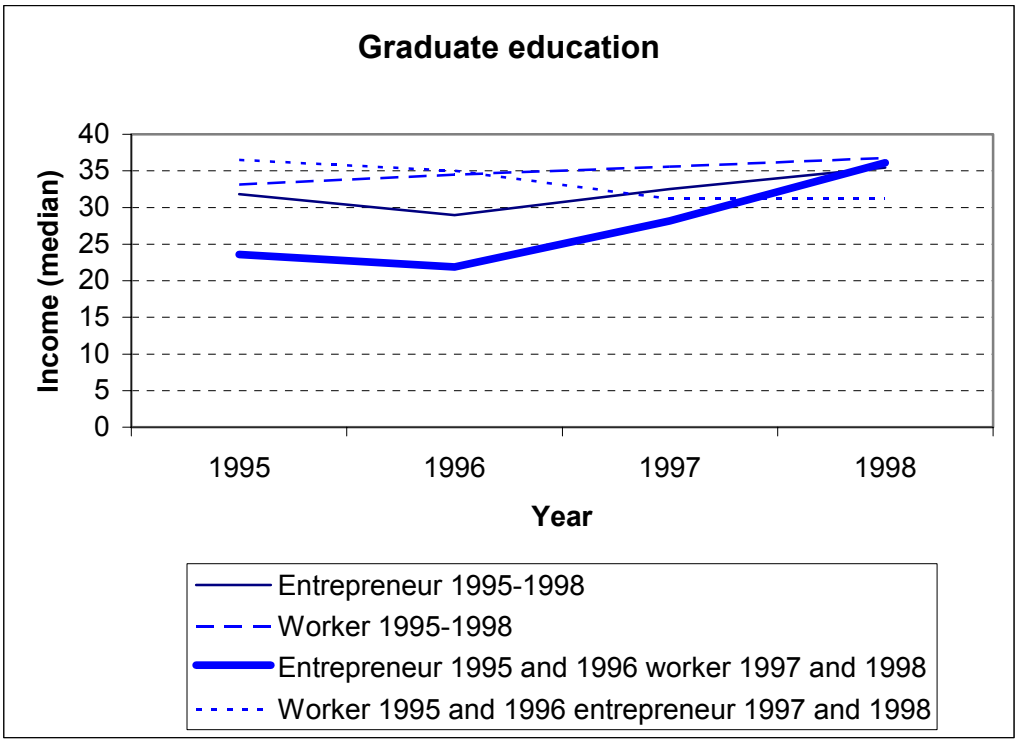
Graduate education
Income (median)
40
35
30
25
20
15
10
5
0
1995
1996
1997
1998
Year
Entrepreneur 1995-1998
Worker 1995-1998
Entrepreneur 1995 and 1996 worker 1997 and 1998
Worker 1995 and 1996 entrepreneur 1997 and 1998

Figure 8