Self-employment, Unemployment and Wages: Regional Evidence from Hungary and Romania

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Economic Transformation and the Return to Human Capital
The Case of Hungary, 1986–1996

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SELF-EMPLOYMENT, UNEMPLOYMENT AND WAGES: REGIONAL EVIDENCE FROM HUNGARY AND ROMANIA

János Köllõ and Mária Vincze

Abstract: *Millions of East-Europeans started businesses during the transformational recession but, according to a wide-spread interpretation, many of them did so only temporarily and 'unwillingly' under the threat of unemployment. The paper looks at the relevance of the 'disguised unemployment approach to entrepreneurship' using regional data.It first examines how net flows into self-employment were affected by corporate labour demand in Hungarian and Romanian regions. Second, it looks at the responses of self-employment and unemployment to increases in labour demand at later stages of the transition. Finally,.it makes attempts to measure the 'wage push' of self-employment. The evidence suggests that self-employment and unemployment were guided by rather different forces In Hungary. By contrast, the Romanian agriculture absorbed a non-trivial proportion of the potential unemployed following the unique land reform and the introduction of a restrictive UI system. The data suggest larger flows into self-employment in regions hit hard by the transition shock but they do not indicate net flows from self-employment back to paid employment in the few Romanian regions where labour demand was rising between 1993 and 1996. The pool of private farmers failed to behave as a 'reserve army' in this period and did not have strong influence on wage claims at the enterprise sector.*

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1. INTRODUCTION

The substantial rise in the number of entrepreneurs in Central and Eastern Europe is often interpreted as a *temporary* response to the 'transformational recession': during the hard times many people started a business temporarily and 'unwillingly' because it was difficult to find wage work. This is a rather pessimistic view of entrepreneurship which, however, implies an optimistic forecast: if many entrepreneurs are just 'disguised unemployed' then many of them may try to return to dependent status employment as things change for the better on the labour market. The quantity of labour supplied for the enterprise sector may increase

(faster than suggested by standard labour statistics) providing an additional resource for growth after so many years of grave depression.

Obviously, any debate around this issue should focus on degrees and emphasis because, in principle, each and every self-employed person with a job finding probability lower than 1 could well be regarded as 'disguised unemployed'. The state of the labour market affects the choice between self-employment and dependent status employment (or job search) – assuming causal linkage between the dramatic decline of corporate labour demand and the growth of self-employment is therefore undoubtedly justified in the case of the East-European transition. It does not follow, however, that the variations of job finding probabilities across social groups, or over time, explain a large fraction of the variations in sole-proprietorship.

Since the self-employed account for more than 10 % of total employment in Bulgaria, the Czech Republic and Hungary, almost 30 % in Poland, and close to 40% in Romania the responsiveness of their number to the changes in macro-economic fortunes bears direct relevance for the future of the labour market. The evaluation of past trends in self-employment and unemployment also depends on whether the former can be regarded as a 'disguised' form of the latter, on a massive scale.

This paper would like to contribute to a better understanding of interactions between self-employment and unemployment by examining regional data from Hungary and Romania. The first aim is checking whether the (net) flows into self-employment were indeed strongly affected by the *contraction* of dependent-status employment in a given region. Second, we shall look at regional evolutions in later stages of the transition under the assumption that there should be similarities in the responses of self-employment and unemployment to the *increases* in corporate labour demand if the above-mentioned interpretation is right. Finally we try to assess the 'wage push' of self-employment. If the people running 'survival businesses' actively search on the labour market, as if they were unemployed, their presence on the market should put a downwards pressure on wages similar to that exerted by open unemployment.

It should be mentioned in advance that these questions will be addressed on the basis of most simple descriptive statistics using small data sets which provide no scope for in-depth analysis. We think nevertheless that the 'disadvantage theory of self-employment which views entrepreneurs as misfits cast off from wage work' (Evans and Leighton 1989) should have implications for regional self-employment and unemployment rates, and by observing the existence or lack of these implications the forthcoming country overviews can potentially contribute to an ongoing public debate.

Some readers may know that large longitudinal data sets – containing individual observations – are available for an analysis of flows to and from self-employment, at least in Hungary. We opted for the regional level of investigation deliberately, in

the conviction that in the particular case of the problem discussed here an analysis based on individual data should tackle with severe methodological problems. (Section 2). Aggregate data avert a part of these problems though they admittedly raise others like small sample size, strong correlation between regional variables, lack of adequate controls and resulting uncertainties in the interpretation. Keeping these caveats in mind Section 3 will look at the Hungarian experience, Section 4 presents the Romanian data and Section 5 will draw cautious conclusions.

2. ANALYZING SELF-EMPLOYMENT AND UNEMPLOYMENT - COMMENTS

In models of entrepreneurial choice a risk-neutral individual with a given managerial talent is assumed to chose between self-employment and paid employment on the basis of discounted income streams – shaped by the costs of entry, pecuniary incomes and the costs associated with failure – in the two states, respectively. Assuming that wages are given labour demand in the corporate sector affects the decision by influencing the risk of jobloss and the expected duration of unemployment. The fact that in principle the choice of enterpreneurship depends on the *risk of unemployment* makes its empirical investigation rather difficult and motivates the researchers to chose various types of second-best solutions and/or avoid the issue.

One of the 'seemingly related' and frequently studied questions is how the probability of business start-up is affected by past or present unemployment experience. Several papers compare *start-up rates* by labour market status (Evans and Leighton 1989, for instance, find that people who *are* unemployed are more likely to enter self-employment, all else equal, but previous unemployment experience has no statistically significant effect) while others look at the *selection* of entrepreneurs from within the ranks of the unemployed. (There are many studies of this type in countries operating start-up loans for the unemployed. In Hungary Ágota Scharle started research on the issue). A third branch of papers analyses the *performance* of businesses started by the unemployed. (See the follow-up study of Pfeiffer and Reize 1998 using data from former GDR territories among others).

Admitting the merits of these investigations it should be emphasized that they provide insufficient information on our problem of how the number of the self-employed is affected by a downswing on the labour market. This is so because the *threat* of unemployment bears much greater importance for business creation than actual unemployment experience. Research on Hungary by Lengyel (1995) for instance suggested that more than half of the survey respondents with 'entrepreneurial inclinations' evaluated their job finding probabilities as poor or mediocre (slightly more than 1/4 said their prospects were poor). In the same time the proportion of entrepreneurs with previous unemployment experience amounts to less than 5% in Hungary. Arguably, the majority of the businessmen who consider the risk of unemployment as a key variable when making the start-up decision have never been (an will probably never be) registered as unemployed.

Studies comparing the selection of the self-employed, as opposed to the unemployed, represent a second direction of research providing information on our question. Earle and Sakova (1998) estimate multinomial logit equations – with employer status, self-employment, dependent-status employment and unemployment treated as four distinct outcomes – using survey data from six Central and East European countries. The equations reveal clear differences in the selection of the self-employed versus the unemployed and suggest that the typical self-employed would face a low risk of unemployment given his/her educational level, age and other relevant characteristics. In the same time the models fail to answer, in our opinion, what is the contribution of low labour demand to the choice of self-employed status. The equations reveal, for instance, that education increases the probability of being self-employed and reduces the risk of being unemployed. However there is no answer to question, within the frame of the model, how the probability of business start-up is affected by the risk of unemployment within a group of educated, or uneducated, workers who share the same prior probability of being self-employed [1] .

A third approach is to ask direct questions about job prospects and willingness to start a business. Kuczi and Lengyel (1995) present interesting results of this kind from surveys carried out in five Central and East European countries. They also estimate multivariate binary logit equations with a dummy for 'entrepreneurial inclination' on the left hand and an indicator capturing the 'fear of jobloss' on the right hand. ('Would you like to be a private entrepreneur?', Are you afraid of losing your job?'). The fear-of-jobloss variable proved insignificant in Bulgaria, Hungary, Russia and Serbia but was positive and significant in Poland after controlling for age, gender, education, entrepreneurs among the parents, willingness to move for better jobs, and the number of friends. Using the coefficients presented on p.167 we can estimate that the fear of jobloss increased the willingness to start a business substantially from 12.6 to 16.1 % in the case of a man aged 30 (with default values of other regressors) in this country.

Unfortunately, the informational value of the answers to direct questions is inevitably limited. As shown by Vadim Radaev's paper in the Kuczi-Lengyel volume (p.90) about 1/3 of the Russian respondents 'would like to be entrepreneur'; but only about 1/6 of them 'have plans'; about 1/20 of them 'made preparations' and probably an even smaller proportion will ever start a business. It is unclear how the risk of unemployment affects the process of selection – which seems to sort out almost 90% of the candidates on their road to really start a business – but there is a certain probability of such an interaction and, given the magnitudes, the risk of drawing erroneous conclusions is fairly high. One can hardly cure this problem by asking operating entrepreneurs about their fears of unemployment preceding start-up. ('Were you afraid of losing your job when you were pondering over starting a business?'). The answers to such retrospective

[1] By this we mean the risks predicted for a given educational category fixing other regressors at some arbitrarily chosen values.

questions are unavoidably uncertain and subject to bias for reasons known from the literature of cognitive dissonance.

A common problem appearing in research using individual data is that in order to model the choice of self-employment we would need information on the individual risks of unemployment or, more generally, on expected careers in case of not starting a business. Unfortunately these risks are unobservable and unpredictable with adequate precision.

The gain from moving to the regional level is given by the fact that the spatial differences in employment rates or vacancy rates provide more-or-less reliable measures of relative job finding probabilities. This is the case, at least, if the gender- age- or education-specific differences of these prospects are similar across regions, in relative terms, which is the case in many countries. A further advantage is that risk preferences and innate managerial talents can be assumed to be identical across regions (but not across individuals). Last but not least one has the possibility to study 'equilibrium states', that is, established combinations of paid employment, self-employment and unemployment in various regions and test how certain regional attributes affect these combinations.

The short list of advantages could be supplemented with a long list of disadvantages, some stemming from aggregation, others from small sample size or strong correlation between region-level indicators. Several problems will be discussed in the empirical sections and others will become evident without any discussion. We believe, however, that generally there is a strong case for using aggregate rather than individual data in addressing the 'disadvantage theory of self-employment'.

In analyzing the data we shall consider that the level of self-employment in a region is affected by at least four fundamental factors:

(i) Spatial characteristics affecting the competitiveness of sole-proprietorships vis-a-vis larger firms. Clear examples are tourism, historical specialization in trade, services and agriculture, or a high level of specialization and product differentiation characteristic of metropolitan markets. (ii) Capital endowments making entry to self-employment easier like land ownership, car ownership, residential space convertible to business premises, accumulated savings, and so on. (iii) Demand for labour in the corporate sector. (iv) The joint distribution of workers by job finding probabilities and liquidity constraints.

While points (i)-(iii) are self-explanatory the last one may need some brief comments. We can expect low corporate labour demand to induce higher rates of self-employment if the workers at high risk of unemployment own some capital to start a business but we also know that these workers are typically handicapped in terms of human capital and are liquidity-constrained. (This is particularly the case if the banking sector is undeveloped and businesses are started at the expense of

accumulated savings or simply relying on human capital.)[2] In the extreme case when all workers facing non-zero risk of unemployment lack the assets to start a business the rate of self-employment is determined by scale economies (point i above) and is not responsive to changing fortunes in the corporate sector.

A more realistic expectation is that different parts of the small business sector respond differently to changes in the demand for labour. A certain degree of segmentation inevitably results from the fact that human capital endowments, wages, financial assets and job finding probabilities are positively correlated. Many human capital intensive small businesses are run by masters of the profession who could easily find a well-paying job in the corporate sector, whenever they want, while the cost of entry to these activities is high or even prohibitive for the average job loser. By contrast, small business activities where the returns to human capital are low and entry is easy tend to be pursued by less educated, low-wage, high-risk workers because their reservation level of income is lower (due to lower forgone earnings); their productivity in the given activity is the same as of educated workers (by definition); therefore they can set lower prices and win the competition versus skilled workers. This part of the small firm sector may be highly responsive to corporate labour demand while other parts are not: one of the aims of the forthcoming analysis is to distinguish between these two types of markets.

3. HUNGARY

The small business sector was relatively developed in state-socialist Hungary thanks to market-oriented reforms dating back to 1968. A large part of this sector was part-time and informal but even so 7.7 % of the labour force was observed as full-time self-employed in 1989 when the communist system collapsed. (EC2, EC8 1993, 1995)[3]. The share of self-employment was explicitly high in this country compared to Czechoslovakia (0.4 %) though lagged behind Poland (16.6 %) where a private agriculture existed throughout the state socialist period. By 1995 self-employment's share rose to 10.6 % in Hungary as opposed to 6.5 % in Slovakia, 11.5 % in Bulgaria, 11.6 % in the Czech Republic – but 29.9 % in Poland and 38.3 % in Romania where agricultures are dominated by family farms. (EC8 1995). The expansion of the small business sector was fast during the transformational recession but virtually stopped after reaching a peak in 1995.

In this section we shall study the regional dispersion of small business density and its relation to the regional dispersion of unemployment. Any such attempt should tackle with the problem that self-employment, as a labour market state, is difficult to observe and the proxies at hand are subject to various types of bias. (See

[2] Czakó (1997) demonstrates that 81.3 % of the industrial small businesses, 74.7 % of the private shops and 96.2 % of the professional sole-proprietorships were started without capital formation in Hungary. Bank loans were involved in 8.2%, 10.4% and 0% of the cases, while subsidies were received by 5.2 %, 8.3 % and 1.9 % of the enterpreneurs, respectively.

[3] These estimates exclude the members of agricultural and industrial cooperatives.

Czakó 1998 and Earle and Sakova 1998)[4]. We shall use the per capita number of sole-proprietorships (called „egyéni vállalkozás" in Hungarian and abbreviated with SP henceforth) as a proxy of self-employment keeping in mind the following problems:

(i) About 2/5 of the SP-s are run on a part-time basis by employees (of firms and institutions) or pensioners. (ii) About 1/6 of the registered SP-s are not operating. (iii) Some businesses registered as SP-s employ dozens or hundreds of workers and can be regarded as capitalist enterprises rather than small businesses. On the other hand, a firm managed and served by a single person or a family can be registered as a limited liability or deposit company.

These problems would paralyze the forthcoming analysis if the shares of part-time, non-operating or quasi SP-s were different region by region, especially if the differences were systematically related to spatial characteristics implying high or low rates of self-employment or unemployment. The shares in question are likely to differ to some extent and there is obviously no way to measure up them precisely. Nevertheless we can present some statistics (Table A1) suggesting that the bias stemming from problems (i)-(iii) are likely to be within tolerable limits. Insofar as the indicator of SP density is used to compare the *relative* size of the self-employed population by regions we probably make no grave mistake.

Table A1 summarizes Labour Force Survey data for region-groups distinguished by the share of agriculture (upper panel) and share of the tertiary sector (bottom panel). It seems that multiple job holding – the proportion of employees holding a second job or running a part-time business – does not vary substantially and systematically across regions. The proportion of registered sole-proprietors who *usually do not work* is lower in regions heavily dominated by agriculture or trade and services (upper 1/5). Not surprisingly, flexible worktime occurs more frequently in agricultural regions. Finally, the last row suggests that the weekly worktime of entrepreneurs who regularly work in their business is statistically equal in the region-groups considered in the table. We conclude from these data that the bias stemming from problem (i) is probably not severe. By contrast problem (ii) should be kept in mind in evaluating the differences between agricultural areas and other regions.

No disaggregated data were available for this research to address problem (iii). However, the aggregate data suggest a negligible number of capitalist enterprises

[4] The ILO definition of self-employment comprises the working owners of business ventures without a legal personality (including farms), their assisting family members and apprentices, and the members of productive cooperatives. Our definition excludes the latter category and the members of unincorporated companies. (Bt, Kt). Laky (1998) reports that unincorporated companies had 56,800 members while the number of sole-proprietors (excluding private farmers without a tax identification number) amounted to 431,900 in Hungary, 1997. We restrict the attention to the latter category because many Bt-s are simply organised for purposes of tax-evasion. The type I error we make by excluding them is probably smaller than the type II error from inclusion.

disguised as SP-s: in 1997 only 0.33 % of the SP-s employed 10 or more workers and 0.08 % employed more than 20 workers. (Laky 1998, 25). The removal of these firms would have no measurable effect on the regional relative SP density indicators.

The bias stemming from the fact that we neglect the reversed case (when an incorporated company is actually operated on a full-time basis by a single owner with no or only family-based assistance) would be difficult to guesstimate. It is worth noting, however, that the correlation between SP density and total firm density[5] is close to unity (0.9837 in 1995) so the *ratio* of self-employed persons running an incorporated company to the registered sole-proprietors is unlikely to vary in a broad range across regions.

3.1. Self-employment and unemployment rates in 1995

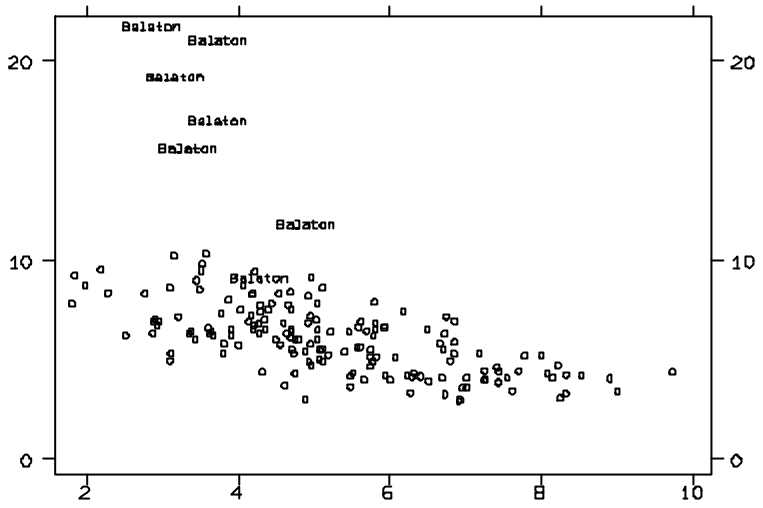
The degree of regional dispersion with respect to SP-s and registered unemployment in 1995 is shown by Figure 1 where 170 micro-regions are plotted. There was a six-fold difference between the extreme cases in terms of small business density (though only a three-fold gap if we exclude the regions around Lake Balaton).

We study the factors underlying the spatial variance of self-employment by regressing SP density on regional indicators selected to capture, as far as possible, the historical size of the markets where small businesses have competitive advantage (agriculture, tourism, retail trade, services); the availability of capital for business start-ups (human capital, land and vehicles); and scale effects (settlement size). Since the contemporaneous values of some of these indicators may depend on SP density lagged values were used wherever it was possible.

Figure 1
Sole-proprietorships and registered unemployed per 100 inhabitants. Hungary, 170 regions, 1995
(TSTAR 1995 and NLC Register 1995 Q2)

Sole-proprietorships

[5] All business establishments/population.



Unemployed

The level of education and proximity to Budapest and Vienna (together with an indicator of construction activities in years preceding 1995) were included to control for labour demand in the corporate sector. The choice of educational level and proximity was based on results from studies analyzing the spatial distribution of FDI (Fazekas and Ozsvald 1997, Kertesi and Köllõ 1997). Foreign enterprises have had a decisive role in the restructuring the local economies in Hungary and their regional distribution can be well explained by education and distance.

As the choice between paid employment and self-employment is conditional on wages regional average earnings in the corporate sector were also included. It must be mentioned that the wage data come from the National Labour Centre's Wage Survey containing only about 900 individual observations per region and therefore this variable is subject to measurement error. Dropping the wage term from the model had practically no effect on other parameters, however.

We estimate the self-employment equation jointly with an unemployment equation. Seemingly, the model presented in Table 1 is a „seemingly unrelated regressions model" but – since the same set of explanatory variables were used in the two equations – it yields the same results as single-equation OLS. The advantage is that by testing the parameters across equations and observing the correlation of the error terms we can check whether self-employment and unemployment are generated by the same process.

Table 1
Self-employment and unemployment in 169 regions, Hungary 1995

Regional attributes:	Registered unemployed per 100 inhabitants	Registered sole-proprietors per 100 inhabitants

EDUCATION Mean completed schoolyears 1990	–1.5203 (-3.67)	0.8133 (2.07)
PROXIMITY Mean distance to Budapest and Vienna x (-1)	–0.2492 (–3.75)	0.0679 (1.24)
NEW DWELLINGS Built in 1992-95 as pct. of the housing stock	–0.2036 (–2.47)	–0.0868 (–1.13)
SETTLEMENT SIZE Population/settlement in the region 1990	–0.0004 (–0.19)	0.0064 (3.38)
TOURISM Visitors (nights) per 100 inhabitant 1995	0.0001 (1.00)	0.0064 (3.24)
LAKE BALATON dummy	–0.1314 (–0.24)	5.2279 (4.26)
TRADE Employees per 100 inhabitant 1990	–0.0752 (–0.76)	0.2886 (2.59)
SERVICES Employees per 100 inhabitant 1990	0.0379 (0.469)	0.1763 (2.10)
AGRICULTURE Employees per 100 inhabitant 1990	–0.0719 (–3.06)	0.0663 (3.82)
CAR DENSITY Cars per 100 inhabitant 1995	–0.1129 (–3.42)	0.2077 (3.81)
WAGES IN THE CORPORATE SECTOR Gross earnings, firms >10 employees 1995	–0.0013 (–0.58)	–0.0004 (–0.15)
CONSTANT	20.5210	–7.1773
aR2	0.6624	0.8953
F -test	28.00	122.09
Normality of residuals (Shapiro-Wilk)	–0.0970 (0.5385)	1.89 (0.0290)
Ramsey-reset	3.02 (0.0314)	8.93 (0.0000)
Cook-Weisberg (heteroscedasticity)	5.81 (0.0159)	55.26 (0.0000)
Nobs	169	169
Correlation of the error terms		r = –0.0948
Breusch-Pagan test of independence	chi2 = 1.518	(Pr=0.2180)

All data aggregated from CSO-TSTAR 1995 except wages (Wage Survey 1995)

The model is estimated for 1995, the year when the growth of self-employment practically stopped. 169 observations are used because Budapest, an outlier in several respects, was excluded.

The error terms of the two equations can be regarded as independent at conventional levels of significance and the two parameter vectors are far from being ‘mirror images’. The first suggestion of the model is that the factors explaining the variance of self-employment rates are very different of those explaining the dispersion of unemployment rates. Equally important, the residuals

suggest that *particularly high* self-employment rates do not imply *particularly low* unemployment rates and vice versa.

The independence of the error terms allows the interpretation of the equations one by one. The test statistics of the unemployment equation do not indicate misspecification. The self-employment equation is heteroscedastic but the coefficients passing the t-test would be the same if robust to heteroscedasticity standard errors were applied. This model also has omitted variables. A number of further variables including lagged SP and unemployment rates were tested without success.

An important missing variable is the size of the informal economy. *Lackó* (1998) estimates using county-level data that the size of the unregistered economy is positively correlated with both unemployment and registered self-employment. This implies that the self-employment equation underestimates the actual impact of the explanatory variables on small business activity (a positive effect on registered SP-s is supplemented with an additional positive effect on unregistered self-employment). There is a risk of overestimation in the unemployment equation and the 'true' correlation between the error terms may be stronger than indicated in Table 1.

Keeping these caveats in mind how can we interpret the coefficients? By exerting strong influence on corporate labour demand *education* is expected to reduce unemployment and it indeed seems to be the case in Hungarian regions. Better endowments with human capital are also conducive to higher self-employment though the effect is not as strong as with unemployment. *Proximity* to trade portals, and construction activities, seem to reduce unemployment without affecting the number of micro-businesses. Urban areas and regions with a traditionally high share of the tertiary sector have higher-than-average SP density but it does not seem to imply lower-than-average unemployment. By contrast, the agricultural character of a region was associated with higher self-employment and (roughly proportionally) lower unemployment taking other things equal. The coefficient for car density was also negative in the unemployment equation and positive in the self-employment model.

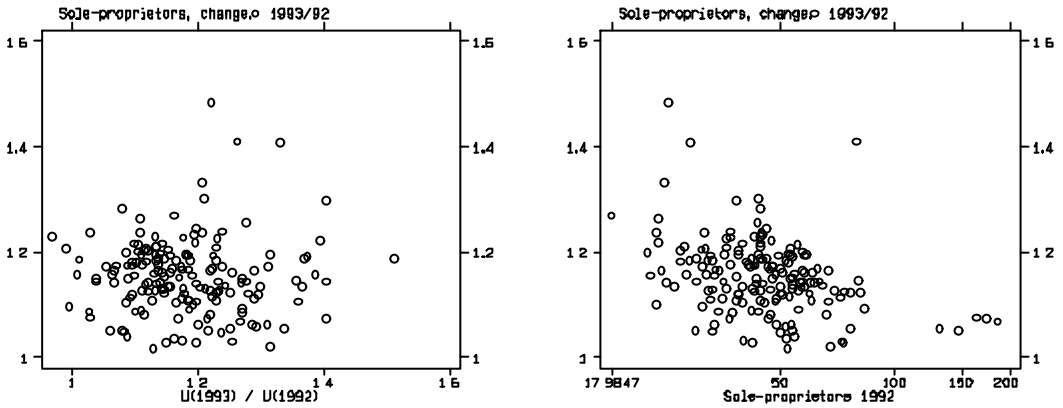
We interpret these findings as an indication that self-employment in Hungary is basically a „pull" phenomenon responding to market prospects and external economies rather than to the „push" of low labour demand in the enterprise sector. In fact, starting a viable shop, a hotel, or a restaurant in the relatively mature and saturated tertiary sector of an urban area requires considerable starting capital that is seldom available for people at risk of unemployment. Land and cars are capital goods owned by at least some households in this part of the population so a positive link between a region's agricultural character or car density and its self-employment rate is not counter-intuitive; neither is the negative link with the unemployment rate.

3.2. Changes in self-employment and unemployment

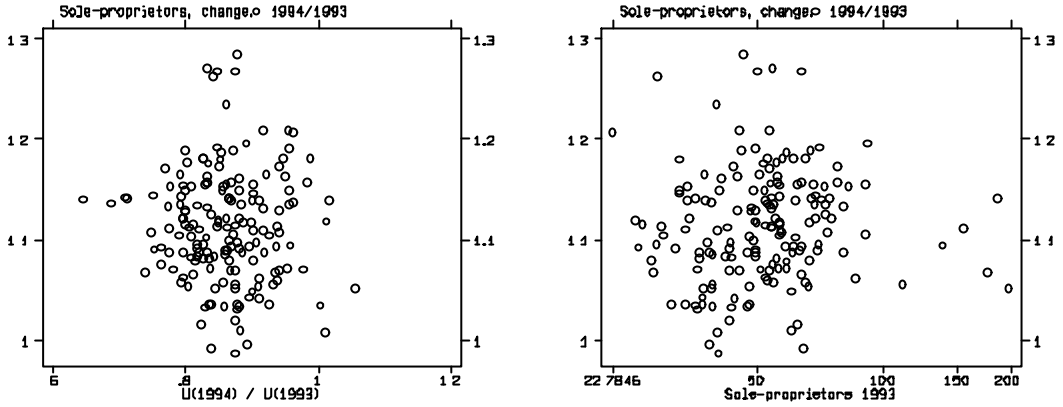
From March 1993 unemployment has been steadily falling in Hungary. Though the aggregate level of employment failed to increase until recently (1999) in many regions the recovery brought about net job creation. In a world where the self-employed could be regarded as 'disguised unemployed' (on a massive scale) one would expect similarities in the responses of unemployment (U) and self-employment (SP) to the positive stimuli of recovery.

Figure 2
SP_t/SP_{t-1} versus U_t/U_{t-1} (left panel)
SP_t/SP_{t-1} versus SP_{t-1} (right panel)

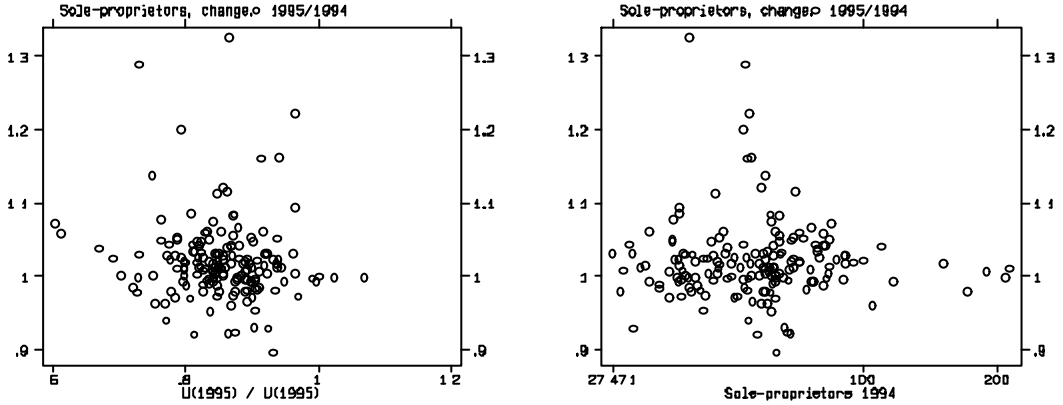
1993



1994



1995



We think the scatterplots of Figure 2 comparing dU_t with dSP_t in 1993, 1994 and 1995 (left panels) leave no doubt that the changes in U and SP were uncorrelated in the domains of negative and positive changes alike. We also plotted dSP_t against SP_{t-1} to show that, at least after 1993, the changes in self-employment were state-independent (so we can exclude a possible reason of why dU and dSP were uncorrelated). The dynamics of U and SP were definitely *not* dominated by the sort of synchronic shifts one would expect if large groups of the self-employed were just 'waiting for better times'.

3.3. Wage effects

Finally we try to test the wage effect of self-employment. The results in Table 1 suggested that such an effect could be expected, if anywhere, in agricultural regions. At least, the results did not exclude the possibility that a relatively large number of workers 'traded off' unemployment for survival farming or other small businesses in rural areas. We test this hypothesis by estimating wage equations

using more than 90,000 individual observations from the corporate sector, 1995. (Workers in firms employing 10 or more workers):

$$[1] \qquad \ln(w) = a + b'X + c\cdot\ln(U) + \sum_k d_k [\ln(SP)\times R_k]$$

where w is gross earnings in May 1995, U is the regional unemployment rate, SP is the regional self-employment rate as defined before, and X is a vector of controls including gender, experience, education, industry, firm size and other variables. (Table A2). The R-s are dummy variables standing for four quartile groups of the 170 regions. R_1=1 if the region belongs to the 1/4 of districts with the lowest share of agricultural employment as measured in the 1990 Census. The k index runs from 1 to 4 with R_4 denoting the 'most agricultural' 1/4 of regions.

The expectation consistent with the 'disguised unemployment' approach is that the d_k coefficients are all negative and $d_4 < d_3 < d_2 < d_1$, that is, the self-employed of agricultural regions exert stronger influence on wages than do the sole-proprietors of urban areas. In Table 2 the coefficients of prime importance are displayed while the full table is shown in Table A2.

The d coefficients are sensitive to the inclusion of industry dummies. When they are included d_1 appears to be positive while d_2-d_4 are statistically zero (if we consider that the exceptional sample size calls for stricter than usual t-tests). When the industry dummies are dropped d_1-d_3 appear to be zero while d_4 is negative and significant. In both cases d_4 is the lowest and d_1 is the highest among the four estimated elasticities.

Table 2
The coefficients (x100) of unemployment and self-employment from [1]

Coefficients P>(t) values	Equation [1] estimated with industry dummies		without industry dummies	
Unemployment	-9.86	0.000	-10.32	0.000
SP × Region 1	2.14	0.000	-0.56	0.361
SP × Region 2	1.52	0.010	-1.94	0.001
SP × Region 3	1.77	0.004	-1.87	0.002
SP × Region 4	0.89	0.201	-2.94	0.000

We think that these results do not strongly support the assumption that a higher number of self-employed puts additional restraint on corporate sector wages (while unemployment certainly does). The fact that we get a positive d_1 value in the basic specification, when the industry dummies are included, hints that despite a large number of control variables d_1 captures some latent regional advantages positively correlated with SP within the group of developed urban areas. The

negative d_4 we get by dropping the industry dummies suggests that though wages fall as we move towards rural areas with higher SP rates this is, in fact, explained by differences in industrial structure.

3. ROMANIA

Romania has far the highest self-employment rate within the CEE region amounting to almost 40% of total employment (38.3% in 1995, according to EC8 1996). Land reprivatisation and the concomitant net flow into agriculture – that was unparalleled within the CEE region – provides part of the explanation for the spectacular growth of self-employment. Unlike in Hungary where many former agricultural cooperatives survived (maintaining the cooperative form or after being transformed to incorporated company) and agricultural employment fell substantially, the Romanian coop sector was virtually eliminated and 79 % of the arable land is now cultivated by 3.7 million peasant households owning 2.3 hectares of land on average. (Ministry of Agriculture and Food). The number of people engaged in agricultural production as owners, assisting family members or employees rose by almost 1/2 million between 1990 and 1995. (EC8 1996).

Another important component of rising SP was 'gap-filling' in trade, catering and services – a tertiary sector that failed to develop under state socialism and was in scratch at the end of the 1980s. In fact, while reforms and restructuring proceeded slowly in the corporate sector (Bilsen and Konings 1998) Romania experienced the largest net inflows to trade and services within the former socialist block. A substantial part of these flows represented business start-ups by sole proprietors. (See the cross-country comparisons in Boeri et al. 1998).

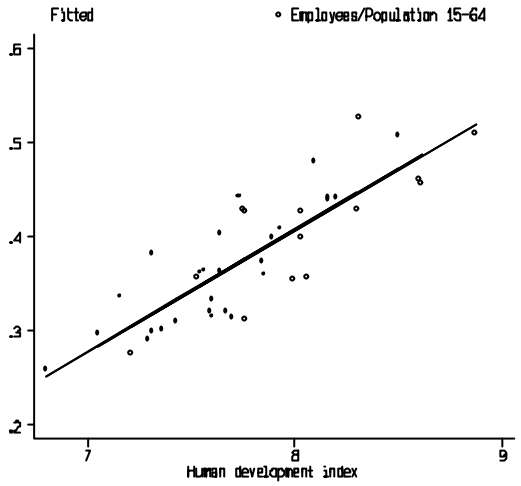
Last but not least, a substantial rise in self-employment may have reflected the effect of policies encouraging – even enforcing – the choice of subsistence farming versus unemployment. Since 1991, the passing of Act 1/1991 on the Social Protection and Reintegration of the Unemployed, the members of families owning 2 hectares of land (4 ha in mountainous areas) have been excluded from the unemployment assistance system.

In their profound overview of the Romanian UA system Earle and Pauna (1998) argue that 'few people are disqualified from unemployment insurance due to land holdings'. However, the number of job seekers *discouraged* from application is unknown and so is the magnitude of subsistence farming (and no search for jobs) that is motivated by very low or zero probabilities of finding wage work.

The simple charts and tables presented below will definitely not resolve these questions but – similarly to the Hungarian case – can highlight some features of the regional employment and SP levels (and dynamics) relevant for the discussion. We start by an overview of levels in 1993, follow with a study of regional changes in employment, self-employment and unemployment in 1993-96, and finally turn to the study of wage push in 1993-96.

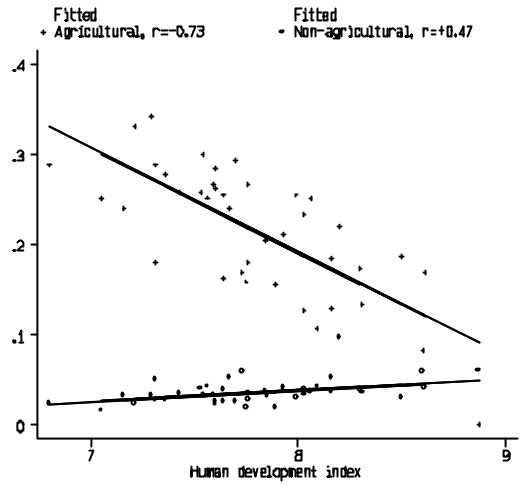
Figure 3
Employment, self-employment and the 'human development index' in Romania 1996

Employees/Population of working age



Human development index.

Self-employed/ Population of working age



Human development index.

Before starting we present data explaining why the emphasis will be on agricultural self-employment in most of the forthcoming sections. The left panel of Figure 3 shows the employment ratio (dependent-status employees to population of working age) plotted against the so-called 'human development index' (CNS 1994).[6] In 1996 (and other years) the employment ratio steeply increased from about 25% to 50% of the working age population (PWA) as we moved towards more developed regions.

The panel on the right hand plots the self-employed/PWA ratio against the HDI using 1996 figures and making distinction between sole-proprietors in agriculture versus other sectors. The rate of self-employment in industry, construction, traansport, services and trade was an increasing function of the HDI measure. This pattern was very similar to Hungary's while agricultural (and thus total) self-employment was clearly higher in regions with smaller corporate sector, lower levels of development and education, heavily exposed to the transition shock. We conclude from these patterns that the a trade-off can exist between unemployment and agricultural self-employment.

[6] The HDI is a combined measure of life expectancy, school enrollment, adult literacy rate and GDP per capita. Using the observed values of these indicators in region i (x_i) and fixed world-wide minimums and maximums (x_{min}, x_{max}) the basic elements of the HDI are defined as:

$$(x_i - x_{min})/(x_{max} - x_{min})$$

The HDI is then calculated as an average of the basic elements.

3.1. The growth of self-employment in early stages of the transition

The first question we would like to address is how the transition shock affected the level of agricultural self-employment. Unfortunately no data are available on self-employment by regions prior to 1993 so we have to utilize information on levels in this and subsequent years. Obviously, these levels are strongly affected by the quantity of arable land or historical levels of agricultural employment.

Several indicators were used to control for '*agricultural character*' including arable land/population, share of agriculture in GDP (1994) and the ratio of employees to population (1990). The latter will be used in the following calculations as a proxy. Since the members of cooperatives were accounted as self-employed in 1990, and unemployment was virtually nil, this ratio reflects the size of the agricultural cooperative sector rather precisely. The comparison of the ratio with the share of agriculture in GDP (1994) on Figure A1, left panel, provides support this assumption.

The *shock to the corporate sector* is measured with the percentage change of the number of employees between 1990 and 1993. The right panel of Figure A1 suggests that the size of the shock and agricultural character were uncorrelated. This also implies, by choice of the proxies, that the change of employment was uncorrelated with the starting level of employment in the corporate sector.

We shall relate the rate of registered unemployment (U) and the ratio of agricultural self-employed to the active population (ASP) to our proxies of agricultural character (e^{90}) and employment shock (e^{93}/e^{90}):

[2a] $u^{93}_i = a_1 \cdot e^{90}_i + b_1 \cdot (e^{93}/e^{90})_i + e_{1i}$.
[2b] $ASP^{93}_i = a_2 \cdot e^{90}_i + b_2 \cdot (e^{93}/e^{90})_i + e_{2i}$

expecting $a_1 < 0$, $b_1 < 0$, $a_2 < 0$. Our interest is in the sign of b_2 and the sign, strength and significance of $r(e_{1i}\ e_{2i})$.

Unlike in Hungary, the unemployment and agricultural self-employment rates were positively correlated in Romania. (The same would hold for total self-employment). They both related inversely to the size of the shock to paid employment. A strong negative correlation between the residuals of [2a] and [2b] suggests that particularly high self-employment rates were associated with unemployment rates lower than expected on the basis of the shock (holding the starting level of paid employment constant).

Using the coefficients of the self-employment equation and the summary statistics from the table we can make rough estimations of how the rates of agricultural self-employment (at the end of the period) varied with the shock to paid employment between 1990 and 1993.

Table 3

Results from [2a] and [2b] – Mulitvariate regression

Dependent:	U^{93}	ASP^{93}	Mean (sdev)
Employees/population (e^{90})	-0.3439	-1.3819	34.45
	(-4.31)	(-13.28)	(5.84)
	(-5.01)	(-13.28)	
Change of paid employment (e^{93}/e^{90})	-0.2265	-0.3714	80.51
	(-2.87)	(-3.59)	(5.89)
	(-3.26)	(-3.61)	
Constant	41.16	107.04	
„R-sq”	0.4745	0.8546	
Correlation of the error terms	-0.6626		
Breusch-Pagan test of independence	18.001	(0.000)	
Reset	0.50	0.64	
	(0.6846)	(0.5913)	
Mean (st.dev)	11.1	29.52	
	(3.9)	(9.6)	

T-values in paranthesis. Upper: from Stata mvreg. Lower: From robust to heteroscedasticity standard errors estimated with single-equation Huber regressions

A difference of 10 percentage points in the fall of paid employment during 1990-93 was associated with about 4 % difference in the 1993 level of self-employment.

Table 4
Self-employment rates estimated with [2b]

Employment ratio in 1990	Change of paid employment 1990-93		
	-30%	-20%	-10%
Low (23%)	49.4	45.7	41.0
Medium (34%)	34.2	30.5	26.7
High (45%)	19.0	15.3	11.6

Unfortunately, the fact that we do not know the level of self-employment, and hence activity, in 1990 by regions makes the comparison of these magnitudes rather difficult. Some bold calculations subject to errors provide the following benchmarks. Considering regions with 90% of their labour force employed as wage worker in 1990 (this may roughly correspond to the average of the countryside) and shocks of -20% and -30% respectively we get that paid employment fell from 90% to about 72% of the original labour force in the first region and to 63% in the second. The estimated difference between the two regions' ratios of ASP/labour force was about 4% in 1993. Under the assumption of constant labour force in both regions, and neglecting non-agricultural self-employment, these magnitudes would imply a 5% difference in unemployment, a

gap that roughly corresponds to the one in self-employment. It must be emphasized, however, that due to unobserved flows between inactivity and the labour force in 1990-93 these calculations are uncertain.

The contrast between the Hungarian and Romanian experience is nevertheless clear in several respects. The flow to self-employment was much more intense in Romania. Unlike in Hungary, high levels of self-employment and unemployment evolved simultaneously in less developed regions hit hard by the transition shock. If we compare regions of similar starting levels and similar net changes of paid employment we find that those with a higher self-employment rate tend to have a lower unemployment rate. These fragments, supplemented with what is known about the UI system (and anecdotal evidence) seem to suggest that self-employment indeed played a non-trivial role in the absorption of the redundant labour force in Romania.

3.2. Net flows of self-employment and unemployment 1993-96

According to a recent survey of 1650 small farms in 120 villages (Private 1997) about 15% of the working family members had been commuting to an urban workplace before their 'return' to agriculture.[7] Assessing the living standards and future plans of this sizable minority is rendered impossible by the lack of data though some useful pieces of information are available.

First of all, the above-cited survey suggests that 93% of the respondents has no intention to leave the village and only 8% of the families would sell the land at their disposal. These data hint that, at least in 1996, relatively few people planned to give up private farming or move to urban centers.

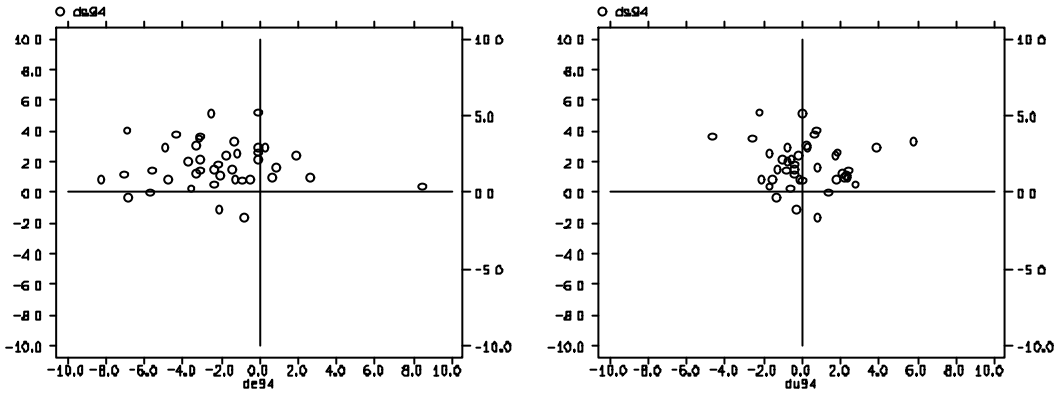
Second, a survey of 32,288 households by the CNS (1997) suggested that the per capita pecuniary household income of the members of private farming families amounted to only 90% of the income of the unemployed and 39% of the income of wage earners. Though these data are second-best for assessing how lucrative is private farming relative to paid employment the differences are large enough to suggest that the typical private farm yields very low pecuniary income. However, if we add the value of consumption in kind, as imputed by the CNS, the above-mentioned relative levels come up to 144% and 84%, respectively. We think that. insofar as we accept the CNS estimates, the income level of farmers cannot be regarded as particularly low for several reasons: the average farmer is less educated than the average wage earner; the potential intake from wage work of a village dweller is lower because of transport costs; the wage of the average employee may contain a component compensating for inflexible worktime and relatively unfavorable working conditions compared to farmers, and so on. Therefore we cannot take it for granted that the median farm member would be

[7] This ratio multiplied with the total number of the agricultural self-employed adds a figure (525,000) that roughly corresponds to the official estimation of net flow back to agriculture (about 1/2 million depending on the year considered).

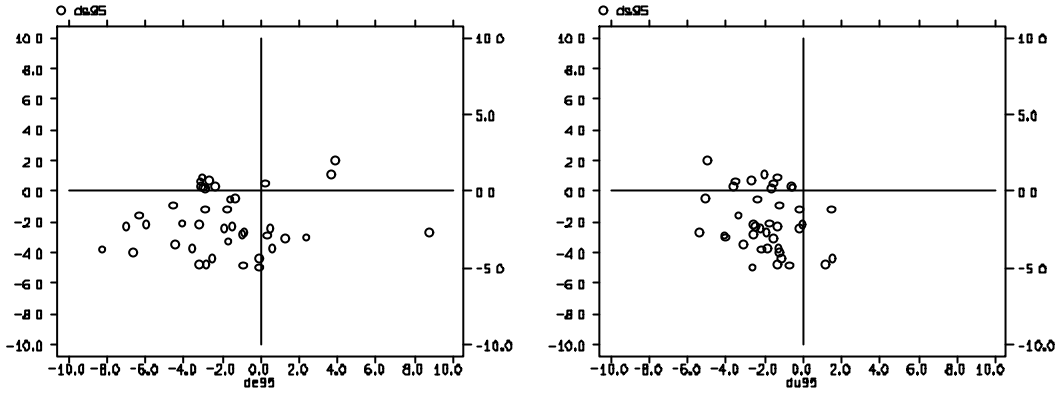
better off in terms of consumption in case he/she returned to paid employment. In fact, though the majority of the peasant families live below the 'decent life minimum' (81.5% according to Zamfir 1994) agriculture may provide sufficiently high income to make private farming lucrative *relative to paid employment.*
Keeping these pieces of information in mind we now turn to the study of changes in agricultural self-employment (ASP) and their relation to changes in paid employment (E) and unemployment (U), 1994-96. The left panels of Figure 4 compare ΔASP with ΔE, the right panels plot ΔASP against ΔU.

Figure 4
Percentage change in agricultural self-employment versus paid employment (left panels) and agricultural self-employment versus unemployment (right panels)

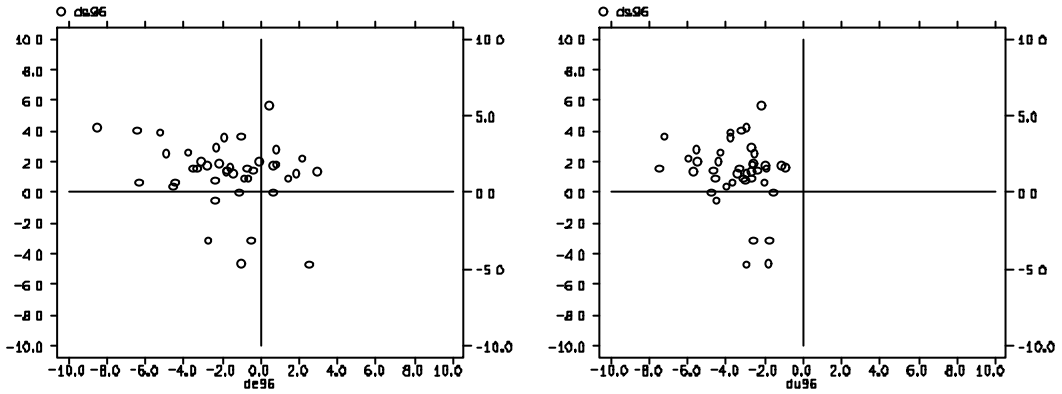
1994



1995



1996

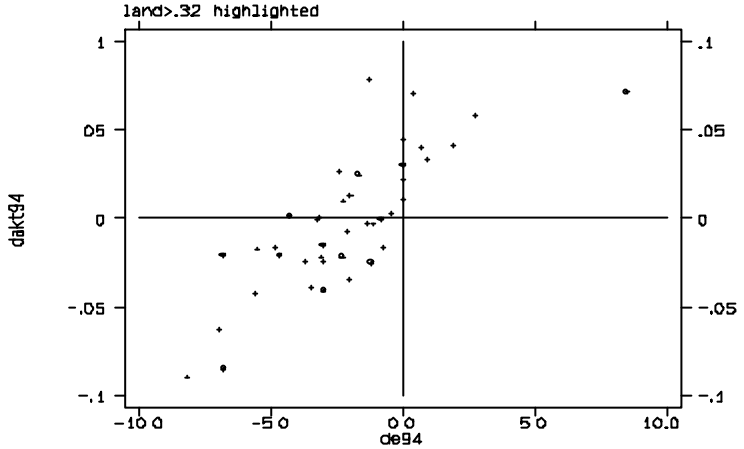


First of all, the charts suggest that the corporate sector was shedding rather than hiring labour in these years, therefore the scope for moving back to paid employment was limited. In the few regions where E was rising in 1994 ASP was also rising. In 1995 ASP typically fell where E was rising but actually the same happened where E was falling. In 1996 a weak negative correlation is observed between ΔASP and ΔE (-0.26 significant at the 0.09 level) but agricultural self-employment was actually *rising* in most of the regions where paid employment was rising. (ASP was rising *more* in regions where E fell hence the weak connection indicated above). Looking at the right panels we definitely do *not* observe simultaneous shifts in ASP and U.

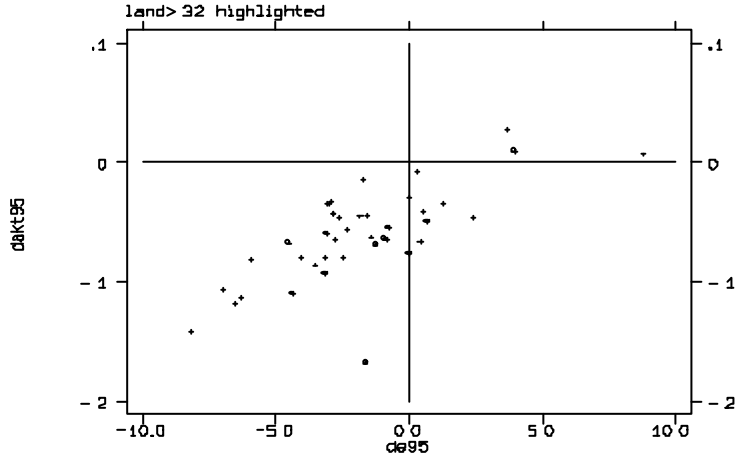
A comparison of the shifts in E, U and self-employment suggests that the fluctuations in paid employment were accompanied by large flows in and out the labour force. Occasionally, the large fluctuations in labour force participation may reflect the withdrawal and return to the market of discouraged workers belonging to peasant families – members working as assisting family members but not registered as self-employed. To check this possibility we also plotted the annual

percentage change in the labour force against the percentage change in paid employment and highlighted the regions where arable land per capita exceeded 0.32 hectares. (Other limits would yield similar results). We would expect that in regions dominated by agriculture the response of labour force participation to the changes of paid employment are strengthened by a discouraged worker effect. This assumption is not supported by the raw data: the agricultural regions do not seem to differ from the rest of the country in this respect.

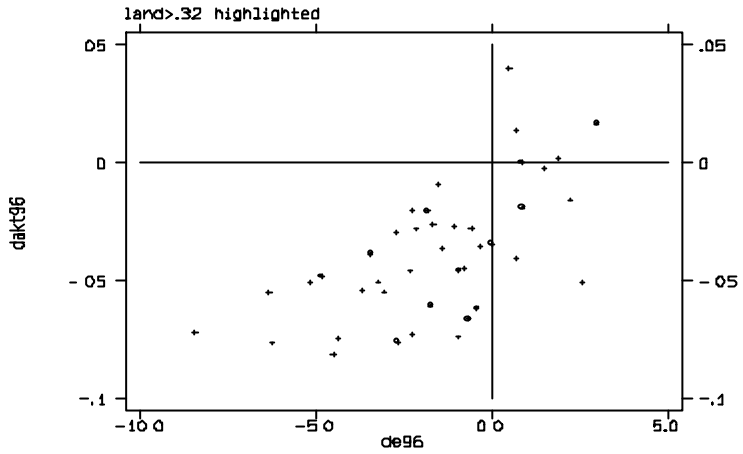
Figure 6
Change of the active population (vertical axis) versus change of paid employment
(Regions dominated by agriculture encircled)
1994



1995



1996



3.3. Wage push

Finally, following the logic of the Hungarian case study we try to estimate the effect of self-employment on wages. The data we can use relate to average gross earnings of employees in a given industry and region. We have 656 observations (16 industries in 41 regions) in four consecutive years (1993-96).

We try to benefit from the observation that a wage equation not controlled for personal and firm-level characteristics yields higher unemployment-elasticities (in absolute terms) than a properly controlled one. In Hungary 1996, for instance, wage equations using individual observations and many controls yield unemployment elasticities slightly below -10% while by regressing log regional average wages on log unemployment we would get -24 % (-23% if the 20 counties were used as observations). Considering this peculiarity we try to give upper-bound estimates for the link between wages, unemployment and agricultural self-employment. First we estimate two sets of cross-section regressions (with all variables in logs):

(3.1.) $w_{ij} = a^1U_i + \quad + \mathbf{d}^{1\prime}\mathbf{l} + e^1_{ij}$
(3.2.) $w_{ij} = a^2U_i + \quad + c^2EDU_i + \mathbf{d}^{2\prime}\mathbf{l} + e^2_{ij}$
(3.3.) $w_{ij} = a^3U_i + b^3ASP_i + \quad + \mathbf{d}^{3\prime}\mathbf{l} + e^3_{ij}$
(3.4.) $w_{ij} = a^4U_i + b^4ASP_i + c^4EDU_i + \mathbf{d}^{4\prime}\mathbf{l} + e^4_{ij}$
(4.1.) $w_{ij} = a^1ASP_i + \quad + \mathbf{d}^{1\prime}\mathbf{l} + e^1_{ij}$
(4.2.) $w_{ij} = a^2ASP_i + \quad + c^2EDU_i + \mathbf{d}^{2\prime}\mathbf{l} + e^2_{ij}$

where U and ASP are the regional rates of unemployment and agricultural self-employment, EDU is mean completed schoolyears in the region, **l** is a vector of industry dummies, i stands for regions and j for branches. Different specifications are used to allow for the possibility that the inclusion of correlated regressors affects the estimates to a large extent. The results are presented in Table 5.

The results suggest, first, that the estimated unemployment elasticities are rather low compared to Hungary. Second, the Romanian wage elasticities were lower in 1995-96 than in 1993-94 in all specifications. Third, wages seem to be lower in regions where agricultural self-employment is higher and this relationship was getting stronger over time.

Obviously, high agricultural self-employment is correlated with a number of regional characteristics leading to lower wages such as a lower level of urbanization, lower level of education, higher long-distance transport costs, lower local transport costs and cheaper housing. Thus, for instance, the coefficients of correlation between ASP and the level of education, as measured above, were around -0.8 in the years under examination. Despite of that the inclusion or exclusion of EDU affects the parameter of ASP only in 1995 – in other years the differences between the estimations from 4.2 and 3.4 versus 3.3. are negligible.

Table 5
Predicted elasticities of wages with respect to:

	Unemployment				Agr. self-employment			
Model:	3.1.	3.2.	3.3.	3.4.	4.1.	4.2.	3.3.	3.4.
1993	-11.5	-7.6	-6.7	-6.9	-13.8	-12.9	-12.0	-12.2
	(5.4)	(4.3)	(4.0)	(4.0)	(6.3)	(4.4)	(4.0)	(4.9)
1994	-10.0	-7.3	-6.9	-7.2	-11.9	-12.4	-12.6	-14.2
	(5.2)	(4.3)	(4.7)	(4.1)	(4.7)	(4.4)	(4.7)	(4.2)
1995	-1.7	2.2	-1.8	-1.2	-18.2	-14.6	-18.0	-14.7
	(0.7)	(1.6)	(1.0)	(0.7)	(7.6)	(4.3)	(7.4)	(4.3)
1996	-3.9	-3.1	-5.0	-5.2	-18.4	-19.7	-19.1	-21.5
	(1.6)	(1.3)	(2.9)	(3.0)	(3.8)	(2.8)	(4.1)	(2.9)

T-values from robust to heteroscedasticity standard errors in paranthesis. For the specifications and data: see the text.

The 'structural break' in the relation between wages, self-employment and (especially) unemployment was so radical in 1995 that a closer look at their dynamics is certainly required. The coefficients of pairwise correlation between the *change* of regional average wages and the contemporaneous and lagged values of U and ASP (Table A3) suggest that in 1994 regional wage change was unrelated to unemployment and self-employment. By contrast, in 1995 and 1996 wages grew slower in regions where lagged ASP was higher. Wage growth and unemployment were uncorrelated in 1995 but not in 1996 (though even in the latter case the negative coefficient has a low significance level)[8] Thus, following the

[8] Table A3 presents the coefficients for all regions and excluding Bucarest. The results are different in terms of significance rather than levels.

suggestions of Table A3 we shall investigate the link between wage change and the state of the labour market by estimating:

$$(5.1.)\ w_{ijt} = w_{ij,t-1} + a^1 U_{i,t-1} + b^1 ASP_{i,t-1} + c^1 EDU_i + \mathbf{d}^{1\prime}\mathbf{l} + e^1_{ij}$$
$$(5.2.)\ w_{ijt} = w_{ij,t-1} + a^2 U_{i,t-1} + b^2 ASP_{i,t-1} + \quad + \mathbf{d}^{2\prime}\mathbf{l} + e^2_{ij}$$
$$(5.3.)\ w_{ijt} = w_{ij,t-1} + a^3 U_{i,t-1} + \quad + c^3 EDU_i + \mathbf{d}^{3\prime}\mathbf{l} + e^3_{ij}$$
$$(5.4.)\ w_{ijt} = w_{ij,t-1} + a^4 ASP_{i,t-1} + \quad + c^4 EDU_i + \mathbf{d}^{4\prime}\mathbf{l} + e^4_{ij}$$

Table 6 presents the coefficients, indicates their significance level (based on robust to heteroscedasticity standard errors), shows the fit and the omitted variable test. The detailed results are available on request. The estimates reinforce the suggestions of the cross-section regressions in that the effect of unemployment on wages appears to be rather weak (insignificant parameters in 1994 and 1995 and a weak negative effect in 1996). In regions where agricultural self-employment was high wages increased at a lower rate in 1994 and particularly in the ominous year of 1995 (but not in 1996).

The effect of the level of education is insignificant in all years and specifications, but one. If we drop ASP from the equation in 1995 the education effect becomes positive and significant arguably because it captures the link between self-employment and wage growth. At least, such an interpretation is supported by the stability of ASP's parameters across specifications and by the instability of the coefficients on education.

Before drawing conclusions we have to address the problem of multicollinearity stemming from strong positive correlation between regional unemployment, self-employment and educational levels. Some typical symptoms of mulitcollinearity do not appear (the coefficients are either insignificant in all specifications, or significant in all models and have plausible sign) but there is a need to test the sensitivity of the parameters to small changes in the data. (Greene 1993, 266.) The small changes are produced by dropping regions and industries one by one and comparing the estimates from the reduced samples. Figure A2 presents the results for 1995, specification 5.1. The points on the charts show the coefficients of the four independent variables in samples where either region i (i=1,2,..,41) or industry j (j=1,2,..,16) were dropped. The charts also show the 95% confidence intervals of the respective parameters estimated for the whole sample. It can be checked that the estimates from the reduced samples fluctuate in narrow ranges inside the confidence intervals.

Taking together the results from these simple statistics we would not exclude the possibility that a larger number of agricultural self-employed puts additional restraint on wages in Romania. At least in 1994 and 1995 the regions with higher ASP rates experienced slower wage growth keeping unemployment, educational levels and (fixed) industry effects constant. Though, in principle, falling wages in the agricultural areas may have been caused by changing agglomeration economies or transport costs we believe that w_{t-1} and the education variable capture a large

part of the influence of usual regional wage determinants, and the wage moderation we could observe following the spectacular growth of subsistence farming is more than an illusion stemming from spurious correlations.

Table 6
Estimated coefficients from 5.1.-5.4

Dependent: Average wage in a region-industry cell

Model:	5.1.	5.2.	5.3.	5.4.
1994				
Lagged wage (w_{t-1})	0.591***	0.592***	0.622***	0.603***
Lagged unemployment (U_{t-1})	-0.024	-0.024	-0.025	–
Lagged agr. selfemp (ASP_{t-1})	-0.048*	-0.036*	–	-0.044*
Level of education (EDU)	-0.044	–	0.0777	-0.011
aR2	0.8418	0.8419	0.8402	0.8412
Omitted variable test	2.20 (.09)	2.14 (.09)	1.12 (.34)	2.03 (.11)
1995				
Lagged wage (w_{t-1})	0.492***	0.501***	0.542***	0.484***
Lagged unemployment (U_{t-1})	0.012	0.014	0.018	–
Lagged agr. selfemp (ASP_{t-1})	-0.102**	-0.095**	–	-0.104**
Level of education (EDU)	-0.038	–	0.285**	-0.056
aR2	0.8239	0.8241	0.8154	0.8240
Omitted variable test	20.12 (.00)	20.46 (.00)	22.25 (.00)	19.90 (.00)
1996				
Lagged wage (w_{t-1})	0.913***	0.911***	0.932***	0.910***
Lagged unemployment (U_{t-1})	-0.041**	-0.042**	-0.040**	–
Lagged agr. selfemp (ASP_{t-1})	-0.021	-0.022	–	-0.014
Level of education (EDU)	0.069	–	0.069	0.087
aR2	0.9112	0.9113	0.9110	0.9084
Omitted variable test	9.50 (.00)	10.22 (.00)	9.58 (.00)	8.88 (.00)

All variables in logs. Significant at the *) 0.1 level **) 0.05 level ***) 0.01 level

Poorly controlled equations, like ours, tend to result in a *gross overestimation* of wage flexibility. Therefore it seems to us that wages are generally weakly affected by (open or disguised) unemployment in Romania. This finding is consistent with the common knowledge that the reform of the Romanian enterprise sector had not been completed until the end of the period discussed in this paper.

6. CONCLUSIONS

The story of the entrepreneurs who are ‘in fact‘ disguised unemployed seems to be of marginal importance in Hungary but, arguably, not in Romania. While in the

former country self-employment and unemployment rates were guided by rather different forces the Romanian agriculture absorbed a non-trivial proportion of the potential unemployed following the unique land reform and the introduction of a restrictive UI system. Though assessing the magnitudes is difficult on the basis of the available evidence we would risk that without massive flows to subsistence farming Romania's unemployment rates would have been much higher.

While the evidence suggested larger flows *into* self-employment in regions hit hard by the transition shock, and the results on wages also provided weak support for the 'disguised unemployment' approach, we did not observe net flows *from* self-employment back to paid employment in the few Romanian regions where the demand for labour was rising between 1993 and 1996. In this sense agricultural self-employment did not behave like a pool of unemployed workers normally does, not until 1996 at least. Undoubtedly, the time elapsed since the 'transition shock' is short and the 'transformational recession' is still not over in Romania so it may be too early to expect flows back to the corporate sector.

If the expectation is that the recovery of the enterprise sector will sooner or later start to absorb the 'disguised unemployed' then we should certainly admit some positive returns to the unique policies pursued by Romania. While it is true that subsistence farming on plots of 1-2 hectares yields extremely low money intakes, that is often insufficient to cover acceptable minimum living standards, the available evidence suggests that per capita consumption is not substantially lower among peasants than among dependent status employees and certainly higher than in the households of the unemployed. In addition, private farming yields some, albeit not all, of the non-pecuniary benefits attached to everyday work and probably erodes one's 'employability' less than does unemployment.

Unfortunately it cannot be taken for granted that the lack of flows back to paid employment in 1993-96 meant a transitory failure. The experience of CEE countries modernizing their economies faster than Romania suggests no or very slow rise in paid employment during the recovery. If the millions who now make their living from cultivating small pieces of land – without adequate equipment, fertilizers, vehicles and storage capacity – have to go on for years, or decades, then the social burden from 'disguised unemployment' may finally prove heavier than it appears today.

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APPENDIX

Table A1
Multiple job holding among employees* and the distribution of self-employed persons** by effective worktime
(Hungary, LFS, 1995. Q1)

	Type of region: Agrarian (Agricultural employment per population, Census 1990) quintile groups					
	1.	2.	3.	4.	5.	N
Employees						
Percentage holding a second job	4.4	5.0	6.5	4.9	5.2	21552
Self-employed						
Usual worktime zero (%)	16.1	19.3	17.5	20.5	11.9	2852
Cannot answer the question on usual worktime because actual worktime is variable (%)	29.7	31.3	36.8	33.3	39.4	2365
Weekly worktime at those who work regularly (mean, st. dev.)	45.9 (12.8)	46.2 (13.3)	46.1 (14.8)	43.8 (14.9)	45.8 (13.8)	1543

	Type of region: Tertiary (Employed in trade or services per population, Census 1990) quintile groups					
	1.	2.	3.	4.	5.	N
Employees						
Percentage holding a second job	4.6	4.0	6.3	4.6	5.4	21552
Self-employed						
Usual worktime zero (%)	19.1	17.2	18.1	19.1	11.9	2852
Cannot answer the question on usual worktime because actual worktime is variable (%)	36.2	29.0	44.1	28.6	33.0	2365
Weekly worktime at those who work regularly (mean, st. dev.)	43.4 (16.0)	44.4 (12.2)	45.4 (14.6)	47.5 (14.6)	46.8 (11.9)	1543

*) Persons with a valid employment contract („Alkalmazásban állók")
**) Persons registered as entrepreneurs + assisting family members („Önállók és segítõ családtagjaik").
Classifications by employment status: based on variable: fovisz.
Classification by regions: Respondents were attached to one of the 170 micro-regions on the basis of their place of permanent residence (settlement code). The 170 regions were then ranked by the indicated variables and grouped. 1 stands for the 'least agricultural' and 'least tertiary' 1/5 of regions.

Figure A1:
Romania: Employees/population in 1990 and
LEFT: share of agriculture in GDP in 1994.
RIGHT: change in the number of employees 1993/90

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Table A2
OLS estimation of log gross monthly earnings (Wage Survey 1995)

Industry dummies:	No		Yes	
Male	.236	82.3	.220	73.8
Experience	.022	45.6	.020	43.4
Experience squared (x100)	-.029	27.4	-.027	25.6
Vocational	.102	28.3	.105	29.5
Secondary	.184	42.9	.183	43.1
Higher	.543	85.4	.534	84.8
Non-manual, non-managerial	.199	51.7	.213	55.2
Manager	.733	80.7	.747	83.6
Log fixed assets/worker	.016	14.4	.014	11.5
Log sales/worker	.178	94.2	.179	88.5
11-20 employees	-.300	53.2	-.289	51.0
21-50 employees	-.185	37.5	-.192	39.0
51-300 employees	-.073	19.7	-.089	24.2
1001-3000 employees	.069	14.0	.044	8.7
3001 or more employees	.089	19.4	.056	8.8
Budapest	.004	0.6	.023	3.9
Village	-.036	10.2	-.047	12.5
Log regional unemployment	-.103	-16.3	-.099	15.7
R1 x ln(SP)	-.006	0.9	.021	3.5
R2 x ln(SP)	-.019	3.3	.015	2.6
R3 x ln(SP)	-.019	3.0	.018	2.9
R4 x ln(SP)	-.029	4.2	.009	1.3
Constant	9.553		9.567	
aR2	.4963		.5126	
Nobs	91,510		91,510	

Table A3
Pairwise correlation coefficients (significance) between
change of the regional average wage and:
U (unemployment)
ASP (agricultural self-employment)
EDU (education)

Romania, 41 regions

A) Without Bucarest

	U	U(t-1)	ASP	ASP(t-1)	EDU
1994	-0.03 (.86)	-0.05 (.76)	0.25 (.11)	0.23 (.15)	-0.25 (,.11)
1995	0.13 (.44)	0.07 (.68)	-0.18 (.25)	-0.31 (.05)	0.29 (.06)
1996	-0.15 (.34)	-0.24 (.13)	-0.27 (.09)	-0.30 (.06)	0.35 (.02)

B) With Bucarest

	U	U(t-1)	ASP	ASP(t-1)	EDU
1994	-0.12 (.45)	-0.04 (.78)	0.02 (.89)	0.00 (.99)	-0.03 (,.87)
1995	0.14 (.38)	0.08 (.60)	-0.13 (.42)	-0.24 (.12)	0.23 (.14)
1996	-0.18 (.24)	-0.28 (.08)	-0.32 (.04)	-0.35 (.02)	0.39 (.01)

Fig. A2.
The sensitivity of the parameters of model 5.1. to dropping industries or regions, 1995