The Origins of Self-Employment

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Abstract:
We examine the factors affecting the transition to self-employment in Bosnia and Herzegovina, using a panel household survey for the years 2001-2004. The study represents a unique case in that in the early period of the panel (2000-2001) the country changed its legal framework concerning labor regulation and the business environment, with the primary aim to promote labor market flexibility and to encourage entrepreneurial activity, making it particularly interesting to examine entrepreneurship in the new environment. The data allows us to directly identify individuals that switched to self-employment during the sample period and the viability of this transition, in terms of business survival for more than one year. Our results suggest an important role for financing constraints. Specifically, wealthier households are more likely to become entrepreneurs and survive in self-employment, and having an existing bank relationship increases the chances of survival for the new entrepreneur. In contrast, we find that overseas – and in some cases domestic – remittances significantly decrease the likelihood of becoming an entrepreneur. Interestingly, NGO and government supported programs that provide grants and transfers to promote entrepreneurship seem to have worked not only in promoting entrepreneurship but also its success, filling an important financing gap in the absence of more developed formal financial institutions. Finally, people working in the informal sector are more likely to transition to becoming entrepreneurs and significantly more likely to survive.

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Keywords: Self-Employment, Entrepreneurship, Financial Constraints, Informal Sector

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1. Introduction

A flexible, well-functioning, and entrepreneurial labor market can contribute to economic growth through the efficient allocation of labor and increased competitiveness. A better understanding of the determinants of entrepreneurship - the environment that motivates and supports the creation of self-employment – is essential for understanding the microeconomic foundations of economic growth.

Conceptually, the self-employed can be considered as the smallest, but initially most vital unit of entrepreneurial activity. The dynamics of this particular group are of great interest since the literature has indicated that the self-employed have distinct individual and labor market characteristics compared to individuals in paid employment. In the past few years, there has been a notable amount of interest on issues of mobility and transition into self-employment in developing countries. The literature stresses individual, institutional and sociological factors (Djankov et al., 2005; 2006a; 2006b) as well as labor market characteristics (Earle and Sakova, 2000; 2001; Dutz et al., 2001) in identifying the determinants of labor market transitions and new business creation. Other studies emphasize the importance of financial wealth and constraints (Paulson and Townsend, 2004; 2005; Paulson et al., 2006).

Departing from this strand of the literature, we examine the nature of the entrepreneurial decision for the transition to self employment in Bosnia & Herzegovina (BiH) and its viability, using a rich panel survey for the years 2001-2004. In the transition countries of Eastern and Central Europe, the small and medium enterprise (SME) sector has been the largest creator of new jobs and the vast majority of these new enterprises are microbusinesses (Ayyagari, Beck and Demirguc-Kunt, 2004; Klapper, Sarria-Allende and Sulla, 2004). BiH is both a country in transition that emerged from a communist background and post-conflict, following the violent collapse of the former Yugoslavia. An interesting feature of this case study besides the rich dataset is that in the early period of the panel (2000-2001) the country changed its legal framework concerning labor regulation and the business environment, with the primary aim to promote labor market flexibility and to encourage entrepreneurial activity.[1] Therefore, BiH offers an interesting

[1] Some of the basic features of the regulatory change are described in Section 2. For a full report, see World Bank (2005a).

natural experiment to examine the impact of these reforms on the dynamism of latent entrepreneurship that was restricted before the market reforms. It is also important because lessons learned can be generalized to other emerging economies, where private sectors continue to develop.

We examine the profile of new entrepreneurs, defined as individuals who make the transition to self-employment between the years 2001-2004. We further examine how their profile differs from the rest of the labor force. It has been claimed that self-employment can foster social mobility for low-paid individuals (Holtz-Eakin, Rosen and Weathers, 2000). Furthermore it can work as an outlet – a "pushing mechanism" – to escape unemployment. Another, equally important channel is the "pooling mechanism", the pooling of individuals with particular entrepreneurial skills, insights and spirits into activities promoting innovation, technological change, reduction of the production costs, and growth as a consequence (Schumpeter, 1942). In developing countries, both channels are of great importance for different reasons, the former in the short-run and the latter in a longer-run perspective.

The data allows us to directly identify individuals that switched during the sample to self-employment. Compared to studies treating self-employment per se as the dependent variable, the examination of entry into self-employment can provide a better insight into the social origin, financial circumstances and career choices of new entrepreneurs. Of particular interest are issues of interactions between access to finance and labor status; the relationship between the informal sector and formal types of entrepreneurial activity; and the effects of pushing and pooling factors in the transition between market states. Finally, we study the ex-post performance of new entrepreneurs in terms of their survival in the early period in business and the determinants of this performance.

Our results suggest an important role for financing constraints. Specifically, wealthier households with access to bank financing are more likely to become entrepreneurs and survive the early period of adjustment. Having an existing bank relationship significantly increases the chances of survival for the new entrepreneur, further reinforcing the importance of access to finance. In contrast, we find that overseas – and in some cases domestic – remittances significantly decrease the likelihood of

becoming an entrepreneur. Interestingly, NGO and government supported programs that provide grants and transfers to promote entrepreneurship seem to have worked not only in promoting entrepreneurship but also its success, filling an important financing gap in the absence of more developed formal financial institutions. Finally, people working in the informal sector are more likely to transition to becoming entrepreneurs and more likely to survive.

The rest of the paper is organized as follows: Section 2 contains a brief survey of the historic, macroeconomic and institutional background of self-employment in BiH. Section 3 discusses the data. Section 4 presents our empirical strategy and results for self-employment entry. Section 5 examines short-term survival. Section 6 concludes.

2. The Labor Market and Business Environment in Bosnia & Herzegovina

The establishment of BiH has been tragically marked by a four-year war in the early 1990s. Almost 6% of a 4.4 million population were killed or registered as missing, over 60% were forced to relocate, and an estimated 1,000,000 people left the country (World Bank, 2005b). In 1995, the Dayton Peace Accords decentralized BiH, retaining its international boundaries. The decentralization recognized a second tier of government comprised of two entities roughly equal in size: the Bosniak/Croat Federation of Bosnia and Herzegovina (FBiH) and the Bosnian Serb-led Republika Srpska (RS).

The macroeconomic instability that followed was characterized by a 75% drop in per capita GDP between 1990 and 1995, from its initial US$ 2,400 level to an estimated US$600. In the following years, high nominal rates of economic growth increased the figure to US$1,200 by the end of 2000 and to its prewar levels as of 2005 (World Development Indicators, 2006). The conflict also generated new categories of unemployed, such as war widows, disabled soldiers and civilians, displaced refugees and returnees. In 1996 the official self-reported unemployment rate was 80%, which decreased to about 35% by 2001. However, BiH has a large informal sector that could also account for as much as 50% of official GDP and half of the number of registered unemployed; true unemployment rate – including informal employment – is estimated at about 20% (World Bank, 2005c).

Before the war in the 1990s, BiH had a large entrepreneurial middle-class. Although the environment of centrally planned economies in Eastern Europe had been hostile to self-employment and entrepreneurship (Earle and Sakova, 2000), the regime in the former Yugoslavia had a somewhat different treatment of small businesses, mostly those related to crafts and services These were encouraged and provided with financing mostly from local government-owned banks. Their interests were further supported through the formation of local and politically influential crafts unions. Furthermore, in the prewar period, BiH was a location where the former centrally-planned regime placed heavy manufacturing industries, on which socialist regimes placed a huge emphasis.

However, the transition process and the war altered the environment, and together with the destruction of the massive state-operated factories, unemployment skyrocketed. The war left behind ruined infrastructure, devastated crops, demolished real estate and ceased industrial production. This destruction of the stock of productive capital combined with the dislocation of private social safety nets and social capital decreased living standards and increased the vulnerability of the population to further economic shocks (World Bank, 2002).

Facing massive unemployment and a deficient social welfare system, the promotion of self-employment and microenterprise became a political priority. Several initiatives were taken to encourage small and medium enterprises by establishing microenterprise credit institutions.[2] Furthermore, in 2000-2001 BiH introduced reforms to the regulatory framework for the financial environment and the labor market. The "Microcredit Organization" law passed the FBiH parliament in 2000 and the RS parliament in 2001, establishing a legal and operational framework for microfinance. Banking reform accelerated in 2001 as all Communist-era payment bureaus were closed and the banking sector was liberalized. Foreign banks, primarily from Western Europe, now control most of the banking sector. Moreover, one of the important barriers to labor mobility and job creation – the extremely restrictive employment protection legislation – was removed in 2000 and replaced by new Entity Labor Codes.

[2] Notably, the Local Initiatives Project funded by the World Bank, the Micro-Enterprise Bank funded by the EBRD and the IFC, and Quick Impact Program funded by the UNDP/SRRP.

However, the labor market still faces major challenges, such as high and rigid wages in the formal sector[3], a large and growing share of workers in the informal sector who are not covered by social insurance, and persistent unemployment. The formal sector remains dominated by the public sector and implementation of privatization has been slow.[4] Further regulatory impediments include high taxation of wages and profits and high employer contributions[5], difficult access and high cost of credit, and lack of systemic trust in the regulatory and financial environment (World Bank, 2005a). Relative to other countries, BiH still suffers from a weak business environment and high barriers to entrepreneurship, as shown by the World Bank's Doing Business (2005) indicators (among transition countries, BiH's "Ease of Doing Business" ranking is only higher than the ranking of Belarus and the Ukraine). In a total of 154 countries, the country ranks particularly low, with respect to ease of starting a business, dealing with licenses, registering property and trading across borders. Given this challenging macroeconomic and institutional environment, in the next sections we examine determinants of self-employment at the individual and the household level.

3. The Data

We use panel household data from four waves of the World Bank Living Standards Measurement Study (LSMS) for the years 2001-2004. The first wave of the LSMS survey was carried out in 2001, covering a sample of 5,400 households, 3,000 being selected from FBiH and 2,400 from RS. The sample was designed to be representative at the country level, the entity level, and for urban, rural and mixed municipalities. Wave 2 was conducted in 2002 and 50% of original LSMS respondents were interviewed a second time. These respondents were followed in Waves 3 and 4.[6]

[3] Wage setting regulation in BiH involves minimum wage "bunching", high experience premiums for years of service, and collective agreements in which employers did not have the right to participate (a situation that changed in 2005, giving employers a limited but still restrictive co-signatory role).
[4] For a description of the SME sector in Bosnia and Herzegovina, see: World Bank (2002)
[5] The extent of taxes and contributions levied on wages is 55% (35%) of net (gross) wage in the FBiH and 66% (40%) in the RS. Social Security contributions exclusively burden employers in RS and are shared in FBiH (with employers still paying the highest past).
[6] For more information on the survey design, LSMS sampling and the creation of the panel and the contents, see World Bank (2003) and Cuna (2004). Survey response rates were satisfying both at the household and the individual level, comparable to those of most well-established household surveys. The

This unique panel data provides rich demographic and socioeconomic information, and importantly an insight into labor market dynamics in the two entities. The household questionnaire included modules covering demographics, housing, education, labor, migration, health, credit and social assistance. Waves 1 and 4 also contain modules on consumption, privatization vouchers, non-agricultural business activities and agricultural self-employment activities.

For the purposes of our study, we employ the labor force population, aged 15-64, and classify them into mutually exclusive groups according to their employment status every year. Individuals present in at least two consecutive waves are kept. Following the design of the questionnaire, we define self-employed individuals as individuals describing their status as owner/co-owner of: (i) an enterprise which employs workers ("employer"), (ii) an enterprise which does not employ workers ("own account"). We identify "formal" self-employment, as individuals who fall into the categories above, and also declare work-related characteristics such as earnings and hours in self-employment and whose pension and/or health contributions are paid. The remaining individuals are identified as self-employed in the informal sector.

Standard ILO definitions classify a person as employed if they are presently working or on leave from a job. We follow this practice and further distinguish between the formal and the informal sector workers among the group of employed. We define employees in formal sector paid employment as individuals working in public enterprises and international organizations, as well as those in the private sector whose pension and insurance contributions were paid. No distinction is made between full-time and part-time work; both are considered employment, since flexible forms of employment are not common in BiH. Informal sector employment is comprised of three groups: (a) unpaid supporting family members, farmers on own farm, and workers engaged in other activity, such as sale of agricultural products; (b) workers not employed by public enterprises (or state sector) for which pension contributions are not paid; (c) workers declaring any other out-of-employment activity, but reporting earnings or hours of work. While different definitions of informal sector employment are always subject to debate, this one meets

truncation of the sample after Wave 1 was conducted ensuring the continuation of representation at the 3 levels mentioned.

previous official classification criteria and informal sector estimates for BiH (World Bank, 2002).

By default, the unemployed are those who do not presently have a job, are actively searching for employment and are able to take a job if it were offered to them. All others of working age are classified as inactive. Hence individuals of working age, who define their activity status as student, pensioner or housewife are defined as inactive or voluntarily unemployed. Individuals who are inactive in all four waves of the panel are dropped.

For BiH and its two entities, Table 1 presents frequencies for the partitioning of the labor force in the categories described above over the sample period. Self-employed comprise about 5% of the workforce on average, a figure that is mostly constant over the period 2001-2004 (see Figure 1). This compares to a self-employment rate of about 10% in OECD countries (Haber, Lamas and Lichtenstein, 1987; Parker, 2005). The percentage of self-employed is somewhat higher in RS, compared to FBiH. Another striking feature of the labor market in BiH is the high share of employment in the informal sector. This is a feature that existed during the socialist era, but became even more prominent in the early 1990s and continued to grow during the years of transition. Our calculations indicate that informal employment accounts for more than one third of total employment. There is an 8 percentage point difference between the entities, with the RS having close to a quarter of the labor force in informal employment. This is a relatively stable figure, while in FBiH the informal sector is lower but increasing in the course of the panel. Finally, with respect to the unemployment statistics, our estimates verify the picture that unemployment-inactivity comprises more than 40% of the workforce, a figure persistently lower in RS (38%, but rising) than in FBiH (46.2% on average). Our estimates of involuntary unemployment are about 19% for both entities.

This labor status classification allows us to directly observe transitions to self-employment from year to year. We are able to identify 229 entries into self-employment status during the course of the panel (Table 2). If we look at the subsample in 2001 of household heads, we identify 119 new entries (not shown)[7]. Of further interest are the

[7] This latter sub-sample is of interest, despite reducing the number of observations, because it is likely to capture new business openings and exclude participation in family enterprises.

outcomes of the new entries. Almost half of the transitions to self-employment do not make it through their first year in business. This is a pattern observed in both samples of individuals and household heads. Thus, it is of further interest to examine the determinants of entrepreneurial survival as well as entrepreneurial entry.

4. Entry into Self-Employment

Entrepreneurship has been linked to both economic and social attributes. The literature has distinguished between the role of institutions, sociological factors, and individual characteristics, with a particular recent interest in psychological factors, in identifying the determinants of the decision to start an entrepreneurial activity (Djankov et al., 2006b).[8] In the first stage of our analysis, we examine the microeconomic determinants of entry into self-employment in BiH, comparing differences in human, social and financial capital between groups of new entrepreneurs and individuals who did not become self-employed. In a second stage, we examine the determinants of survival in self-employment for more than one year, comparing individuals who made it through their first year as small business operators and individuals who exited before their second year of business. Definitions, means, and standard deviations for all variables are shown in Table 3. Table 4 shows a correlation matrix between key variables.

4.1 *Individual Characteristics*

A review of theoretical studies and empirical evidence suggest the following individual characteristics are likely to determine entry into self-employment:

(a) Generally, there is a positive relationship with gender (male) and a concave relationship between self-employment occurrence and age and experience, with entry into self-employment peeking between the ages 35 and 44. Theoretically, this can be justified as "job shopping" in a process of learning and occupational matching (Miller, 1984). We include a dummy variable equal to 1 if the individual is MALE and find that the sample is almost evenly split between men and women. We include a variable AGE, which is equal to the age of the respondent in year 2001; the average age of surveyed individuals

[8] For a review of the factors affecting the decision to enter self-employment and undertake entrepreneurial ventures, see Parker (2004).

is about 35. We also include the squared value of age divided by 1,000, AGESQ, to test the curvature of the relationship.

(b) The evidence on the role of education on entry into self-employment is mixed and depends on the econometric specification employed, correlations with financial and occupational variables (Le, 1999; Parker, 2004), and the specific sector of self-employment activity (Bates, 1995). We include EDUCLOW, a dummy equal to 1 if the respondent has no formal education or only primary school education. About 34% of the sample has no advanced schooling.

(c) With respect to marital status and family considerations, the dominant view is that of Borjas (1986), where family members can facilitate self-employment activity through the provision of assistance and cheap labor. However, when entry into self-employment is considered, the evidence is not clear, and could be confounded by the fact that married population is generally less likely to take risks. We include MARRIED, which is a dummy equal to 1 if the respondent is married or cohabitating in 2001 (61% of the sample). We also include LCHILDREN, which is the natural logarithm of declared number of children+1 (on average, 2.2 children per individual).

(d) On the impact of health status on entrepreneurship, the evidence is again mixed, but the specific circumstances in BiH favor the argument that the disabled might prefer self-employment, since several microcredit schemes are targeted to these groups. The literature has further suggested that self-employment provides these groups with more flexibility and potentially a way out of employer discrimination. The intuition for other disadvantaged groups such as the displaced/immigrants is similar. We include DISABLED, a dummy equal to 1 if the respondent considers him/herself disabled (5%). For robustness, we also include GHEALTH, a dummy equal to 1 if the respondent evaluates his/her health as “good” or “excellent” during the last 12 months (the two top categories in a 5-scale Subjective Health Evaluation question).

(e) Entrepreneurial activity in terms of small businesses is more likely to occur in urban areas in more developed countries (Parker, 2004). In these places, role models, neighborhood characteristics and even status considerations among peers can have a role in the entrepreneurial decisions. However, the provision of labor and other factors of production can often be cheaper in rural areas, hence the evidence on the impact of rural

vs. urban location on entry decisions is again mixed. We therefore include a variable RURAL equal to 1 if a respondent resides in a rural area (45%). We also include a dummy equal to 1 if the individual lives in FBiH (55%) and equal to 0 if the individual lives in RS.

4.2 *Psychological Traits and Sociological Insights*

Theory on the behavioral patterns of entrepreneurs stresses that the psychological profile and sociological background of the individuals are important factors in the decision to initiate one's own business. Key entrepreneurial features include the ability to resolve uncertainty (Cantillon, 1755), alertness (Knight, 1921), the ability to coordinate factors of production (Say, 1828), innovation and instinctive motivation and leadership skills (Schumpeter, 1934; 1939), the ability to resolve crises and risk-taking (Leibenstein, 1968), love for independence and job satisfaction. We will focus on two behavioral dimensions available in the dataset: optimism and risk-sharing and support through social capital.

Recent survey evidence suggests self-employed individuals are more optimistic than regular wage-earners (Heaton and Lucas, 2000; Moskowitz and Vissing-Jorgensen, 2000; Hamilton, 2000; Gentry and Hubbard, 2001; Parker, 2006; Fraser and Greene, 2006). The rationale behind this relationship is that the entrepreneurial decisions are much likely to be influenced by attitudes, emotional predispositions and cognitive biases (Arabsheibani et al., 2000; Puri and Robinson, 2005). Furthermore, the literature indicates that the self-employed are more likely to be risk-takers than the rest of the population, since they are faced with more uncertain future prospects and lifetime earnings profiles. The difficulty has always been how to measure optimism. Authors have used several proxies, such as measures related to life expectancy, questions about financial expectations about the following year, etc. We construct an index OPTIMISM, which is the weighted average of the intensity measured by a 4-scale response in eight questions from the General Health Questionnaire (GHQ), related to mental health and anticipatory feelings, and is associated with greater self entry.[9]

[9]We also used a broader measure of optimism, product of 16 GHQ questions, which did not change the main findings of the paper. See Table 3 for the list of questions.

Social capital is the set of social relationships an individual can draw on for various occasions.[10] As a proxy for social capital, others have used club membership, finding a positive effect on earnings from self-employment (Gomez and Santor, 2001). We construct a proxy for social capital considerations, NOSOCPTL using the average of two available questions: (i) "Is there anyone you can count on to listen to you when you need to talk?", and (ii) "Is there anyone who you can really count on to help you out in a crisis?" These variables proxy for social capital in terms of the help people can get from friends, neighbors and relatives. This is an "increased security effect", a psychological safety net in the light of risk-sharing (Ravallion and Lokshin, 2006).

The sociology literature has further stressed the role of family background in developing role models that can foster entrepreneurial aspirations. Empirical evidence on the impact of past parental entrepreneurial activity in the individual's current employment status is ample. However, the data does not provide us with parental occupational or educational status variables. In order to control for within family effects in self-employment transitions we examine the impact of the presence of another self-employed member in the household, OTHERSE. About 7% of the individuals in our sample have family members that are self-employed.

4.3 *Labor Market Experience*

Past employment experience has been shown to exert significant effects on current employment status (i.e. Jovanovic's, 1982, "ability learning" view). In addition, paid employment experience - particularly in small firms due to human capital acquisition (Lucas, 1978) – has been shown to have positive effects on the probability of becoming self-employed and obtaining higher entrepreneurial income (Boden, 1996).

The role of informal sector experience in entry into self employment and its success is still being debated, which is an issue we also examine here. Whether prior experience in "gray" or "unofficial" markets provides valuable human capital after economic liberalization has implications for evaluation of the role of the informal economy in the process of economic development (Kaufmann & Kaliberda, 1996;

[10] For a review of literature on social capital and economic development, see Woolcock, 2002; 2005.

Johnson, Kaufmann and Shleifer, 1997).[11] For instance, in economies under transition, the regulatory environment might not foster formal entrepreneurship and entrepreneurial individuals might choose to operate in the informal sector or shadow economy. In addition, institutions such as labor unions, minimum wage legislation and public sector hiring practices tend to keep formal sector wages in urban areas above market-clearing levels, and the low-productivity informal sector provides a subsistence shelter for unmatched employees (Harris and Todaro, 1970). Thus, while on the one hand, the informal sector can work as an outlet from unemployment or poverty and an entry point to entrepreneurial activity, it also creates impediments to growth through tax evasion and unfair competition to the formal sector. Furthermore, the informal sector is characterized by low-pay and low job security among its employees and large-extent informality in an economy is an indicator of corruption, poor regulatory, financial and labor market environment. However, departing from Lazear's (2004) view of entrepreneurs as "jacks of all trades", one could perceive informal sector as an incubator for formal sector entrepreneurship when the business environment improves.

We test the importance of past labor market experience in the decision to become self-employed and the individuals success as an entrepreneur. We summarize the results shown in Table 2 with the following dummies: EMPLOYED, equal to 1if the individual was in paid employment in 2001; FORMAL, equal to 1if the individual was a formal sector employee in 2001; INFORMAL, equal to 1 if the individual was an informal sector employee in 2001; NONEMPLOYED, equal to 1 if the individual was not in paid employment in 2001; UNEMPLOYED, equal to 1 if the individual was involuntarily unemployed in 2001; and INACTIVE, equal to 1 if the individual was voluntarily unemployed (declared status as student, retired, or housewife) in 2001.

In some specifications we also control for how much the individual must give up in order to start their own business. We include HINSUR and PENSION, which equal 1 if the individual received in 2001 a pension or health insurance, respectively, from the Employment Bureau. About 75% of individuals received health insurance and 34%

[11] Blau (1985) reviews the theoretical framework for a role for an informal sector in less developed countries.

received a pension. We hypothesize that individuals receiving such benefits might be less likely to leave secure jobs and take on the risk of self-employment.

4.4 *Wealth, Access to Finance and Financial Institutions*

An important branch of the literature on entrepreneurship has examined the links between wealth and entrepreneurship. For instance, Evans and Jovanovic (1989) argue that borrowing constraints imply that personal assets will be positively related to the propensity of individuals to engage in entrepreneurial activities. Survey evidence from Thai households indicates that individuals who switch to self-employment are more likely to be wealthier (Paulson and Townsend, 2004). However, wealth is also likely to be endogenous, since entrepreneurs have greater savings and shareholdings relative to the general population (Bitler, et al., 2005; Heaton and Lucas, 2000). Quadrini (2000) suggests that entrepreneurs might save more in order to finance new and future ventures as well as to create a cushion to protect against business risks. Empirical evidence indicates instrumented wealth is insignificantly related to entrepreneurship (Hurst and Lusardi, 2004; Hochguertel, 2005). However, tackling the endogenous nature of wealth, a number of papers examine the effect of "windfall gains" on entrepreneurship. Empirical evidence from Sweden, U.K. and the U.S. indicate individuals winning the lottery or receiving an inheritance are more likely to enter self-employment and remain successfully self-employed (Lindh and Ohlsson, 1996; Taylor, 1999; Blanchflower and Oswald, 1998; Holtz-Eakin et al., 1994a; 1994b).

The wealth proxy we use is equivalized per capita household consumption, LHHCONS, which is calculated by adjusting household consumption to the number of equivalent adults.[12] The use of household consumption expenditure, deflated at the regional level, is preferred to income, since consumption is more likely to be smoothed by individuals. Furthermore, in transition countries, income under-reporting and non-

[12] For full information concerning welfare in Bosnia and Herzegovina and the construction of the 2001 consumption aggregates, see "Welfare in Bosnia and Herzegovina, 2001: Measurement and Findings", 2001. Two important dimensions of the calculations are that imputed values of the consumption flow associated with the possession of a consumer durable are included in the calculations, while expenditure on the purchase of the durable good is excluded. Furthermore, expenditures that reflect differences in tastes are excluded.
The equivalized measure is calculated by adjusting household consumption to the number of equivalent adults: $EA=(A+aK)^{\theta}$, where A: number of adults; K: number of children; a: economies of scale parameter; θ: share of public goods consumed parameter.

reporting biases the calculations based on income. We therefore utilize household consumption in the beginning of the panel as an indicator of overall financial wealth. Using other wealth proxies, such as those that reflect property ownership or the ability to "make ends meet", do not change our main results.

While there is significant evidence on the positive impact of wealth (i.e., credit constraints) on entrepreneurial activity, empirical evidence on the role of financial institutions is relatively scarce. Notably, Paulson and Townsend (2004) examine the impact of particular financial institutions on overcoming financial constraints and starting a business. Departing from their work, we utilize household affiliation with particular financial institutions and sources of finance in the past and examine their impact on the likelihood of starting a new business. The role of financial institutions is of particular interest in transition economies where the financial sector has undergone major reforms, and in BiH in particular, where the creation of microfinance institutions has been financed and advertised by most major international financial institutions. The anecdotal evidence is that in BiH working capital finance is widely available, but quite expensive and the availability of start-up loan and equity is still problematic.[13] Microcredit institutions on the other hand, target specific groups of the population. We include a dummy MICROLOAN equal to 1 if the household received a loan from a microinstitution (such as a credit union, cooperative or NGO) in 2001. We also identify households that received a loan from a bank or government agency in 2001, BANKLOAN, and households that received a loan from a family member, friend or other individual in 2001, INFORMLOAN. Despite various initiatives, only about 2.5% of our sample are members of households that received microloans, while about 17% of individuals receive informal loans and about 12% of individuals receive bank loans.

Another important feature of the BiH economy, on which empirical evidence has also been scarce, is the impact of international remittances on the local economy. In general, past evidence suggests that the effect of remittance receivership on

[13] In a Survey of 800 SMEs in FBiH, the World Bank (2002) reports the 10 most important barriers to SME development as: the high payroll taxes and social security contributions, the high income and profit taxes, the difficulty in access (loans, venture capital, equity capital) and the high cost of finance, bureaucracy, lack of trust in the economy, the state and its services. Previous work on BiH has identified administrative barriers to business creation as among the worst in the region. It has been described as "a labyrinth of formal and informal rules" (FIAS, 2001). Financial constraints, especially the lack of start up funds, seem to pose serious constraints on the establishment of new businesses.

entrepreneurial activity is ambiguous. It has been argued that remittances and aid are not conducive to entrepreneurship or private sector development and reduce labor supply. These have been framed as "disincentive effects" (Ahlburg, 1995) or "crowding-out effects" (Connell and Brown, 2005). On the other hand, there is also evidence that remittances can support private sector development. In a case study for Managua (Nicaragua), Funkhouser (1992) finds that remittances increase participation in self-employment, but reduce overall labor-force participation. Evidence from Philippines suggests remittance receivership reduces labor supply (Rodriguez and Tiongson, 2001). Amuedo-Dorantes and Pozo (2006) present evidence from Mexico, and after accounting for endogeneity in remittance receivership, show that its impact may vary by gender, region and sector. Thus, remittances in Mexico appear to reduce male formal sector labor supply, as well as that of the self-employed. On the contrary, its impact on informal sector labor supply is positive. Muço et al. (2004) find evidence from Albania that the informal sector is fuelled by remittance flows from emigrants living permanently abroad and by the earnings from short-term, temporary migration. A challenge in this literature is that remittances are often channeled through the informal currency market, making it hard to detect their size and direct influence.

The number of immigrants from BiH to the West has been large and estimates indicate that during the war around a million people sought new homes around the world. We directly test the effect of remittances on the switch to self-employment with two dummies which importantly distinguish between international and domestic remittances: REMITDOM, which equals 1 if the individual belongs to a household that received any money, gifts, or services from friends or family working in BiH; and REMITABROAD, which equals 1 if the household receives money, gifts or services from friends or family working abroad in 2001. Our estimates indicate that 8.5% of households in the sample receive some form of remittance domestically and 11.5% from abroad. We also identify individuals that receive money from humanitarian and religious institutions that do not need repayment, GRANT. These are of specific interest, because they include grants from foreign NGOs and citizen associations provided specifically to promote self employment and entrepreneurship (Lyman, 2005). Finally, we include SOCIALSERV,

equal to 1 if a member of the individual's household received financial assistance, such as payments from an old age or war veteran's pension in 2001.

Finally, we construct our indicators of the switch to self-employment. Our primary dependent variable is NEWSE, equal to 1 if an individual switched to self-employment in 2002, 2003, or 2004. We also construct NEWSE-OA, equal to 1 if an individual switched to own account self-employment after 2001 and NEWSE-EMPL, equal to 1 if an individual switched to self-employment with employees after 2001. Within this later category we further distinguish EMPLY_1-5, a dummy equal to 1 if the entrepreneurs has 1 to 5 employees and EMPLY_5-20, equal to 1 if the entrepreneur has between 5 and 20 employees (EMPLY_>20 is the excluded category). Finally, we create a dummy, SURVIVE, to identify new self-employed firms that survive more than one year.

4.5 *Results*

We model the decision to become self-employed in the years 2002-2004 in the multivariate probit framework, excluding individuals already self-employed in 2001. Thus, the choice of entering self-employment may be defined by the latent variable SET*:

$$SET_i^* = x_{1i}\beta_1 + \varepsilon_{1i} \qquad (1)$$

where the transition to self-employment is made (SET_i=1) if $SET_i^* > 0$, and not otherwise; x_{1i} is a vector of explanatory variables; β_1 a vector of unknown parameters to be estimated; and $\varepsilon_1 | x_1 \sim N(0,1)$.

The list of explanatory variables involves demographic, psychological and sociological characteristics described in the last section and summarized in Table 3. In separate specifications, we examine the impact of household financial wealth, the relationship with financial institutions, as well as recent labor market history.

Table 5 presents univariate analysis results, in terms of the differences in the means between individuals who were not self-employed in 2001 but chose to become self-employed in the following years and those who did not. Married men and urban residents are more likely to make the transition into self-employment.[14] Individuals who become self-employed tend to be better educated and assess themselves to be in better

[14] The number of new entrepreneurs does not significantly differ by ethnicity: Bosnian, Croatian, Serbian or other (not shown).

health. Self-employed also significantly differ based on the optimism index and social capital variables, indicating that the new entrepreneurs had been more optimistic and had several more people around them to count on for support.

Self-employed are also more likely to transition from employment in the informal sector and to have someone else in their current household that is self-employed. Individuals who were unemployed or inactive in 2001 are less likely to switch to self-employment at any point in the panel. The differences between new entrepreneurs and non-entrepreneurs with respect to past household wealth and multiple property ownership are statistically significant, indicating a positive effect of own wealth in the self-employment transition. When it comes to the variables proxying for affiliation with financial institutions in the past, interestingly there are no differences between the groups, with respect to loan receivership either from banks or microcredit institutions or from informal sources. This suggests that entry into self-employments might be financed with personal wealth as opposed to loans from formal or informal financial institutions. The univariate tests also suggest that individuals who receive remittances – particularly from abroad- or social benefits are less likely to become self-employed.

Next, we examine which of these interesting patterns persist in a multivariate analysis setting. Tables 6, 7 and 8 show our regression results for the determinants of the transition to self-employment in BiH in the years after 2001. The estimation method is a probit model in which the dependent variable takes the value 1 for individuals not self-employed in 2001, becoming self-employed in the years 2002, 2003 and 2004. The estimations are all non-linear forms with binary dependent variables (0/1), so we report marginal effects instead of coefficients for the explanatory variables, to facilitate evaluation of the magnitudes of their effects. For each of the dummy variables in our specifications, the reported marginal effect is the difference in predicted value for the dependent variable (e.g. transition to self-employment) for a dummy value of 1 versus 0, with all other explanatory variables at their means. For the continuous explanatory variables in our specifications, the reported marginal effects are the derivatives of the predicted dependent variable for small changes in the exogenous variables. Robust z-statistics of the coefficients are reported in absolute values. Standard errors were

clustered at the household level in estimates for all individuals at working age, to correct for intra-household correlations.

Table 6 introduces the main specification, with individual and household characteristics (column 1), household wealth – measured as household consumption in 2001 (column 2), past employment status (column 3), interactions between the latter 2 (column 4) and customer affiliation with financial institutions (columns 5-7). Results in the first two columns of Table 6 are consistent with the earlier differences in the means. The profile of the newly self-employed is more likely to be male, aged 43, residing in an urban area, married with some formal education, in good health, and with past self-employment experience. Interestingly, the effects of the proxies for optimism and social capital persist, and are significant both when included together and separately. More optimistic individuals are more likely to turn into self-employment, as well as people who have a social support group in the time of need. The inclusion of the household consumption variable in Column 2 indicates a significant positive effect of past wealth on current self-employment. This suggests that self-employed rely on their own financial means in making their decision.

Confirming the findings of the earlier literature that own financial wealth is a significant determinant of the decision to become self-employed, in columns 5-7 we extend our analysis by incorporating customer affiliation with financial institutions and the relationship with informal sources of finance, prior to becoming an entrepreneur. These are dummy variables capturing the affiliation of the household with formal and informal loan sources, domestic remittances, remittances from abroad, and charity/NGO money and financial social benefits[15]. Interestingly, our results indicate that the decision to become an entrepreneur is unrelated to an existing relationship with financial institutions, confirming that these institutions rarely finance entry into self-employment. However, remittances from abroad exhibit a significantly negative effect on the

[15] Since receivership of several types of loans and remittance money are not mutually exclusive, we have also conducted the analysis incorporating one variable at a time. All results presented are robust to these separate specifications and are available upon request. The inclusion of interaction terms between wealth and the affiliation with financial institution renders insignificant estimates of these interaction terms. This is likely to reflect the general climate of distrust towards the financial institutions that exist in B&H. During the war all household savings vanished and after the war several informal pyramid schemes cost households money. Furthermore, the network of banks and microfinance institutions are still considered very expensive.

probability of an individual becoming self-employed, in accordance with the "disincentive effects" of remittances noted in the literature. This effect is economically significant – an individual who switches from not receiving overseas remittances to receiving payments is on average about 3.5% less likely to start a business. To the contrary, transfers from institutional sources, such as charities and potentially international NGO initiatives have a positive impact on the probability to become self-employed. These results hold with the inclusion of the wealth variable. This result is economically large – an unemployed individual who receives a grant is 13% more likely to become self-employed, while individuals employed in the formal and informal sector are 17% and 21% more likely to become self-employed, respectively (not shown). Finally, we fail to see a positive effect of informal financing mechanisms – from friends or family- or formal microfinance institutions.

In Table 7 we test the robustness of our results in three subsamples of individuals. First, in Columns 1 to 3, we include only the sample of the 2001 household heads. The complete sample is likely to contain individuals who move into self-employment because another member of the family became self-employed, or because they join a family firm. Since the dataset does not allow us to identify how many of the newly self-employed are actually new business owners, the examination of the latter group of household heads might be a more precise test of new business creation. We choose not to restrict the analysis only to this sample of household heads, however, since it does not always make sense to discard family workers from the group of self-employed, especially if they are paid or owners and co-owners of the enterprise. These share directly and indirectly the proceeds generated by the business and often significantly contribute to its operation and growth (Blanchflower, 2000). When we focus on the sample of household heads, all findings persist, except for the gender and education differentials. The former is likely to reflect the dominance of the household head group by men. Furthermore, more household heads appear to be initiating self-employment activities in RS. In addition, at the household head level, the effect of receiving overseas remittances is no longer significant, although the coefficient is still negative. However, transfers from NGOs continue to have a positive impact on self-employment in the sample of household heads.

Table 7, Columns 4 to 6 exclude the 207 formal farmers in our 201 sample and find that all prior results are robust. In particular, we find that self-employed individuals continue to be significantly more likely to transition from the informal sector, which suggests that this result is not driven by possible employment diversification of farmers. Table 7, Columns 7 to 8 restrict the analysis to the sample of individuals in paid employment in 2001, either formally or in the informal sector, from which almost 80% of the inflows to self-employment are derived. We see that all findings hold and are further reinforced in these specifications. Ceteris paribus, informal sector employees are more likely to enter self-employment compared to employees in paid employment. The inclusion of both past wealth and past employment status, together with an interaction term between the two terms render all three variables insignificant indicating a significant negative correlation between wealth and informal sector activity. With respect to sources of finance, examination of the sub-sample of individuals employed in 2001 reinforces the magnitude of the negative impact of remittances from abroad and the positive effect of charity/NGO money.[16]We also find evidence that bank loans are associated with entering self-employment with employers, which are likely to be larger firms that require greater up-front capital.

In Table 8 we show a multinomial analysis, where the dependent variable takes a value of 0 if the individual switches to self-employment with employees (NEWSE-EMP), a value of 1 if the individual switches to self-employment without employees (NEWSE-OA), and the value of 2 if the individual never switches to self-employment. In general, the results are consistent with Tables 6 and 7 and across entrepreneurs that are employers and own account. However, there are some interesting differences. For instance, only entrepreneurs with employees are significantly more optimistic, which might indicate the willingness to take a risk not only on your own behalf but also on the livelihood of others. In addition, only the own account entrepreneurs are less likely to receive a pension and only employers are significantly less likely to switch from unemployment; these results are consistent with our "pull" theory (discussed earlier), that smaller entrepreneurs might

[16] As a further robustness check (results not shown), we have excluded the 227 individuals who conducted agricultural activities in 2001, 10 of which became self-employed in later years. This is to examine whether farm diversification might have an impact on the results presented here. All findings of Table 6 remained in those specifications.

be those individuals with few other options. Finally, only employers are significantly less likely to receive remittances from abroad, which adds further evidence that remittances many not be used for productive purposes.

5. Firm Survival

5.1 *Self-employment Performance*

The literature has examined several definitions and measures of success and performance in self-employment, such as self-employment earnings (Schiller and Crewson, 1997; Burke et al., 2000), firm size - employment creation (Blüderl et al., 1992; Burke et al., 2000), firm growth (Cooper et al., 1994; Lerner, 1999), longevity in self-employment defined either as years of duration in business (Blüderl et al., 1992; Audretsch and Mahmood, 1995; Taylor, 1999; van Praag, 2003; Astebrö and Simons, 2003) or as survival during a particular time interval[17] (Bates, 1990; Cooper et al. 1994; Cressy, 1996; Schiller and Crewson, 1997; Blüderl and Preisendörfer, 1998; Astebrö and Bernhardt, 2003; Shutt and Sutherland, 2003; Baptista and Karaöz, 2006).

Given the particularities of BiH's labor market and business environment, the determinants of small business viability are of great interest to authorities, the international institutions that have been involved in reforming the regulatory environment, as well as commercially oriented institutions, such as banks and microcredit institutions. Ex ante evaluation of firm survival rates can offer information on which firms are more likely to survive and might worth funding with a loan or other sources of microfinance. Firms that survive the market selection process in the first years of existence are the ones the economy might actually benefit from (Baptista and Karaöz, 2006)

With respect to the individual-specific determinants of self-employment survival, the evidence is often mixed. Cooper et al. (1994) find that firms with a male entrepreneur have a greater probability of high growth, but not of survival. Other studies have shown that the probability of survival increases with firm's age (Evans, 1987), owner's age (Storey & Wynarczyk, 1996), and further with owner's age and education (Bates, 1990)

[17] van Praag (2003) further distinguishes between compulsory exits from membership in the self-employment community, failures and voluntary exits. The latter are not necessarily considered as business failure.

Furthermore, the size of the firm has shown to be positively related to survival in self-employment (Evans, 1987; Audretsch and Mahmood, 1995). Jovanovic has described that entrepreneurs with higher human capital might be faced with less uncertainty and learn faster about market conditions, adjusting capacity therefore reducing the probability of exit. Thus, effects of entrepreneurial human capital on the probability of new firm success may occur prior to the founding of the business. Moreover, educated people may be better able to detect profitable market opportunities and obtain the information set required to explore them more efficiently.

With respect to financial variables, the evidence is often also mixed: Using U.S. data, Holtz-Eakin et al. (1994) find that liquidity constraints play a key role in small firm viability; Astebrö and Bernhardt (2003) find a negative correlation between having a bank loan and small business survival and a positive correlation between having a non-bank loan and survival. In contrast, Cressy (1996) uses U.K. data to assert that the correlation between access to finance and survival is spurious, with human capital being the true driving force.

Concerning past employment history, if the main incentive for starting a business is a "pushing" mechanism out of unemployment-inactivity or self-subsistence activities, there may not be time to look for good opportunities, make detailed plans and seek for advice. Thus, independent from productivity and/or learning effects that occur after start-up, chances of survival may be affected by selection effects occurring prior to start-up (firms whose founder was previously unemployed might have a lower probability of survival). On the other hand individuals starting from employment are more likely to be in a position to raise more capital and set up larger and better equipped businesses (Colombo et al., 2004), based on their higher earnings and more prestigious professional status as employees.

Given the fact that our panel only covers the period 2001-2004, we examine the individual-specific determinants of survival in self-employment for more than one year[18]. Table 2 has already indicated that 47.8% of individuals (53.1% of household heads)

[18] Observations of an individual in self-employment for two consecutive years do not necessarily establish survival in the same entrepreneurial activity. In order to ensure that survival in self-employment is captured we consider as "survivors", individuals declaring their status as self-employed in at least two consecutive years and with activity tenure more than a year in the second year of observation.

becoming self-employed during the years 2002-2003 in BiH quit their new entrepreneurial venture during their first year of activity. It is well-known that new entrepreneurs bear the highest risk of failure during their first few years of activity (Parker, 2004). Although firm and sector-specific determinants are also of vital importance, the nature of the database only enables individual-specific analysis. The literature has emphasized that "*this focus on the individual as the level of analysis also enables one to cope with the growing recognition that entrepreneurship may be a "habitus" rather than a single-event action*" (Wright and Westhead, 1998; van Praag, 2003).

In order to examine the determinants of survival of the new self-employed within their first year in business, we employ a probit model with sample selection (van de Ven and van Praag, 1981)[19]. The model assumes that there is a set of underlying relationships:

$$\begin{aligned} SET_i^* &= x_{1i}\beta_1 + \varepsilon_{1i} \\ SES_i^* &= x_{2i}\beta_2 + \varepsilon_{2i} \end{aligned} \qquad (1)$$

where: subscript * indicates a latent variable; SET_i denotes the transition in self-employment for individual i, SES_i denotes survival for more than a year in self-employment, $\forall i = 1,2,...,N$; x_{1i} and x_{2i} are vectors of explanatory variables; β_1, β_2 are vectors of unknown parameters; and ε_1, ε_2 are assumed zero-mean, bivariate normal distributed error terms, with unit variances and a correlation coefficient ρ.

The dependent variables however are not always observed; rather the following binary outcomes are observed for the selection equation and the survival equation, respectively:

$$SET_i = \begin{cases} 1, \text{if } \mathrm{SET}_\mathrm{i}^* > 0 : \text{the individual becomes self - employed} \\ 0, \text{if } \mathrm{SET}_\mathrm{i}^* \le 0 : \text{the individual does not become self - employed} \end{cases}$$

$$SES_i = \begin{cases} 1, \text{if } \mathrm{SES}_\mathrm{i}^* > 0 : \text{the individual does survive the first year in self - employment} \\ 0, \text{if } \mathrm{SES}_\mathrm{i}^* \le 0 : \text{the individual does not survive the first year in self - employment} \end{cases}$$

[19] An interesting application in credit card loan defaults, conditional on credit card application acceptance is Greene (1992). Another application on loan defaults conditional on loan provision is Boyes, Hoffman and Low (1989). Ideally, one would model business longevity as months of duration in business. However, the nature of the dataset restricts our survival analysis into a one-year horizon.

Since we can only observe if the individual stops her self-employment activity if she has become self-employed (for a given individual, SES_i is not observed unless $SET_i=1$), there is not only a censoring rule for (SET_i, SES_i), but also an observation rule, giving rise to a set of three types of observations in the sample: (a) never became self-employed, (b) failed self-employed, (c) successful self-employed. The probability of each observation is:

$$SET_i=0: P(SET_i=0 \mid x_1, x_2) = 1 - \Phi(x_2'\beta_2)$$

$$SES_i=0, SET_i=1: P(SES_i=0, SET_i=1 \mid x_1, x_2) = \Phi_2[-x_1'\beta_1, x_2'\beta_2, \rho)$$

$$SESi=1, SETi=1: P(SESi=1, SETi=1 \mid x_1, x_2) = \Phi_2(x_1'\beta_1, x_2'\beta_2, \rho)$$

where Φ_2 is the cumulative bivariate normal distribution function and Φ is the standard cumulative normal. The log-likelihood is based on these probabilities. When $\rho \neq 0$, probit techniques applied to (1) yield biased estimates. The probit model with sample selection provides consistent, asymptotically efficient estimates for all the parameters in the model.

5.2 *Results*

In this section we examine the post-entry performance of individuals becoming self-employed in BiH during the period 2002-2003. Results in Table 9 present marginal effects from Heckman two-step probit equations.[20] In the first stage, we estimate the probability of becoming self-employed in the years 2002-2003. Our three main specifications are similar to those in Columns 3 to 6 of Table 6. In the second stage we estimate the probability of remaining self-employed in the year following that of transition. The dependent variable is a dummy variable coded 1 if the respondent remained self-employed in the following year and 0 if not. As identifying restrictions in the second stage equation, we exclude the variables capturing optimism and pension receivership. Besides satisfying the statistical criteria, it seems intuitive that those two variables, captured in the beginning of the panel, will have an effect on the decision to become self-employed, but will not affect entrepreneurial outcomes in any way. Wald χ^2 test-statistics testing the null hypothesis of independent equations reject the null in Table 9, rendering a positive correlation coefficient between the two equations. This indicates that unobserved variables such as ability, talent etc. that positively affect the decision to

[20] We also estimated a multinomial Probit (self-employed/survivor, self-employed/failed, not self-employed) and our main results are robust (not shown).

become self-employed also exhibit a positive impact on the survival chances of the new business ventures.

Income as measured by household consumption at the initial year in the panel has a persistently positive effect in the survival equation, indicating that higher potential of self-financing is an essential component of self-employment activity and longevity in BiH. Among the variables capturing sources of finance and membership in financial institutions, it is the bank loan variable that exerts a significantly positive effect in the survival equation. This finding is further reinforced by the positive impact of the variable capturing transfers from NGO programs. This could be attributed to the good screening mechanisms of the financial institutions with respect to the entrepreneurial prospects of the individuals they choose to finance. Hence, while the decision to become an entrepreneur is not related to financing from banks, the ability to survive is significantly increased by an existing relationship with a bank. Programs established to promote entrepreneurship appear to be successful in both promoting entry into self-employment and probability of success.[21] And consistent with our earlier findings, domestic remittances and charitable donations discourage entrepreneurship and do not improve probability of success.

Other results verify that men and urban area residents are more likely to survive the difficult first year in self-employment. A positive concave relationship exists with age, but the maximum occurs at a younger age compared to the first stage equation. Thus, while the maximum for self-employment transition is at the age of 40, the maximum in the survival equation occurs around the age of 35. Education increases the probability of survival ceteris paribus, and so do previous self-employment experience and the existence of another self-employed member in the household.

With respect to the past employment origins of the "survivors", the results indicate the presence of "pushing factors" and the motivation they entail for survival in self-employment. Thus, informal sector employees are more likely to become self-employed than formal sector employees, and further more likely to make it through their first year.

[21] This is consistent with Lerner (1999), which finds that awardees of a U.S. government program to finance small businesses experience faster growth and greater access to venture capital financing.

6. Concluding Remarks

We examine the factors affecting the transition to self employment and the viability of transitions in the short-run in BiH, employing a longitudinal household survey for the years 2001-2004. The study represents a natural experiment, since in 2000-2001 several regulatory changes concerning the financial and business environment, as well as the labor market were implemented to promote entrepreneurship. Although the aggregate proportion of the labor force self-employed did not increase over the sample period, examining transitions into self-employment at the individual and household level suggest that even after controlling for the role of individual and social characteristics, financing constraints played an important role in promoting entry into self-employment and its success. Specifically, wealthier households are more likely to become entrepreneurs and survive the early period in business, emphasizing the importance of internal finance. Variables indicating financial institution customer affiliation, in terms of loans from formal financial institutions, or even informal sources that one needs to repay, have insignificant impact on self-employment transitions, but a positive effect on sustainable self-employment. Particularly an existing prior relationship with a bank significantly increases the chances of survival for new entrepreneurs, suggesting that while banks rarely finance entry decisions, they are still instrumental in survival.

In contrast, we find that overseas – and in some case domestic – remittances significantly decrease the likelihood of becoming an entrepreneur. These results support the disincentive effects that were documented in the earlier literature. Interestingly, NGO and government supported programs that provide grants and transfers to promote entrepreneurship seem to have worked not only in promoting entrepreneurship but also its success, filling an important financing gap in the absence of more developed formal financial institutions. However, we fail to see a positive effect of informal financing mechanisms – from friends or family – or formal microfinance institutions.

Finally, our results indicate that individuals working in the informal sector are more likely to transition to formal sector self-employment and are more likely to be successful as entrepreneurs. These results support the perception of informal sector as an incubator for self-employment in the formal sector in the early years of transition,

through which individuals acquire skills that can facilitate their future entrepreneurial activities. Determinants of informality and of transition into formal sector employment – both as employers and employers – are important questions which we leave for future work.

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Table 1: Labor Force Composition in Bosnia and Herzegovina			
	BiH	**FBiH**	**RS**
Self-Employed	**4.76%**	**4.26%**	**5.35%**
Employers	*2.20%*	*2.05%*	*2.37%*
Own-Account	*2.56%*	*2.21%*	*2.98%*
Paid Employees	**52.75%**	**49.54%**	**56.60%**
Formal Sector	*31.71%*	*31.94%*	*31.43%*
Informal Sector	*21.04%*	*17.60%*	*25.17%*
Non-Employed	**42.49%**	**46.20%**	**38.05%**
Unemployed	*18.85%*	*18.69%*	*19.06%*
Inactive	*23.64%*	*27.51%*	*18.99%*
No. Observations	21,035	11,468	9,567
No. Individuals	5,599	3,085	2,530

Source: World Bank Living Standards Measurement Study (LSMS), (2001-04)

Table 2: New entrants to self-employment and exits of new entrants within one year (Individuals not self-employed in 2001)			
	New Entrants (%S.E.$_t$)	**Exits (%N.E.$_{t-1}$)**	**Survival (%N.E.$_{t-1}$)**
NEW SELF-EMPLOYED			
2002	112 (40.7%)		
2003	72 (27.5%)	41 (36.6%)	71 (63.4%)
2004	45 (21.8%)	47 (65.3%)	25 (34.7%)
Total BiH	**229**	**88 (47.8%)**	**96 (52.2%)**
Total FBiH	113	40 (42.6%)	54 (57.4%)
Total RS	116	48 (53.3%)	42 (46.7%)
EMPLOYERS			
2002	60 (21.8%)		
2003	25 (9.5%)	21 (35.0%)	39 (65.0%)
2004	13 (6.3%)	16 (64.0%)	9 (36.0%)
Total BiH	**98**	**37 (43.5%)**	**48 (56.5%)**
Total FBiH	48	17 (37.8%)	28 (62.2%)
Total RS	50	20 (50.0%)	20 (50.0%)
OWN-ACCOUNT			
2002	52 (18.9%)		
2003	47 (17.9%)	20 (38.5%)	32 (61.5%)
2004	32 (15.5%)	31 (66.0%)	16 (34.0%)
Total BiH	**131**	**51 (51.5%)**	**48 (48.5%)**
Total FBiH	65	23 (46.9%)	26 (53.1%)
Total RS	66	28 (56.0%)	22 (44.0%)

Source: World Bank Living Standards Measurement Study (LSMS), (2001-04)

Table 3: Variable names, definitions and sample averages (World Bank LSMS, 2001-04)			
Variable Name	**Definition**	***Mean***	***(S.D.)***
***Individual Characteristics*:**			
MALE	Dummy variable (DV=1/0) equal to 1 if respondent is male	51.3%	(0.50)
AGE	Age of the respondent in year 2001	35.80	(12.92)
FBiH	DV equal to 1 if respondent resides in Federation of Bosnia & Herzegovina (0 in Republica Srpska)	55.3%	(0.50)
URBAN	DV equal to 1 if respondent resides in a urban area	45.6%	(0.50)
MARRIED	DV equal to 1 if respondent is married or cohabiting in 2001	60.9%	(0.49)
LCHILDREN	Natural Logarithm of declared number of children (natural or not) plus 1	0.65	(0.59)
EDUCLOW	DV equal to 1 if respondent has no formal education or primary school education	34.3%	(0.47)
DISABLED	DV equal to 1 if respondent considers him/herself disabled	4.6%	(0.21)
GHEALTH	DV equal to 1 if respondent evaluates his/her health as good or excellent during the last 12 months, the two top categories in the 5-scale Subjective Health Evaluation Question	37.8%	(0.48)
DISPLACED	DV equal to 1 if respondent moved to his/her current place of residence because of: (a) the war, (b) property was occupied, (c) security reasons, (d) returnee, (e) property destroyed during the war, or respondent considers him/herself as permanently or temporarily displaced resident	32.0%	(0.47)
TRAINING	DV equal to 1 if respondent had any work-related training during the period 2001-2002	2.1%	(0.14)
PASTSE	DV equal to 1 if respondent's first occupation after school-leaving age was self-employed	2.2%	(0.15)
OPTIMISM	Index [0,1] produced as the weighted average of the intensity measured by a 4-scale response in 8 mental health questions from the GHQ: During the last week how often have you: (1) Felt low in energy, slowed down? (2) Accused yourself for different things? (3) Felt you lost appetite? (4) Felt hopeless in terms of the future? (5) Felt Lonely? (6) Thought about ending your life? (7) Felt that everything was an effort? (8) Constantly had nightmares?	90.2%	(0.11)
NOSOCPTL	DV , proxy for individual social capital, equal to 1 if individual responded "No" to either question: (1) "Is there anyone you can count of to listen to you when you need to talk?", (2) "Is there anyone who you can really count on to help you out in a crisis?"	19.6%	(0.40)
OTHERSE	DV equal to 1 if another member of the household is self-employed in 2001	6.7%	(0.25)
HINSUR	DV equal to 1 if respondent receives health insurance, either from work or the Employment Bureau	75.2%	(0.43)
PENSION	DV equal to 1 if respondent receives pension insurance, either from work or Employment Bureau, or Centre for Social Work	34.4%	(0.48)
Wealth and Financial Characteristics:			
LHHCONS	Natural Logarithm of Total per capita Household Consumption in 2001, deflated at the regional level by regional poverty line (Main Welfare Aggregate)	7.83	(0.52)
INFORMLOAN	DV (1/0) if a household member received a loan from a family member, friend or other individual in 2001	17.1%	(0.38)
MICROLOAN	DV (1/0) if a household member received a loan from a microfinance institution or microloan from a credit union, co-operative or NGO in 2001	2.5%	(0.16)
BANKLOAN	DV (1/0) if a household member received a loan from a private or government Bank in 2001	11.6%	(0.32)
REMITDOM	DV (1/0) if a household member received any money from friends or family working in BiH in 2001	8.5%	(0.28)
REMITABROAD	DV (1/0) if a household member received any money from friends or family working abroad in 2001	11.4%	(0.32)
GRANT	DV (1/0) if a household member received money from NGOs or charities in 2001	2.1%	(0.14)
SOCIALSERV	DV (1/0) if a household member received old age or disability pension, or survivors, war veterans, or war disability pensions from the Civil Victims of War Program in 2001	27.5%	(0.45)
***Employment Status in 2001*:**			
EMPLOYED	DV (1/0) if respondent was in paid employment in 2001 (formal or informal)	56.1%	(0.50)
FORMAL	DV (1/0) if respondent was a formal sector employee in 2001	35.2%	(0.48)
INFORMAL	DV (1/0) if respondent was employed in the informal sector in 2001	20.8%	(0.41)
NONEMPLOYED	DV (1/0) if respondent was not in paid employment in 2001 (formal or informal)	43.9%	(0.50)
UNEMPLOYED	DV (1/0) if respondent declared status as unemployed in 2001	18.8%	(0.39)
INACTIVE	DV (1/0) if respondent declared status as student/retired/housewife in 2001	25.1%	(0.43)
Switch to Self-Employment:			
NEWSE	DV (1,0) indicating that the individual switched to self-employment after 2001	4.29%	(0.20)
NEWSE-OA	DV (1,0) indicating that the individual switched to own-account self-employment after 2001	2.45%	(0.15)
NEWSE-EMPL	DV (1,0) indicating that the individual switched to self-employment with employees after 2001	1.84%	(0.13)
EMPL_1-5	DV (1/0) indicating self-employed with 1-5 employees	1.3%	(0.11)
EMPL_5-20	DV (1/0) indicating self-employed with 5-20 employees	0.3%	(0.05)
YEAR02	DV (1/0) indicating that the year of transition to self-employment was 2002	2.1%	(0.14)
YEAR03	DV (1/0) indicating that the year of transition to self-employment was 2003	1.3%	(0.12)

Table 4: Correlation matrix between key variables (World Bank LSMS 2001-04)

	NEW-SE	SURVIVE	MALE	FBiH	AGE	URBAN	MARRY	LCHILD	EDLOW	DISABL	OPTIM	NOSCPT	PENSION	LHHCONS	INFORMAL	UNEMPL	INFORM LOAN	MICRO LOAN	BANK LOAN	REMIT DOM	REMIT ABROAD	GRANT	SOCIAL SERV
NEWSE	1.00																						
SURVIVOR	.	1.00																					
MALE	0.08 [a]	-0.08	1.00																				
FBiH	-0.03 [c]	0.11	-0.003	1.00																			
AGE	0.03[b]	-0.03	0.02	-0.05[c]	1.00																		
URBAN	0.03[b]	0.17[b]	-0.02[c]	0.01	-0.02[c]	1.00																	
MARRIED	0.06[a]	0.08	-0.04[a]	-0.02[c]	0.49[a]	-0.05[a]	1.00																
LCHILDREN	0.05[a]	0.06	-0.09[a]	-0.02[c]	0.60[a]	-0.11[a]	0.67[a]	1.00															
EDLOW	-0.06[a]	-0.16[b]	-0.15[a]	-0.03[c]	0.20[a]	-0.32[a]	0.10[a]	0.19[a]	1.00														
DISABLED	-0.02	-0.05	0.08[a]	-0.01	0.13[a]	-0.03[b]	0.07[a]	0.10[a]	0.08[a]	1.00													
OPTIMISM	0.05[a]	0.001	0.09[a]	0.08[a]	-0.25[a]	0.05[a]	-0.07[a]	-0.15[a]	-0.18[a]	-0.16[a]	1.00												
NOSCPTL	-0.07[a]	0.01	0.04[a]	0.05[a]	0.07[a]	0.04[a]	-0.06[a]	-0.14[a]	0.02	0.01	-0.08[a]	1.00											
PENSION	0.01	0.09	0.14[a]	0.04[a]	0.33[a]	0.14[a]	0.15[a]	0.18[a]	-0.19[a]	0.05[a]	-0.03[c]	-0.01	1.00										
LHHCONS	0.09[a]	0.04	-0.01	-0.01	0.09[a]	0.11[a]	-0.04[b]	-0.06[a]	-0.13[a]	-0.02[c]	0.04[a]	-0.10[a]	0.17[a]	1.00									
INFORMAL	0.09[a]	-0.20[a]	0.08[a]	-0.14[a]	0.07[a]	-0.16[a]	0.04[a]	0.05[a]	0.16[a]	0.03[b]	-0.05[a]	0.02	-0.26[a]	0.01	1.00								
UNEMPLOYED	-0.10[a]	0.24[a]	-0.23[a]	0.13[a]	-0.28[a]	-0.01	-0.22[a]	-0.17[a]	0.11[a]	-0.03[c]	-0.01	0.003	-0.43[a]	-0.13[a]	-0.45[a]	1.00							
INFORMLOAN	-0.01	-0.02	0.01	-0.18[a]	0.01	-0.02[c]	0.04[a]	0.04[a]	0.03[b]	0.02[c]	-0.17[a]	0.01	-0.06[a]	0.04[a]	0.07[a]	-0.02[c]	1.00						
MICROLOAN	0.001	-0.01	0.001	0.01	-0.02	-0.002	0.003	0.01	-0.01	-0.01	-0.04[a]	-0.03[c]	0.03[c]	0.04[a]	0.01	-0.01	0.09[a]	1.00					
BANKLOAN	0.02	0.09	-0.01	0.13[a]	-0.02	0.07[a]	0.03[b]	0.04[a]	-0.07[a]	0.001	0.05[a]	-0.03[b]	0.12[a]	0.07[a]	-0.05[a]	-0.05[a]	0.03[b]	0.06[a]	1.00				
REMITDOM	-0.02[c]	-0.12	-0.03[b]	-0.03[b]	-0.02	-0.01	-0.02	0.02	0.001	0.02	-0.02	-0.03[b]	-0.05[a]	-0.01	-0.02[c]	0.07[a]	0.06[a]	0.002	0.02[b]	1.00			
REMITABROAD	-0.03[b]	0.02	-0.01	-0.10[a]	0.01	-0.001	0.02[c]	0.05[a]	-0.02	0.03[b]	-0.01	-0.06[a]	-0.02	0.03[b]	-0.01	0.03[b]	0.04[a]	0.01	-0.02	0.21[a]	1.00		
GRANT	0.01	0.07	-0.05[a]	0.01	-0.03[b]	-0.02	-0.06[a]	-0.02[c]	0.04[a]	-0.001	-0.04[a]	0.04[a]	-0.01	-0.06[a]	-0.03[b]	0.06[a]	0.04[a]	0.08[a]	-0.01	0.13[a]	0.09[a]	1.00	
SOCIALSERV	-0.02[c]	-0.12	-0.03[b]	-0.01	0.05[a]	0.001	-0.09[a]	0.03[b]	0.04[b]	0.11[a]	-0.15[a]	0.04[a]	0.13[a]	-0.02	0.02	0.10[a]	0.04[a]	0.03[c]	0.04[b]	0.06[a]	0.04[a]	0.07[a]	1.00

Source: World Bank LSMS (2001-04). See Table 3 for variable definitions.

Table 5: Sample averages and mean differences								
	NEWSE [229]	**NEWSE-EMPL [98]**	**NEWSE-OA [131]**	**Never Self-Emp [5,108]**	**t-test: SE (1) vs. (4)**		**t-test (2) vs. (3)**	
	(1)	(2)	(3)	(4)	(5)		(6)	
Individual and Household Characteristics:								
MALE	69.00%	60.20%	75.57%	50.49%	5.50	***	-2.51	**
AGE	37.67	37.81	37.57	35.71	2.25	**	0.16	
FBiH	49.34%	48.98%	49.62%	55.62%	-1.87	*	-0.10	
URBAN	51.09%	55.10%	48.09%	43.75%	2.19	**	1.05	
MARRIED	75.55%	78.57%	73.28%	60.28%	4.64	***	0.92	
LCHILDREN	0.79	0.77	0.80	0.65	3.42	***	-0.46	
EDLOW	21.83%	17.35%	25.19%	34.83%	-4.06	***	-1.42	
DISABLED	2.62%	1.02%	3.82%	4.70%	-1.47		-1.31	
GHEALTH	49.34%	59.18%	41.98%	37.24%	3.70	***	2.60	***
DISPLACED	34.50%			31.91%	0.82			
TRAINING	2.62%	3.06%	2.29%	2.09%	0.54		0.36	
PASTSE	12.23%	14.29%	10.69%	1.70%	10.85	***	0.82	
OPTIMISM	92.50%	93.48%	91.76%	90.07%	3.35	***	1.59	
NOSCPTL	6.11%	9.18%	3.82%	20.22%	-5.27	***	1.68	*
PENSION	36.24%	47.96%	27.48%	34.30%	0.61		3.25	***
INFORMAL	37.55%	23.47%	48.09%	20.09%	6.39	***	-3.92	***
UNEMPLOYED	21.40%	20.41%	22.14%	44.95%	-7.06	***	-0.31	
OTHSE	16.59%	13.27%	19.08%	6.25%	6.15	***	-1.17	
HSOWN	69.87%	72.45%	67.94%	67.80%	0.66		0.73	
PROPERTY	22.71%	20.41%	24.43%	16.64%	2.40	**	-0.72	
LHHCONS	8.04	8.13	7.96	7.82	6.16	***	2.47	**
Wealth and Financial Characteristics:								
INFORMLOAN	16.16%	10.20%	20.61%	17.17%	-0.40		-2.13	**
MICROLOAN	2.62%	3.06%	2.29%	2.55%	0.07		0.36	
BANKLOAN	13.97%	20.41%	9.16%	11.51%	1.14		2.45	**
REJLOAN	11.35%	8.16%	13.74%	10.57%	0.38		-1.32	
REMITDOM	5.24%	3.06%	6.87%	8.59%	-1.79	*	-1.28	
REMITABROAD	6.99%	2.04%	10.69%	11.57%	-2.14	**	-2.56	**
GRANT	2.62%	2.04%	3.05%	2.06%	0.59		-0.47	
SOCIALSERV	22.71%	20.41%	24.43%	27.68%	-1.65	*	-0.72	
Interactions								
LHHCONS*INFORMAL	3.02	1.95	3.82	1.55	6.88	***	-3.68	***
LHHCONS*UNEMPLOYED	1.74	1.66	1.80	3.46	-6.61	***	-0.30	

* p<0.10, ** p<0.05, *** p<0.01
Source: World Bank LSMS (2001-04). See Table 3 for variable definitions.

Table 6: The determinants of the transition to self-employment
Probit regressions, dependent variable: (1/0) New self-employed/Not

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
MALE	0.028	0.030	0.022	0.023	0.029	0.030	0.022
	[5.93]***	[6.11]***	[4.88]***	[4.95]***	[6.01]***	[6.21]***	[4.98]***
FBiH	-0.006	-0.006	-0.003	-0.003	-0.007	-0.007	-0.005
	[1.29]	[1.16]	[0.72]	[0.56]	[1.53]	[1.47]	[0.98]
AGE	0.006	0.006	0.005	0.004	0.006	0.006	0.005
	[4.45]***	[4.07]***	[3.60]***	[3.19]***	[4.53]***	[4.17]***	[3.72]***
AGESQ/1,000	-0.070	-0.069	-0.057	-0.053	-0.069	-0.069	-0.056
	[4.16]***	[3.96]***	[3.40]***	[3.16]***	[4.22]***	[4.07]***	[3.52]***
URBAN	0.008	0.008	0.010	0.009	0.008	0.007	0.009
	[1.69]*	[1.65]*	[1.99]**	[1.93]*	[1.58]	[1.51]	[1.89]*
MARRIED	0.010	0.012	0.009	0.011	0.010	0.013	0.009
	[1.54]	[1.79]*	[1.44]	[1.71]*	[1.62]	[1.94]*	[1.52]
LCHILDREN	0.002	0.005	0.002	0.005	0.002	0.005	0.002
	[0.31]	[0.82]	[0.40]	[0.79]	[0.28]	[0.85]	[0.34]
EDUCLOW	-0.015	-0.013	-0.015	-0.013	-0.015	-0.013	-0.015
	[3.00]***	[2.54]**	[3.28]***	[2.85]***	[3.11]***	[2.66]***	[3.39]***
DISABLED	-0.017	-0.016	-0.017	-0.015	-0.016	-0.015	-0.016
	[2.53]**	[2.30]**	[2.79]***	[2.57]**	[2.47]**	[2.23]**	[2.80]***
PASTSE	0.190	0.178	0.155	0.144	0.186	0.174	0.150
	[4.33]***	[4.01]***	[3.80]***	[3.52]***	[4.27]***	[3.94]***	[3.73]***
OPTIMISM	0.062	0.051	0.061	0.048	0.060	0.047	0.059
	[2.61]***	[2.08]**	[2.64]***	[2.10]**	[2.58]***	[1.96]*	[2.59]***
NOSOCPTL	-0.025	-0.024	-0.024	-0.022	-0.026	-0.025	-0.024
	[5.91]***	[5.42]***	[5.86]***	[5.40]***	[6.43]***	[5.98]***	[6.38]***
PENSION	-0.011	-0.014	-0.008	-0.010	-0.012	-0.015	-0.009
	[2.29]**	[2.94]***	[1.31]	[1.66]*	[2.64]***	[3.34]***	[1.48]
OTHERSE	0.061	0.050	0.060	0.047	0.060	0.048	0.059
	[3.63]***	[3.27]***	[3.67]***	[3.28]***	[3.55]***	[3.17]***	[3.60]***
LHHCONS	-	0.021	-	0.011	-	0.022	-
		[4.59]***		[1.64]		[4.88]***	
INFORMAL	-	-	0.019	-0.016	-	-	0.020
			[2.05]**	[0.29]			[2.07]**
UNEMPLOYED	-	-	-0.012	-0.288	-	-	-0.011
			[1.75]*	[1.40]			[1.68]*
LHHCONS*INFORMAL	-	-	-	0.004	-	-	-
				[0.44]			
LHHCONS*UNEMPLOYED	-	-	-	0.022	-	-	-
				[2.19]**			
INFORMLOAN	-	-	-	-	-0.002	-0.005	-0.002
					[0.32]	[0.84]	[0.39]
MICROLOAN	-	-	-	-	-0.005	-0.006	-0.007
					[0.43]	[0.59]	[0.76]
BANKLOAN	-	-	-	-	0.010	0.009	0.009
					[1.21]	[1.03]	[1.15]
REMITDOM	-	-	-	-	-0.009	-0.008	-0.008
					[1.44]	[1.26]	[1.25]
REMITABROAD	-	-	-	-	-0.012	-0.013	-0.012
					[2.20]**	[2.50]**	[2.21]**
GRANT	-	-	-	-	0.069	0.091	0.076
					[1.92]*	[2.16]**	[1.97]**
SOCIALSERV	-	-	-	-	-0.0003	0.001	-0.00003
					[0.05]	[0.14]	[0.01]
No. of Individuals	5,277	5,051	5,277	5,051	5,277	5,051	5,277
Observed Transitions	229	228	229	228	229	228	229
Pseudo R2	0.121	0.131	0.135	0.146	0.129	0.141	0.143
Log-Likelihood	-827.9	-807.2	-815.4	-793.5	-820.6	-798.4	-807.8
Log-Lik. at 1st iteration	-942.4	-929.1	-942.4	-929.1	-942.4	-929.1	-942.4
Wald x2	194.9***	192.2***	213.5***	214.8***	223.2***	218.0***	235.9***

* p<0.10, ** p<0.05, *** p<0.01
Marginal Effects and Robust z-statistics of the coefficients, in absolute values, are presented in parentheses.
Standard Errors are clustered at the household level.
For dummy variables, the difference in the predicted value of the dependent variable for discrete changes (0 → 1) is reported.
Continuous variables are evaluated at their means.
Source: World Bank LSMS (2001-04). See Table 3 for variable definitions.

Table 7: Robustness Regressions

[Probit regressions, dependent variable: (1/0) New self-employed/Not]

	Household Heads			Excluding Farmers			Employed in 2001	
	(1)	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*	*(1)*	*(2)*
MALE	0.010	0.014	0.009	0.023	0.031	0.022	0.033	0.030
	[0.63]	[0.93]	[0.56]	[4.91]***	[6.19]***	[4.89]***	[4.38]***	[4.06]***
FBiH	-0.013	-0.018	-0.012	-0.001	-0.006	-0.003	-0.004	-0.004
	[1.33]	[1.83]*	[1.24]	[0.33]	[1.19]	[0.76]	[0.44]	[0.54]
AGE	0.007	0.008	0.007	0.004	0.006	0.005	0.004	0.006
	[1.83]*	[2.21]**	[1.88]*	[3.06]***	[4.11]***	[3.65]***	[1.59]	[2.27]**
AGESQ/1,000	-0.090	-0.103	-0.086	-0.052	-0.069	-0.055	-0.053	-0.066
	[1.99]**	[2.39]**	[1.97]**	[2.97]***	[3.98]***	[3.39]***	[1.66]*	[2.20]**
URBAN	0.023	0.020	0.023	0.009	0.008	0.009	0.020	0.021
	[2.14]**	[1.98]**	[2.25]**	[1.89]*	[1.56]	[1.86]*	[2.22]**	[2.43]**
MARRIED	0.030	0.035	0.033	0.014	0.016	0.012	0.021	0.018
	[2.44]**	[2.96]***	[2.69]***	[2.25]**	[2.49]**	[2.06]**	[2.00]**	[1.82]*
LCHILDREN	-0.001	-0.002	-0.014	0.002	0.002	-0.001	0.006	0.002
	[0.09]	[0.19]	[1.26]	[0.34]	[0.34]	[0.18]	[0.58]	[0.21]
EDUCLOW	-0.016	-0.012	-0.020	-0.012	-0.013	-0.014	-0.014	-0.020
	[1.54]	[1.18]	[2.02]**	[2.54]**	[2.57]**	[3.14]***	[1.53]	[2.31]**
DISABLED	-0.030	-0.031	-0.034	-0.016	-0.016	-0.016	-0.017	-0.020
	[2.56]**	[2.63]***	[3.33]***	[2.73]***	[2.31]**	[2.82]***	[1.21]	[1.61]
PASTSE	0.074	0.100	0.089	0.183	0.212	0.181	0.148	0.143
	[1.83]*	[2.12]**	[1.99]**	[3.51]***	[3.87]***	[3.67]***	[3.25]***	[3.23]***
OPTIMISM	0.127	0.114	0.117	0.050	0.049	0.064	0.064	0.089
	[2.72]***	[2.42]**	[2.45]**	[2.19]**	[2.06]**	[2.81]***	[1.51]	[2.17]**
NOSCPTL	-0.019	-0.024	-0.024	-0.021	-0.024	-0.023	-0.040	-0.039
	[1.48]	[2.04]**	[2.07]**	[5.06]***	[5.78]***	[6.06]***	[5.18]***	[5.39]***
PENSION	-0.013	-0.041	-0.010	-0.011	-0.017	-0.010	-0.036	-0.015
	[1.01]	[3.43]***	[0.74]	[1.87]*	[3.69]***	[1.65]*	[3.85]***	[1.25]
OTHERSE				0.044	0.045	0.056	0.069	0.077
				[3.16]***	[3.04]***	[3.46]***	[2.67]***	[2.90]***
LHHCONS	0.023	0.042		0.011	0.022		0.025	
	[1.65]*	[4.38]***		[1.61]	[4.93]***		[3.11]***	
INFORMAL	-0.093		0.063	-0.027		0.022		0.029
	[1.24]		[2.83]***	[0.78]		[2.10]**		[2.23]**
UNEMPLOYED	-0.055		-0.008	-0.311		-0.011		
	[0.48]		[0.53]	[1.39]		[1.65]*		
LHHCONS*INFORMAL	0.025			0.007				
	[1.23]			[0.73]				
LHHCONS*UNEMPLOYED	0.010			0.022				
	[0.37]			[2.20]**				
INFORMLOAN		-0.021	-0.019		-0.003	-0.0005	-0.011	-0.007
		[1.95]*	[1.78]*		[0.52]	[0.08]	[1.11]	[0.70]
MICROLOAN		0.022	0.007		-0.005	-0.006	0.008	0.004
		[0.58]	[0.24]		[0.45]	[0.63]	[0.32]	[0.17]
BANKLOAN		-0.012	-0.010		0.007	0.008	0.003	0.005
		[0.90]	[0.70]		[0.81]	[0.97]	[0.27]	[0.38]
REMITDOM		0.010	0.011		-0.011	-0.010	-0.009	-0.009
		[0.47]	[0.55]		[1.82]*	[1.66]*	[0.62]	[0.70]
REMITABROAD		-0.017	-0.013		-0.015	-0.014	-0.023	-0.022
		[1.50]	[1.06]		[3.00]***	[2.73]***	[2.48]**	[2.43]**
GRANT		0.160	0.176		0.101	0.082	0.142	0.109
		[1.91]*	[2.01]**		[2.23]**	[2.02]**	[1.72]*	[1.49]
SOCIALSERV		0.019	0.012		0.0003	-0.0004	-0.002	-0.005
		[1.46]	[0.93]		[0.06]	[0.09]	[0.26]	[0.54]
No. of obs.	1,839	1,839	1,842	4,824	4,824	5,050	2,856	2,967
No. of households				2,182	2,182	2,368	1,760	1,855
Pseudo R2	0.11	0.109	0.109	0.154	0.149	0.151	0.101	0.098
Log-Likelihood	-392.4	-392.9	-392.9	-748.5	-752.8	-762.4	-601.6	-612.5
Log-Likelihood at 1st iteration	-440.9	-440.9	-441.1	-885.1	-885.1	-898.3	-669.1	-678.8
Wald x2	96.5***	82.6***	108.3***	212.9***	212.7***	234.2***	113.4***	116.1***

Source: World Bank LSMS (2001-04). See Table 3 for variable definitions.

Table 8: Multinomial probit regressions
Dependent variable: (1) New S.E. employer, (2) New S.E. own-account (3) Never S.E.

	(1)			(2)			(3)			(4)		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)
	EMPLOYERS	OWN ACCOUNT	NOT S.E.	EMPLOYERS	OWN ACCOUNT	NOT S.E.	EMPLOYERS	OWN ACCOUNT	NOT S.E.	EMPLOYERS	OWN ACCOUNT	NOT S.E.
MALE	0.005	0.024	-0.029	0.004	0.022	-0.027	0.005	0.024	-0.029	0.003	0.018	-0.021
	[1.91]*	[6.27]***	[6.25]***	[1.90]*	[6.17]***	[6.22]***	[2.05]**	[6.27]***	[6.45]***	[1.54]	[5.10]***	[5.12]***
FBiH	-0.003	-0.003	0.005	-0.005	-0.002	0.007	-0.004	-0.002	0.006	-0.004	0.000	0.004
	[1.08]	[0.75]	[1.25]	[1.84]*	[0.56]	[1.60]	[1.80]*	[0.57]	[1.51]	[1.54]	[0.09]	[1.07]
AGE	0.003	0.002	-0.005	0.003	0.002	-0.005	0.002	0.002	-0.005	0.002	0.002	-0.004
	[3.41]***	[2.54]**	[4.14]***	[3.60]***	[2.92]***	[4.52]***	[3.30]***	[2.71]***	[4.14]***	[3.13]***	[2.31]**	[3.79]***
AGESQ/1,000	-0.037	-0.029	0.065	-0.033	-0.029	0.062	-0.031	-0.029	0.061	-0.029	-0.022	0.051
	[3.45]***	[2.39]**	[4.04]***	[3.46]***	[2.68]***	[4.24]***	[3.35]***	[2.59]***	[4.05]***	[3.01]***	[2.18]**	[3.60]***
URBAN	0.004	0.003	-0.007	0.003	0.003	-0.007	0.003	0.004	-0.006	0.003	0.004	-0.008
	[1.33]	[1.01]	[1.60]	[1.23]	[1.00]	[1.53]	[1.10]	[1.03]	[1.45]	[1.27]	[1.32]	[1.80]*
MARRIED	0.007	0.004	-0.011	0.006	0.003	-0.009	0.007	0.004	-0.011	0.006	0.002	-0.008
	[2.14]**	[0.63]	[1.66]*	[2.02]**	[0.55]	[1.53]	[2.23]**	[0.79]	[1.79]*	[1.93]*	[0.52]	[1.50]
LCHILDREN	0.000	0.006	-0.006	-0.003	0.005	-0.002	0.000	0.006	-0.005	-0.002	0.004	-0.002
	[0.12]	[1.23]	[0.93]	[0.85]	[1.06]	[0.42]	[0.12]	[1.21]	[0.96]	[0.81]	[1.05]	[0.41]
EDUCLOW	-0.006	-0.006	0.012	-0.006	-0.007	0.013	-0.005	-0.006	0.011	-0.006	-0.007	0.013
	[2.03]**	[1.68]*	[2.56]**	[2.49]**	[2.01]**	[3.08]***	[2.14]**	[1.74]*	[2.63]***	[2.31]**	[2.45]**	[3.32]***
DISABLED	-0.009	-0.005	0.015	-0.009	-0.005	0.014	-0.008	-0.005	0.013	-0.008	-0.006	0.014
	[3.32]***	[1.00]	[2.39]**	[3.63]***	[0.98]	[2.40]**	[3.16]***	[0.93]	[2.13]**	[3.52]***	[1.44]	[2.95]***
PASTSE	0.094	0.077	-0.170	0.100	0.076	-0.176	0.084	0.077	-0.160	0.092	0.053	-0.145
	[2.98]***	[2.53]**	[3.92]***	[3.07]***	[2.59]***	[4.09]***	[2.79]***	[2.52]**	[3.76]***	[2.91]***	[2.17]**	[3.65]***
OPTIMISM	0.038	0.009	-0.047	0.036	0.018	-0.054	0.029	0.012	-0.041	0.034	0.018	-0.053
	[2.34]**	[0.61]	[2.10]**	[2.47]**	[1.22]	[2.59]***	[2.04]**	[0.78]	[1.94]*	[2.43]**	[1.25]	[2.57]**
NOSOCPTL	-0.005	-0.017	0.023	-0.007	-0.017	0.023	-0.005	-0.017	0.023	-0.007	-0.015	0.022
	[1.92]*	[5.84]***	[5.44]***	[2.84]***	[6.25]***	[6.57]***	[2.41]**	[6.07]***	[6.18]***	[2.93]***	[6.10]***	[6.48]***
PENSION	0.000	-0.013	0.013	0.000	-0.012	0.011	-0.001	-0.013	0.015	-0.002	-0.006	0.009
	[0.03]	[4.29]***	[3.06]***	[0.14]	[4.01]***	[2.76]***	[0.56]	[4.26]***	[3.57]***	[0.78]	[1.56]	[1.65]*
OTHERSE	0.007	0.041	-0.049	0.010	0.046	-0.056	0.005	0.042	-0.047	0.011	0.045	-0.056
	[1.30]	[2.95]***	[3.27]***	[1.69]*	[3.09]***	[3.53]***	[1.07]	[2.97]***	[3.18]***	[1.80]*	[3.10]***	[3.59]***
LHHCONS	0.012	0.007	-0.020	-	-	-	0.011	0.008	-0.019	-	-	-
	[4.53]***	[2.27]**	[4.67]***				[4.52]***	[2.53]**	[4.83]***			
INFORMAL	-	-	-	-	-	-	-	-	-	-0.002	0.021	-0.020
										[0.44]	[2.42]**	[2.06]**
UNEMPLOYED	-	-	-	-	-	-	-	-	-	-0.007	-0.002	0.009
										[1.96]**	[0.37]	[1.45]
INFORMLOAN	-	-	-	-0.005	0.003	0.001	-0.005	0.002	0.004	-0.005	0.003	0.002
				[1.77]*	[0.74]	[0.27]	[2.29]**	[0.39]	[0.72]	[1.84]*	[0.70]	[0.36]
MICROLOAN	-	-	-	-0.0001	-0.004	0.004	-0.001	-0.005	0.006	0.0001	-0.006	0.006
				[0.01]	[0.63]	[0.43]	[0.10]	[0.75]	[0.60]	[0.01]	[1.18]	[0.68]
BANKLOAN	-	-	-	0.010	-0.001	-0.008	0.008	-0.002	-0.006	0.009	-0.002	-0.008
				[1.75]*	[0.26]	[1.11]	[1.62]	[0.37]	[0.88]	[1.70]*	[0.33]	[1.08]
REMITDOM	-	-	-	-0.005	-0.004	0.009	-0.004	-0.004	0.008	-0.005	-0.003	0.008
				[1.43]	[0.98]	[1.66]*	[1.28]	[0.87]	[1.46]	[1.32]	[0.82]	[1.47]
REMITABROAD	-	-	-	-0.010	-0.001	0.011	-0.009	-0.002	0.011	-0.009	-0.001	0.011
				[4.56]***	[0.32]	[2.27]**	[4.68]***	[0.50]	[2.39]**	[4.48]***	[0.34]	[2.32]**
GRANT	-	-	-	0.023	0.039	-0.062	0.034	0.049	-0.083	0.024	0.045	-0.068
				[1.06]	[1.42]	[1.87]*	[1.23]	[1.54]	[2.12]**	[1.06]	[1.49]	[1.91]*
SOCIALSERV	-	-	-	-0.001	0.001	-0.00003	0.0001	0.001	-0.001	0.0001	-0.00004	-0.00004
				[0.22]	[0.19]	[0.01]	[0.03]	[0.24]	[0.21]	[0.03]	[0.01]	[0.01]
No. of Individuals	97	131	4,823	98	131	5,048	97	131	4,823	98	131	5,048
	5,051			5,277			5,051			5,277		
Log-Likelihood	-942.4			-951.4			-926.3			-935.4		
Wald x2	231.6***			281.9***			277.2***			312.5***		

Notes in Table 6 apply.
Source: World Bank LSMS survey (2001-04). See Table 3 for variable definitions.

Table 9: Business survival models, Heckman probit with selection (Sample I: Individuals aged 16-65)												
	Working Age Population								Employed in 2001			
	(1)		(2)		(3)		(4)		(5)		(6)	
	M.Eff.	z-stat	M.Eff.	z-stat	M.Eff.	z-stat	M.Eff.	z-stat	M.Eff.	z-stat	M.Eff.	z-stat
Survival Equation: [Dependent variable: Still Self-Employed one year after the transition/Not (1/0)]												
MALE	0.011	[1.13]	0.011	[1.33]	0.007	[2.06]**	0.007	[2.15]**	0.008	[2.03]**	0.005	[1.14]
AGE	0.004	[1.77]*	0.003	[1.16]	0.003	[3.42]***	0.002	[2.05]**	0.003	[2.37]**	0.001	[1.10]
AGESQ/1,000	-0.063	[2.06]**	-0.039	[1.37]	-0.039	[3.33]***	-0.028	[2.04]**	-0.038	[2.41]**	-0.018	[1.10]
FBiH	0.006	[0.72]	0.004	[0.58]	0.000	[0.04]	0.002	[0.52]	0.006	[1.29]	0.006	[1.31]
URBAN	0.018	[1.99]**	0.014	[1.64]	0.012	[2.98]***	0.011	[2.90]***	0.018	[2.90]***	0.016	[2.99]***
MARRIED	0.008	[0.72]	0.004	[0.47]	0.007	[1.70]*	0.006	[1.08]	0.006	[0.95]	0.000	[0.05]
LCHILDREN	0.011	[1.08]	0.013	[1.39]	0.001	[0.33]	0.003	[0.59]	0.005	[0.85]	0.008	[1.42]
EDUCLOW	-0.016	[1.69]*	-0.013	[1.69]*	-0.008	[2.11]**	-0.009	[1.94]*	-0.011	[1.71]*	-0.011	[1.68]*
DISABLED	-0.019	[1.18]	-0.015	[1.39]	-0.011	[3.10]***	0.001	[0.10]	-0.001	[0.11]	0.002	[0.13]
PASTSE	0.036	[1.14]	0.031	[1.05]	0.041	[3.27]***	0.044	[3.24]***	0.046	[2.88]***	0.032	[2.06]**
NOSOCPTL	-0.010	[0.80]	-0.014	[1.46]	-0.008	[2.32]**	-0.010	[2.50]**	-0.011	[2.28]**	-0.013	[2.21]**
OTHERSE	0.058	[3.32]***	0.054	[3.40]***	0.029	[4.21]***	0.037	[5.41]***	0.046	[3.72]***	0.044	[3.83]***
LHHCONS	0.016	[2.14]**	0.014	[2.22]**								
INFORMAL					0.014	[2.72]***	0.012	[2.22]**	0.013	[2.45]**	0.015	[2.48]**
UNEMPLOYED					0.007	[1.70]*	0.008	[1.40]				
INFORMLOAN			0.000	[0.01]			0.000	[0.09]			0.003	[0.47]
MICROLOAN			-0.002	[0.10]			0.003	[0.31]			0.008	[0.61]
BANKLOAN			0.020	[1.65]*			0.007	[1.24]			0.014	[1.69]*
REMITDOM			-0.017	[1.79]*			-0.009	[1.52]			-0.006	[0.74]
REMITABROAD			-0.003	[0.22]			-0.006	[0.85]			-0.011	[1.64]
GRANT			0.066	[1.14]			0.038	[1.66]*			0.002	[0.11]
SOCIALSERV			-0.012	[1.47]			-0.010	[2.38]**			-0.013	[2.12]**
Self-Employment Transition Equation: [Dependent variable: New Self-Employed/Not (1/0)]												
MALE	0.023	[5.42]***	0.022	[5.57]***	0.016	[4.00]***	0.016	[4.19]***	0.022	[3.38]***	0.022	[3.53]***
AGE	0.005	[4.32]***	0.005	[4.27]***	0.005	[3.72]***	0.004	[3.58]***	0.005	[2.41]**	0.005	[2.37]**
AGESQ/1,000	-0.064	[4.08]***	-0.059	[4.01]***	-0.054	[3.39]***	-0.049	[3.26]***	-0.062	[2.28]**	-0.057	[2.22]**
FBiH	-0.003	[0.85]	-0.005	[1.36]	-0.001	[0.14]	-0.003	[0.64]	0.002	[0.25]	-0.002	[0.23]
URBAN	0.006	[1.50]	0.005	[1.32]	0.008	[1.83]*	0.008	[1.93]*	0.023	[2.99]***	0.021	[2.94]***
MARRIED	0.007	[1.16]	0.007	[1.20]	0.006	[1.02]	0.005	[0.89]	0.012	[1.23]	0.011	[1.21]
LCHILDREN	0.004	[0.62]	0.004	[0.73]	0.001	[0.13]	0.001	[0.12]	-0.002	[0.19]	0.000	[0.04]
EDUCLOW	-0.010	[2.33]**	-0.010	[2.42]**	-0.014	[3.20]***	-0.014	[3.53]***	-0.016	[2.04]**	-0.016	[2.09]**
DISABLED	-0.016	[2.04]**	-0.015	[1.90]*	-0.012	[2.62]***	-0.001	[0.33]	0.004	[0.67]	0.002	[0.35]
PASTSE	0.169	[7.17]***	0.162	[7.11]***	0.155	[6.73]***	0.152	[6.73]***	0.142	[5.29]***	0.138	[5.27]***
NOSOCPTL	-0.017	[3.08]***	-0.017	[3.54]***	-0.017	[3.23]***	-0.018	[3.85]***	-0.029	[3.20]***	-0.028	[3.44]***
OTHERSE	0.043	[4.54]***	0.040	[4.38]***	0.053	[5.28]***	0.053	[5.45]***	0.079	[4.41]***	0.077	[4.46]***
OPTIMISM	0.052	[2.75]***	0.049	[2.64]***	0.042	[2.45]**	0.053	[3.21]***	0.106	[3.42]***	0.095	[3.16]***
PENSION	-0.011	[2.56]**	-0.011	[2.43]**	-0.008	[2.12]**	-0.008	[2.06]**	-0.014	[2.16]**	-0.012	[1.73]*
LHHCONS	0.019	[4.76]***	0.019	[4.98]***								
INFORMAL					0.019	[2.85]***	0.020	[3.01]***	0.027	[2.78]***	0.028	[2.85]***
UNEMPLOYED					-0.010	[1.80]*	-0.009	[1.62]				
INFORMLOAN			-0.005	[0.99]			-0.004	[0.85]			-0.005	[0.57]
MICROLOAN			0.000	[0.03]			-0.002	[0.23]			0.013	[0.66]
BANKLOAN			0.008	[1.22]			0.009	[1.47]			0.004	[0.42]
REMITDOM			-0.007	[1.12]			-0.007	[1.09]			-0.008	[0.65]
REMITABROAD			-0.015	[2.74]***			-0.014	[2.45]**			-0.028	[3.11]***
GRANT			0.077	[3.01]***			0.077	[2.98]***			0.071	[1.40]
SOCIALSERV			-0.002	[0.57]			-0.004	[0.86]			-0.012	[1.55]
No. of obs.	5,007		5,007		5,007		5,007		2,934		2,934	
Censored Obs.	4,823		4,823		4,823		4,823		2,787		2,787	
Log-Likelihood	-792.4		-778.1		-780		-767.8		-614.1		-601.6	
Wald x2	46.6***		57.2***		114.7***		120.4***		94.3***		81.9***	
Wald x2 (ind eqs)	3.77*		2.36		3.81*		12.47***		37.33***		21.64***	

Notes in Table 6 apply.

Source: World Bank LSMS survey (2001-04). See Table 3 for variable definitions.

Figure 1: Labor Force Composition (LSMS, 2001-04)