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Abstract: *The aim of this paper is to shed light on how some determinants, especially in the spheres of family background, differently affect the heterogeneous category of self-employment across a set of transition economies of Eastern Europe, where more or less restrictive policies and different liberalization processes have been adopted over time. At this end, three-stage multinomial logit models as discrete choice models are estimated on 2005 EU-SILC data. Country-specific peculiarities of self-employment profiles are drawn and, although the occupational status is often devised in a dualist perspective, significant differentiations within the ranks of self-employed also exist.*

Keywords: Self-employment, Generational mobility, Three-stage multinomial model
JEL classification: J62, P29, P51

1 Background and Introduction

Over the last few decades self-employment has substantially risen in a number of developed and developing countries [1], notably in some emerging activity sectors, also due to flourishing of innovative non-standard kinds of work. In particular, countries of Central and Eastern Europe – where the switch from a "command" economy, rigorously hostile towards self-employment, to a more market-based system has strongly changed the people's lives – are of special interest. Indeed, in a few years after 1989, although with a quite cross-national disparity, some transition countries have achieved self-employment rates even higher than those of several industrial economies of Western Europe (ILO, *Yearbook of Labour Statistics*, various issues).

The repressive economic policies of socialist regimes and the ways to overcome barriers on private market activities imposed by authorities (*i.e.*, price/wage control, centralized allocation of inputs, legal obstacles, high taxes, etc.) appear to be quite different across countries. However, the first years of transition have been painful

everywhere, job opportunities often stifled by the lack of competitive markets [12] and people drew forth with different forms of self-employment to make ends meet. That's why, in Eastern countries, self-employment could be perceived as a *necessity* rather than a *choice* and self-employed mostly concentrated to labor-intensive activities in traditional economic sectors with poorer returns. In other words, as discussed by Earle and Sakova [6], self-employment is viewed in a "dualist" perspective, which stresses its marginal nature as refuge from poverty rather than a way to accumulate capital. Conversely, the more recent "integrationist" approach supports heterogeneity within the category of self-employment and, thus, the existence of sub-groups of self-employed driven to run businesses able to satisfy the demand for goods and services and to move beyond that earning only enough to sustain themselves and their families [7].

The crucial aim of our paper is to investigate, in a generational perspective, the dissimilar patterns in employment status across a set of four transition economies of Central and Eastern Europe – Czech Republic (CZ), Hungary (HU), Poland (PL) and Slovak Republic (SK) – and the extent to which the profile of self-employment differs across them. Most importantly, in order to inspect how the occupational status stands for a critical predictor of inequality within and across generations [2], the paper explores some crucial determinants, mainly in the spheres of family background, which differently affect the two distinct sub-groups of *own-account self-employed*, who do not employ any other person, and *employers*, who own their means of production and rely on wage labor, and, within them, the main sub-categories of *entrepreneur*s, *members of profession*, *craft workers* and other *skilled/unskilled producers*. Finally, in the light of economic and structural differences, the paper discusses how the impact of pull or push factors of self-employment varies across the selected countries, where more or less restrictive policies towards start-ups have been implemented during the pre-1989 years, different liberalization processes have gradually been carried out and distinct policy interventions to support self-employment have been adopted in the post-1989 period.

The paper is structured as follows. An employment profile for each Eastern country under study is sketched in Section 2 where a set of ratios yields early evidence on how the structure and composition of self-employment differ across these transition economies; the EU-SILC (Survey on Income and Living Conditions) survey, as the main current reference source for comparable data at European level, is also described. Section 3 deals with the methodological framework of the three-stage multinomial model and with some issues concerning the potential selection bias. In Section 4, the main empirical factors that matter most for the individual propensities to enter self-

employment (employer or own-account) rather than the more traditional wage-employment are discussed; the dissimilar patterns across Eastern countries are also understood in the light of institutional and macro-economic environment during the communist-era and in the period after its collapse.

2 A self-employment profile in a generational perspective

Our analysis draws upon the 2005 EU-SILC data which provide detailed information on a substantial range of socio-economic topics both at household and individual level. In addition, the 2005 wave allows to account for generational changes over time as it is the only one which collects, as secondary target variables, retrospective parental information (*i.e.*, education, employment status, activity sector) for each respondent aged 24-66. In particular, the analysis is focused on all those individuals, currently working, who are either self-employed (own-account and employer) or salaried, so as detected in a question concerning their main employment status.

By exploring EU-SILC data, in 2005, in Europe, self-employment rates in non-farm sectors – as ratio between self-employed aged 16-64 (sum of own-account workers and employers) and total workers of the same age class – show great cross-national variations[1]. In particular, Czech Republic and Hungary have self-employment rates above or only slightly lower than the European average and so even higher than several developed economies of Western Europe (*i.e.*, France and Germany). The greater *overall* self-employment rate (all sectors) compared to the same rate *net of farm* activities documents a substantial incidence of self-employed in primary sector in Poland. Coexistence ratios between self-employment and wage-employment are quite high for Poland and Hungary or even higher than EU-26 average for Czech Republic; once again, Slovak Republic confirms the lowest ratio, probably also due to the different government policies adopted over time. Indeed, as argued by Kornai [8], although in a repressive regime, Poland and Hungary allowed small family activities in a few service sectors with a small number of employees since 1970s. Anyway, within the category of self-employed, the incidence of own-account is by far higher than employers almost everywhere, expect for Hungary which shows the highest ratio employer/own-account and, together with Poland, a larger incidence of corporate

[1] Briefly, in Europe, the self-employment incidence in non-farm sectors ranges from 5% to more than 20%. At one extreme, with the lowest rates, there are some Northern developed economies (*i.e.*, Norway, Denmark and Sweden), while, at the other one, some Southern (*i.e.*, Portugal, Italy and Greece) and Eastern countries.

managers and small entrepreneurs. While Czech Republic has the highest proportion of self-employed in non-farm sectors, it shows the highest imbalance between the two sub-categories of own-account and employers, in clear favour of own-account (tab. 1).

Table 1: A set of ratios of Self-Employment (S.E.) by country

Country	S.E. rate (all sectors)	S.E. rate (non-farm)	Self-Emp \ Wage-Emp	Employer \ Own-acc.	Generational Occup. Gap
Czech Rep.	0.1268	0.1259	0.1446	0.2565	0.0188
Hungary	0.1058	0.1012	0.1129	0.9590	0.0849
Poland	0.1440	0.0909	0.1013	0.4335	0.4271
Slovak Rep.	0.0810	0.0807	0.0878	0.4639	0.0143
EU-26	0.1190	0.1061	0.1197	0.4551	0.5345

Data source: EU-SILC (2005)

Since 1989 constraints to self-employment tend to be more relaxed at a different extent across Eastern countries. However, in current years, the incidence, structure and composition of self-employment also depend on the allowance of government policies during the state-socialist period. As they say, the different availability and accessibility of human, social and financial capital and/or the dissimilar mechanisms of their transferability across generations may play a crucial role on future opportunities of children and on their avenue of upward social mobility. In this light, the intergenerational occupational gap (25-64 years) – as ratio between self-employed by second (with at least one parent self-employed) and first generation – allows to inspect *if* and *how* the employment status is transmitted across generations. This ratio is negligible for Slovak and Czech Republics, where the incidence of self-employed by second generation is lower than 1%, while it is significantly larger for Hungary and, above all, for Poland, but in any case below the European average. Although also for Poland and, even more so, for Hungary the generational transmission of occupation mostly concerns the less qualified self-employed (*i.e.*, crafts, shop and market sales workers), it points to some links through which parents transfer skills to their offspring affecting their ability to perform specific tasks (tab. 2).

Table 2a: Self-employed by professional status and "generational stage"
Hungary and Poland

Occupational status	*Hungary*		*Poland*	
	First	*Second*	*First*	*Second*
Corporate Manager	0.0135	0.0116	0.0887	0.0035
Small Entrepreneur	0.1578	0.0512	0.1141	0.0077
Member of Profession	0.1769	0.0441	0.1929	0.0125
Craft worker	0.1259	0.0814	0.2225	0.0242
Service, market sales worker	0.1551	0.0818	0.2380	0.0253
Other	0.0709	0.0299	0.0627	0.0078

Data source: EU-SILC (2005)

Table 2b: Self-employed by professional status and "generational stage"
Czech Republic and Slovak Republic

Occupational status	*Czech Republic*		*Slovak Republic*	
	First	*Second*	*First*	*Second*
Corporate Manager	0.0203	–	0.0537	0.0015
Small Entrepreneur	0.0763	–	0.0513	–
Member of Profession	0.2851	–	0.2954	0.0064
Craft worker	0.3279	0.0062	0.3211	0.0063
Service, market sales worker	0.2257	0.0095	0.1686	–
Other	0.0463	0.0027	0.0957	–

Data source: EU-SILC (2005)

3 A three-stage multinomial logit model

In order to explore some crucial factors which matter most for individual propensities of being or enter a given self-employed occupation rather than the more traditional salaried status, and to what extent they vary across Eastern countries, three-stage multinomial logit regressions as discrete choice models [9] are estimated. Such models allow for potential selection bias raised from using selected sub-samples of individuals (sub-categories of self-employed may differently behave) and potential endogeneity linked to income which, in turn, results from the same individual's occupational status.

In the first stage, the reduced form logit equations generate the selectivity terms and yield early evidence on the impact of some individual and familial characteristics on the selection into self-employment. In the second stage, the earnings equations allow to predict the expected earnings differentials for each worker in each employment status (*i.e.*, employer, own-account, employee). Log earnings equations are simultaneously tested on control variables and selection terms (Inverse Mills Ratios, λ_{ij}) from the reduced form logit equation which allow to get consistent estimations. More precisely, log earnings equations are based on extensions of human capital Mincer model (1974) where the earnings of individuals depend not only on educational attainment and work experience but also on a range of personal characteristics (*i.e.*, gender, citizenship, health status, parental education) and structural factors (*i.e.*, activity sectors):

$$\left[\ln Y_{iE} \mid X_i\right] = \gamma_E^{'} X_i + \delta_E \lambda_{iE} + \eta_{iE} \quad (1)$$

$$\left[\ln Y_{iO} \mid X_i\right] = \gamma_O^{'} X_i + \delta_O \lambda_{iO} + \eta_{iO} \quad (2)$$

$$\left[\ln Y_{iW} \mid X_i\right] = \gamma_W^{'} X_i + \delta_W \lambda_{iW} + \eta_{iW} \quad (3)$$

where γ and δ are the vectors of parameter to be estimated and η denotes the error terms with zero mean constant variance; more precisely, λ_{iE}, λ_{iO} and λ_{iW} are the Inverse Mills Ratios to correct for selectivity into each occupation.

In the third stage, the multinomial logit models, which also include the expected log earnings differentials as regressors, are tested country-by-country with the Newey-West correction as the income variables have been generated by the previous earnings functions:

$$\pi_{ij}(X,Y) = P(z_i = j \mid X,Y) = \frac{e^{g_j(X,Y)}}{\sum_{j=1}^{J} e^{g_j(X,Y)}} \tag{4}$$

where:

$$g_j(X,Y) = \ln\left[\frac{P(z_i = j \mid X,Y)}{P(z_i = 0 \mid X,Y)}\right] = \alpha\left(\ln\hat{Y}_{iS} - \ln\hat{Y}_{iW}\right) + \beta_j' X_i + \varepsilon_{ij} \tag{5}$$

X_i is the vector of variables whose values vary across individuals and α is a parameter related to the predicted log earnings (Y_{ij}) from the alternative employment status.

4 Some empirical results

By justifying the multinomial logit regression as derivation from models of individual behaviour, it allows to define the probabilities that the event to be employer (j=1) or own-account (j=2) rather than salaried (j=0) occurs. While a first set of individual-level covariates detects socio-demographic characteristics (*i.e.*, gender, citizenship, marital status, children, health status), a second set is used as proxy for the measurement of human/social capital (*i.e.*, schooling, work experience, home ownership) and family-specific background (*i.e.*, parental education and work status).

Substantially coherent with other empirical studies concerning countries of Eastern [5;6] and Western Europe [1;2;11], our results highlight how being a man with more work experience increases the probability to enter self-employment all over countries, both for employer and own-account. As they say, years of experience as wage earner may be required before starting an activity on own-account. Despite the marital status is not a very clear determinant of self-employment decision-making, it is worth noting that only in Poland self-employed are significantly more likely to be married without children, while in Czech Republic having dependent children appears to increase the

probability to become self-employed. This evidence is partly coherent with the self-employment profiles already sketched for some developed Western countries [2], where family responsibilities seem to impact negatively on risk-taking, mainly for entrepreneurs. For Hungary, Poland and Slovak Republic, being employer is often a poor choice for individuals in poor health, probably due to the fact it requires, on average, greater levels of concentration or stress and more work hours.

Table 3a: Multinomial logit model – Hungary and Poland

Independent variables	*Hungary*		*Poland*	
	Employer	***Own-acc***	***Employer***	***Own-acc***
Earnings differentials	0.4984***	-0.1625*	0.3215**	-0.1153*
Gender (1 if *male*)	1.1577***	0.7110***	0.7691***	0.7488***
Citizenship (1 if *native*)	-1.1894**	-0.1461	-0.6945	0.4465
Marital status (1 if *married*)	0.2073	0.5923***	1.1513***	0.4257***
Children (1 if *with children*)	0.0868	0.1552	-0.2601**	-0.2981**
Health status (1 if *chronic*)	-0.8513***	-0.1441	-0.1268**	-0.0978
Schooling (*years*)	0.0356	0.0699**	0.0292***	0.0025
Experience (*years paid work*)	0.1491***	0.0737***	0.0799***	0.0443***
Experience-squared	-0.0031***	-0.0011***	-0.0013***	-0.0010***
Home ownership (1 *owned*)	0.1436	0.1027	0.8176***	0.2795***
Parents' education (*low*)				
- Medium level	0.7016***	0.2083*	0.8093***	0.4193***
- High level	1.0030***	0.7623***	1.4561***	0.9520***
Parents' work status (*neither*)				
- Both Self-Employed (SE)	0.6941*	0.6902**	0.3781***	0.1694***
- Only one self-employed	0.5472**	0.6481***	0.2478**	0.1286***
Father/mother SE same occup.	1.3586**	1.4965**	0.4965**	0.3698***
Fath/moth SE not same occup.	0.4947*	0.9727**	0.3727*	0.1589*
Log likelihood	-2,553.51		-3,352.27	

Data source: EU-SILC (2005)
Significance levels: ***1%, ** 5%, * 10%

Table 3b: Multinomial logit model – Czech Republic and Slovak Republic

Independent variables	*Czech Republic*		*Slovak Republic*	
	Employer	***Own-acc***	***Employer***	***Own-acc***
Earnings differentials	0.7197***	0.3701**	-0.0525*	-0.2589**
Gender (1 if *male*)	0.8680***	0.8581***	0.9307***	1.0181***
Citizenship (1 if *native*)	-1.0814	-0.7286*	-1.4100	0.1383
Marital status (1 if *married*)	-0.3705	0.1500	0.5145*	0.1227
Children (1 if *with children*)	0.7117***	0.4649***	0.1256	0.0815
Health status (1 if *chronic*)	-0.0797	-0.1526	-0.3240*	0.1272
Schooling (*years*)	0.0416**	-0.0015	0.0269**	0.0377
Experience (*years paid work*)	0.2167***	0.0966***	0.0778	0.0965***
Experience-squared	-0.0039***	-0.0020***	-0.0003	-0.0025***
Home ownership (1 *owned*)	0.7306**	0.2270	0.3803*	0.0759
Parents' education (*low*)				
- Medium level	0.6061	0.4121**	0.1922	0.2552**
- High level	1.5565***	0.9370***	0.9976***	0.4076**
Parents' work status (*neither*)				
- Both Self-Employed (SE)	0.0146	0.4671	1.3700	1.2242*
- Only one self-employed	0.3088	-1.1144	-0.9237	0.0263
Father/mother SE same occup.	0.2896	1.0487	0.1985	0.1812
Fath/moth SE not same occup.	0.1892	0.7845	0.4895	0.5987
Log likelihood	-1,547.01		-2,387.43	

Data source: EU-SILC (2005)
Significance levels: ***1%, ** 5%, * 10%

The so-called generational determinants have positive significant effects on probability to become self-employed, both employer and own-account, for Hungary and Poland but not for Czech and Slovak Republics. In particular, for Hungary and Poland – where the incidence of self-employed by second generation is not negligible at all (tab. 1) – the propensity to enter self-employment slightly enhances when parents are more-educated and when both are (were) self-employed themselves, stressing how the family background may affect the professional path through the intergenerational transmission of enterprise-specific skills and managerial abilities. It is interesting to note that for Hungary and Poland having at least one parent self-employed in a given profession influences in a stronger way the decision to become self-employed in that same type of activity, coherently with some results for Western countries (tab. 3).

In general, log earnings equations prove the larger influence of experience in labour market on earnings of employers than employees (or own-account), mainly for Hungary and Poland (tab. 4 for Hungary). The individual education level plays a crucial role in the determination of earnings and returns to education increase (except for own-account) as the level of schooling is higher. Finally, the impact of parental education on individual earnings is significant only for employees; in such a way, it gives evidence of the low influence of generational determinants on earnings of self-employed also for Hungary and Poland beyond that for Czech and Slovak Republics. Coefficients of selection terms (λ_{ij}) are positive and significant, both for employer and own-account, meaning that the selection bias is found; so, individuals who work in one status have comparative advantages than workers in other ones.

Table 4: Earnings Equations for the three employment status (Hungary)

Independent variables	***Employee***		***Employer***		***Own-account***	
Intercept	7.3777***	(.2548)	6.6597**	(.4959)	6.8641***	(.6752)
Gender (1 if male)	0.2420***	(.0217)	0.1600	(.1046)	0.7631***	(.2211)
Citizenship (1 if native)	- 0.0901	(.1355)	0.5013	(.4173)	0.1625	(.1534)
Health (1 if chronic)	- 0.1506***	(.0251)	- 0.5660***	(.1286)	- 0.0578	(.2092)
Schooling	0.0375***	(.0022)	0.0361***	(.0106)	0.0239	(.0216)
Parents' education (*low*)						
- Medium (ISCED-97: 3;4)	0.1791***	(.0234)	0.1429	(.1088)	0.0304	(.2254)
- High (ISCED-97: 5)	0.3333***	(.0385)	0.2524	(.1607)	0.2962*	(.1511)
Experience	0.0281***	(.0038)	0.0574***	(.0217)	0.0280**	(.0140)
Experience-squared	- 0.0005***	(.0001)	- 0.0010**	(.0005)	- 0.0001**	(.5E-05)
Activity sector (Industry)						
- Trade&Transport	- 0.0687**	(.0274)	- 0.1018	(.1080)	- 0.0920	(.2611)
- Financial	0.1594***	(.0424)	- 0.1748	(.0136)	0.5829**	(.2945)
- Others	0.1602***	(.0272)	0.3042**	(.2007)	0.6657**	(.3162)
Lambda	0.8258	(.6224)	0.1545**	(.0774)	0.1351**	(.0632)
Adj R-Squared	.3767		.2958		.2790	

Standard errors in parenthesis
Significance levels: ***1%, ** 5%, * 10%

As explained above, only if the α-parameter, related to the earnings differentials, is significant and positive, a relative earnings advantage in self-employment increases the likelihood of becoming self-employed. Some studies [3,6,11] have already documented the unclear role of relative earnings in explaining self-employment choice. However, in our analysis, coefficients on employer *vs* employee earnings differentials are positive almost everywhere; in general, this implies a higher standard of living for employers in Eastern Europe that regular employees. At the same time, expect for Czech Republic, negative α-estimates on own-account *vs* employee differentials mean that individuals frequently become own-account although they predict to earn less than they could as employees. In this sense, in a dualist perspective, own-account status may represent a form of partial unemployment for some individuals and, thus, its importance in terms of job creation or source of income; alternatively, it may signify that pecuniary rewards are not always the only and main reason for choosing self-employment.

5 Concluding remarks

In the light of institutional and macro-economic environment during the communist- era and in the period after its collapse (*i.e.*, governmental involvement in the economy, financing constraints, local market features, labour and taxation systems, stabilization policies), our findings allow to classify the four Eastern countries into two main groups.

The first one includes Hungary and Poland – where authorities tolerated private market activities during the state-socialist period – for which the consistently positive impact of parental education and work status, as proxies for human and social capital in a generational perspective, denotes how the parental experience, mainly in a same type of occupation, is one of the key channels through which intergenerational transmission processes may take place. In this context, it could be fair to state that several skills and knowledge to become self-employed would depend on informal transmissions across generations and not necessarily through only a formal education. However, a detailed analysis by sub-categories of self-employed (not shown for brevity) demonstrates how this reasoning is true for crafts or, at least, small employers and similar (usually own-account), but not for members of profession (for which a formal education attainment is mandatory) or for the more qualified entrepreneurs and managers. The second group considers Czech Republic and Slovak Republic – where harsher restrictions blocked any form of private market activities prior to 1989 and institutional environment still created

obstacles to entrepreneurship when the regime collapsed – for which family background plays a marginal or no role in probability to enter self-employment.

Further considerations may be given in comparing these empirical results with the evidence for countries of Western Europe. In general, people living in the wealthier countries, in terms of higher GDP and lower unemployment rate, and so with higher levels of "national economic well-being", seem to be less likely to be self-employed. In this light, self-employment may be regarded as a potential way *to wage a war against* unemployment in line with the dualist perspective. Our findings confirm that also in Eastern countries, characterized by increasing unemployment rates and decreasing real wages in the first years of transition, a consistent part of self-employed may qualify as refugees from poverty. Anyway, by investigating more in-depth the heterogeneity of self-employment, this reasoning is well-suited for own-account, typically considered as marginal producers content to earn only enough to draw forth, but not for the sizeable number of employers, especially for Poland and Hungary, that may be seen as entrepreneurs able to earn high incomes and accumulate capital in accordance with the integrationist approach. Briefly, despite overlaps in the determinants of different self-employment works, the higher earnings of employers imply a potential distance, in terms of socio-economic status, from own-account and, more generally, among the several sub-categories of self-employed. In other words, a significant differentiation within the ranks of self-employed exists and being own-account usually becomes a constrained choice not necessarily sprung from better income prospects.

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