# Aspirations and Survival Self-Employment Indirect Evidence From a Transition Economy

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**Abstract**

In a series of papers based on Global Enterpreneurship Monitor surveys, authors inquire the dichotomy of entrepreneurs' motivation, *i.e.* survival and aspirations. As opposed to most recent literature, our identification strategy is based on *ex post* observed actual choices (switching from employment to self-employment) and not on *ex ante* declarations. We find that employees moving to self-employment are characterised by relatively *lower* endowments. However, prior to changing the labour market status they were relatively *overcompensated*.

*Keywords:* transition, aspirations self-employment, survival self-employment, wages

## 1. Introduction

Growing availability of individual level data on self-employed, including the Global Entrepreneurship Monitoring, sprung a new wave of research on the determinants of self-employment, Minniti and Levesque (2008). Estrin and Mickiewicz (2009) inquire the effect of institutions and the extent to which the response these incentives schemes differs across genders. There is growing interest in the role of labour market instruments (Koellinger and Minniti, 2009), ageing (Levesque and Minniti, 2006), gender (Minniti and Nardone, 2007) or psychological motives (Koellinger et al., 2007), to mention a few.

The recent thread in self-employment analyses consists of distinguishing between a survival strategy, Hughes (2003) and Llisterri et al. (2006), and the so-called high aspirations entrepreneurship, Estrin and Mickiewicz (2010). The former emphasises on one hand the "free access" to self-employment (as opposed to wage employment) as well as its apparent flexibility concerning working hours and types of occupations. The latter, however, raises a long lasting point that self-employment is not necessarily entrepreneurship *au sense stricte*. These are high aspirations self-employed, who create additional jobs and - potentially - engage into innovative acitivity. Thus, implicitly, the former is merely a labour market status, while it is the latter that embodies the core of economic inquiries. Naude (2008) coins this dichotomy into entrepreneurship out

of necessity as opposed to entrepreneurship resulting from voluntary realisation of a business plan.

Naturally, the problem emerges of how to distinguish "simple" self-employed from entrepreneurs *ex ante*. For example, Estrin and Mickiewicz (2009) define high aspirations entrepreneurship as a start up for which respondent expects to create 10 or more jobs in five years time (p. 25). However, many start ups fail shortly upon inception, while *a priori* declarations are not necessarily fulfilled in due time. Thus the question on alternative identification strategies remains open.

In this paper we analyse the predictive power of the compensations schemes. We employ data from a regular labour force survey, isolating individuals who shifted from wage employment into self-employment. Heckman (1979) corrected Mincerian wage equation is estimated to obtain fitted wages and residuals for those who shift to self-employment and those who stay in wage-employment. We use these fitted values and residuals to test whether these two groups differ. Particular attention is paid to those among the business owners who report at least one employee. We find that to-be self-employed had systematically *lower* compensations when wage employed. This finding holds also for the to-be employers, *i.e.* self-employed who create additional jobs - their compensations are on average lower than for those who stay in wage employment (although higher than for those who do not create jobs). Both groups of self-employed, however, are characterised by higher and positive wage residuals, while the differential is considerably larger for the employers.

## 2. Method and data

Literature on exploring individual level determinants of self-employment is massive[1]. Equally numerous are the attempts to adequately estimate a Mincerian wage equation[2]. In this paper, however, the focus is shifted away from constructing a model *predicting* the wages or the event of self-employment. Using data from a regular *quasi*-panel labour force survey we identify individuals, who - within the six quarters of the observation window - changed their labour market status from wage- to self-employment[3]. The questionnaire asks the self-employed individuals if they create any additional jobs, which permits the differentiation between individual business *per se* and the employers.

We use a set of 56 quarterly labour force surveys (LFS) for Poland with each set

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[1]Le (1999) provides an excellent review of the earlier empirical findings. Recent literature receives tribute in Caliendo and Kritikos (2008)

[2]Recent developments have been reviewed in Belzil (2006)

[3]In the Polish LFS, both entrepreneurs and individual farmers are coded as self-employed. However, interacting the industry of activity with the form of labour market activity allows for rigorous separation of the the individual farmers from the pool of self-employed. In the reminder of the paper we focus on the latter. Such choice is motivated by two factors. Firstly, the selection into agriculture in Poland is frequently determined within family strategies and additionally, it largely depends on location of the household. Secondly, unlike the steadily decreasing trend in the rate of the self-employment among the farmers, there is a growing number of self-employed.

contaning roughly 50 thousand individuals[4]. The survey comprises the standard questions about socio-demographic characteristics (gender, age, residence, marital status) and labour market variables (status, compensation, no. of hours worked, industry, occupation, type of employer). This survey is a rotating *quasi*-panel, observing individuals over a period of 18 months but with a six-month gap in the middle of this time span[5].

The procedure employed in this paper is as follows:

1. Merge the quarterly datasets.
2. For each quarter, obtain Mill's ratio from a first stage selection equation[6]:

$$Working = \Phi(age, gender, education, residence, maritalstatus). \qquad (1)$$

3. For each quarter, estimate wage equation with the Mill's ratio[7]:

$$ln(wage) \quad = \quad \Gamma(age, gender, education, occupation, industry, \qquad (2)$$
$$employer, residence, 1/MillsRatio).$$

4. For each quarter obtain fitted wages and residuals from the wage equation.
5. Isolate individuals changing labour market status from wage- to self-employment within the window of observation (henceforth: switchers).
6. Isolate individuals not changing status from wage-employment (to form a comparison group, henceforth: non-switchers).
7. Test the hypothesis that both fitted wages and wage residuals are the same among switchers and nonswitchers using Welch (1947) for equality of means and Wilcoxon (1945) test for homogeneous distribution.

Thus, we estimate 56 a Heckman (1979) corrected Mincerian wage equations to obtain reliable estimates of fitted wages and residuals. Wage is considered both as a whole and as hourly wage[8]. Age is a continuous variable expressing the age of individual in years at the moment of survey. Gender is coded to take the value of 1 for women. Education is a categorical variable with levels: elementary or lower (reference

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[4]LFS conducted by the Central Statistical Office over the period of 1995q1 to 2009q4. Surveys are collected quarterly on a representative sample of adult individuals (as of 2002 also individuals with age below 15 years of age are included) while the non-systematic refusals to participate in the survey are compensated by the weighting scheme. Both the data and the weights are provided by the Central Statistical Office. The datasets do not contain information on revenues of the self-employed.

[5]Individuals are interviewed in the first two quarters after selection, subsequently for two quarters they are do not participate in the survey, but the interviewers return for the fifth and the sixth quarter after selection. Naturally, there is some sample atrophy, but this problem is beyond the scope of this paper.

[6]Interactions and weights provided by CSO included in the estimation. Specifically, we account for the interaction of gender with age and with tertiary education. Since the rapid urbanisation associated with the brain drain is characteristic for the internal flows and educational patterns over the past two decades, we include additionally interaction terms for highly educated inhabitants of large cities and those who live in the rural areas and are characterised by elementary or lower education.

[7]Interactions (as described in footnote 6) and weights included.

[8]Part-time employees report wages and hours worked only as of 1999. Thus, for the sake of robustness check, we estimate wage equation for full-time employees in each quarter and hourly compensations for all wage earners as of 1999

level); vocational, secondary vocational, secondary, tertiary or higher[9]. Maritial status has separate coding for singles (reference level), married, divorced/separated and widowed. Finally, residence is a categorical variable too[10]. Occupation takes standard ISCO levels and industry is coded following NACE two-digit categories.

Table 1: Descriptive statistics - sample means

|  | Non-switchers | Switchers |  | Self-employed | Employers | Employees |
|---|---|---|---|---|---|---|
| Primary education | 0.099 | 0.072 | * | 0.053 | 0.026 | 0.090 |
| Vocational education | 0.347 | 0.348 |  | 0.290 | 0.230 | 0.320 |
| Secondary vocational education | 0.274 | 0.287 |  | 0.327 | 0.354 | 0.271 |
| Secondary education | 0.113 | 0.113 | * | 0.130 | 0.133 | 0.122 |
| Tertiary education | 0.164 | 0.178 | ** | 0.200 | 0.258 | 0.197 |
| Age | 39.13 | 36.65 | *** | 41.900 | 42.769 | 38.652 |
| Gender | 0.466 | 0.302 | *** | 0.325 | 0.305 | 0.465 |
| Rural areas | 0.340 | 0.287 | *** | 0.240 | 0.214 | 0.286 |
| Large cities | 0.381 | 0.453 | *** | 0.482 | 0.487 | 0.457 |
| No of observations | 389 701 | 2 042 |  | 113 100 | 38 920 | 815 824 |

*Note*: Welch (1947) mean's equality test between switchers and non-switchers, ***, ** and * represent difference significant at 1%, 5% and 10% levels, respectively.

Table 1 depicts the evolution of the basic demographic and educational characteristics of the wage-employed (non-switchers) as opposed to those who change to self-employment (switchers). The characteristics of the Polish entrepreneurs do not seem to deviate from what has been already found in the literature for the other countries. They tend to be older than the wage earners. While they less frequently are female, they seem to have also slightly higher educational attainments than the employees and live in larger agglomerations rather than rural areas.

## 3. Results

We have identified 2 042 individuals changing status and 389 701 remaining in the wage employment within the observation window[11]. For the identified individuals we compare the size and the sign of both fitted wages and wage equation residuals. In order to assure robustness of these tests, we employ both (i) the $t-tests$ on the equality of means using Welch (1947) correction for unequal variance across samples; and (ii) $z-test$ tests that two independent samples are from populations with the same distribution using the Wilcoxon rank-sum test, (Wilcoxon, 1945; Mann and Whitney, 1947). Table 2 reports the results.

With the exception of residuals from the hourly wages equation for the total sample and for women - all of the means are statistically different. Switchers - i.e. those who move from wage- to self-employment - have consistently lower compensations. They

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[9]Some of the surveys comprise more categories, but for the sake of data consistency this is the most detailed available categorisation.

[10]The strata include: rural areas, towns under 2 thousand inhabitants, towns under 5 thousand inhabitants, towns under 10 thousand inhabitants, towns under 20 thousand inhabitants, towns under 50 thousand inhabitants, cities under 100 thousand inhabitants, cities above 100 thousand inhabitants.

[11]We have dropped from the sample 8 213 wage earners and 142 wage- switching to self-employment who have experienced a spell of unemployment within the observation window.

Table 2: Results

| | | Switchers | | | Non-switchers | | | Welch test | | Wilcoxon test | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | St. error | N | Mean | St. error | N | $t-stat$ | $p-val$ | $z-stat$ | $p-val$ |
| | | | | | | Total sample | | | | | |
| Wages | Fitted wages | 6.528 | 0.011 | 2 042 | 6.625 | 0.001 | 389 701 | 9.065 | 0.000 | 9.557 | 0.000 |
| | Residuals | 0.037 | 0.001 | 2 042 | 0.008 | 0.009 | 389 701 | -3.131 | 0.001 | -1.823 | 0.115 |
| Hourly wages | Fitted wages | 2.424 | 0.116 | 1 886 | 2.760 | 0.005 | 372 020 | 2.920 | 0.006 | 11.348 | 0.000 |
| | Residuals | 0.024 | 0.009 | 1 886 | 0.005 | 0.001 | 372 020 | -1.856 | 0.032 | -0.711 | 0.477 |
| | | | | | | Employers | | | | | |
| Wages | Fitted wages | 6.551 | 0.023 | 478 | 6.625 | 0.001 | 391 265 | 3.213 | 0.001 | 3.831 | 0.000 |
| | Residuals | 0.120 | 0.022 | 478 | 0.008 | 0.001 | 391 265 | -5.096 | 0.000 | -4.019 | 0.000 |
| Hourly wages | Fitted wages | 2.806 | 0.025 | 443 | 2.923 | 0.005 | 373 463 | 4.715 | 0.000 | 11.348 | 0.000 |
| | Residuals | 0.115 | 0.023 | 443 | 0.005 | 0.001 | 373 463 | -4.741 | 0.000 | -4.097 | 0.000 |
| | | | | | | Females | | | | | |
| Wages | Fitted wages | 6.411 | 0.019 | 618 | 6.526 | 0.001 | 181 807 | 5.921 | 0.000 | 6.293 | 0.000 |
| | Residuals | 0.012 | 0.017 | 618 | 0.008 | 0.001 | 181 807 | -0.210 | 0.583 | 1.931 | 0.119 |
| Hourly wages | Fitted wages | 2.722 | 0.023 | 554 | 2.875 | 0.001 | 171 912 | 6.777 | 0.000 | 6.818 | 0.000 |
| | Residuals | 0.008 | 0.019 | 554 | 0.004 | 0.001 | 171 912 | -0.198 | 0.421 | 0.805 | 0.421 |
| | | Employers | | | Non-employers | | | Welch test | | Wilcoxon test | |
| | | Mean | St. error | N | Mean | St. error | N | $z-stat$ | $p-val$ | $z-stat$ | $p-val$ |
| Wages | Fitted wages | 6.551 | 0.023 | 478 | 6.522 | 0.012 | 1 564 | -1.119 | 0.131 | -0.775 | 0.438 |
| | Residuals | 0.120 | 0.022 | 478 | 0.012 | 0.010 | 1 564 | -4.477 | 0.000 | -3.568 | 0.000 |
| Hourly wages | Fitted wages | 2.806 | 0.025 | 443 | 2.785 | 0.013 | 1 443 | -0.751 | 0.226 | -0.477 | 0.633 |
| | Residuals | 0.115 | 0.023 | 443 | -0.004 | 0.011 | 1 443 | -4.693 | 0.000 | -4.125 | 0.000 |

*Note*: Wages and hourly wages reported in logs. Robust standard errors, Welch tests allows for unequal variances. Unweighed means, but weights included in the estimation procedures.

are also characterised by larger and positive residuals. This implies that while their "predicted" productivity is on average somewhat lower than for the employees, the actual compensations depart from the market valuation. This departure is positive, implying that the actual compensations are systematically higher than the prediction for all wage employed.

Moreover, the residual earnings of the future employers were significantly higher not only than that of employees but also that of self-employed that did not create additional jobs. For the latter comparison group, there is no systematic difference for the fitted values of wages, thus the "entrepreneurs" and the "simply self-employed" may actually have quite similar "predicted productivity"). The possible differences lie in the unobserved characteristics, e.g. entrepreneurial spirit but also access to finance or business opportunities. It should be emphasised that this difference is actually large, when referenced to other analysed pair wise unmatched comparisons[12].

Summarising, we demonstrate that those who switch to self-employment are characterised by lower endowments as well as higher and positive wage residuals. This effect is larger for employers, while the difference between these two groups of the self-employed is only significant in the case of wage residuals (in favour of the employers). Residuals are larger for the switchers than for the non-switchers, while the former have also lower predicted compensations. Thus, it seems that those who switch from wage- to self-employment are not necessarily "better" than the average wage

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[12]The economic relevance of many individual and unobservable prerequisites for undertaking the risk of entrepreneurial activity is naturally high. Access to finance, previous professional experience, attitude towards risk and uncertainty of future revenues, the need for freedom and independence *etc.* are among the most important factors which cannot be traced basing on data from labour force surveys.

earner in terms of the individual characteristics. Their wages are systematically higher than the prediction, instead, which suggests large role of the unobservable traits. This finding may be interpreted in favour of the "aspirations" hypothesis.

## 4. Conclusions

It is frequently raised that being self-employed involves substantial risk, including the risk of bankruptcy. However, as a wage-employed one also runs the risk of loosing a job as well as experiencing a potentially extended period of unemployment. Using 14 years of individual level data for Poland, this paper finds that those who switched from wage- to the self-employed are characterised on average by relatively *lower* compensations and *higher and positive* wage residuals. Moreover, the magnitude of this differential increases for the future employers.

These results seem robust across genders. However, Polish high self-employment rates stand out both in the CEECs and in the EU. As a country in transition, Poland has observed a massive growth in self-employment and entrepreneurship in the first years after transition. This implies that part of the identified effect may be an aftermath of the labour reallocation from less efficient to more efficient uses. To critically evaluate the generality of our assertions, the study could be repeated on a similar data from from a mature market economy. Thus, the results should be interpreted with caution.

## 5. Acknowledgements

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