

## **Determinations of Firm Growth: A Study of Rural SMEs in Bosnia-Herzegovina<sup>i</sup>**

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**Abstract:** Rural development is identified as one of the key areas of intervention in Bosnia and Herzegovina (BiH). The main drivers of rural development can be small sized companies run by rural entrepreneurs, and intervention should be focused on enabling environment for their growth. The paper presents analysis of the factors determining growth in employment by small rural businesses in BiH, using quantitative data from original survey conducted in 2012. The direction and magnitude of different factors were further analyzed through qualitative data analysis. Findings from this research identify the key obstacles affecting growth of rural businesses, primarily related to infrastructure, access to finance, access to market, and availability of “soft” skills. The paper proposed possible ways of intervention in reducing these obstacles in order to promote rural development in BiH.

**Keywords:** Rural Entrepreneurship, Firm Growth, Development, Regression

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## **Introduction**

BiH as a developing and transition country faces severe obstacles in economic development, especially in rural areas, where majority (above 60%) of the population is located (Ministry of Foreign Trade and Entrepreneurship, 2008). Without proper and sustainable rural entrepreneurship development, there are further difficulties for strengthening economic development. This paper investigated the factors that hamper larger involvement of population in rural businesses in the framework of the model of determinants of growth of firms in rural areas. The focus is on micro and small businesses, run by rural entrepreneurs.

Entrepreneurship has an important overall role in the economic and rural development, building stronger than ever relations in rural areas. Entrepreneurship, as a dynamic force for growth, employment creation, and life quality improvement (Petrin, 1994), has been considered a key element in rural development and sustainable economic development. The more entrepreneurial region is, the more it outperforms neighbouring economic regions. Acknowledging the central role entrepreneurship has in economic rural development and properly developing conducive entrepreneurship environment (Sherief, 2005), leads to the rural entrepreneurship network that creates a positive business climate and behaviour, decreasing significantly important rural poverty and generates employment, particularly for youth. For the successful and productive environment, it is highly important to understand the factors that influence rural entrepreneurship, which include productive interventions by the state (Petrin, 1994), diversification of products, entrepreneurship promotion and marketing, knowledge transfer and sharing, supply chains and a net of cooperatives and large companies (Rongsen, 1998).

Although rural areas in Bosnia and Herzegovina are characterized by small arable parcels per capita, of less than 2 ha of arable land per farm (Volk, 2008), consisting of approximately 250.000 firms, presenting twenty five per cent of the businesses (Volk, 2008), agriculture is very important and persistent way of rural entrepreneurship. Still, large defragmentation and disintegration of small producers, has kept producers mostly related to subsistence agriculture, leading to diminished productivity and inefficiency. This highlights the need to identify the most prominent obstacles to rural entrepreneurship and draft a precise, comprehensive and successful rural entrepreneurship strategy to create sustainable rural development, to generate employment and spur innovation.

Paper is further organized in five main sections. The next section presents review of the theoretical and empirical literature on factors determining growth of rural businesses. Third section describes the methodology used in the analysis of factors influencing growth of rural businesses in BiH, where the empirical model and data used in the analysis are explained. The fourth section presents results of the empirical estimation of the models. Finally, section five concludes and provides a list of policy recommendations for improving entrepreneurial activities in rural areas as of BiH.

### **Literature Review**

Growing empirical evidence in the literature on rural entrepreneurship (Volk, 2008), supports the hypothesis that there is a positive correlation between governance, rural entrepreneurship and rural development, where goal oriented policy, transparent support and efficient law framework play an important role.

Literature identified the main factors affecting growth of rural businesses. These factors can be broadly divided into “internal” factors (such as characteristics of entrepreneurs, characteristics of the business) and “external” factors (such as population trends, availability of natural resources, government support, characteristics of the labour and good market, quality of the supply chain, and availability of finances).

Risk taker, innovator, motivated, opportunity taker, inspired, owner, are all features of the entrepreneur (Martin and Osberg, 2007). Successful entrepreneurs are performing and combining those determinants on the daily basis. Entrepreneurs have a special set of cognitive capacities Schiebold (2011) and attitude (De Mel, Mckenzie and Woodruff, 2010), that makes them unique, as those have direct impact on the success of the business. Cognitive abilities are influenced by the level of education, as more educated are proactive in all areas of the business and in technology development. Norms, values in behavioral contest which are shaped by culture, inevitably have its impact on the entrepreneurship performance (Schiebold, 2011). Personal traits, attitude and strong motivation of entrepreneurs are sufficient (Che Rose, Kumar and Lim, 2006), to overcome impediments for start-up and growth of the entrepreneurship. Although the lack of educated labor force tends to be one of the most influential factors in developed countries such as the United Kingdom, Smallbone et al. (2006) and Goetz and Freshwater (2000) point out on historical data, which show how family background used to be compensated for the lack of knowledge.

In Nigeria, research by Ajibefun and Daramola (2003) found out that the education level of the owner has highly influenced efficiency of the business and affects the growth of the business. This puts education on the level of high priority variables for technical and organizational effects. Nevertheless, in combination with the age of the owner, education and age have a parabolic shape as two variables, meaning that efficiency of the business performance first rises then declines as owner ages. Although young owners lack experience, they should be given trainings and encouragement to become entrepreneurs. Okurut (2008) stresses out the positive impact of education and business knowledge on the microbusiness performance, while a combination of rural entrepreneurship and female ownership decreases business success. There seems to be a positive link between number of start-up firms and educated owners (Acs and Armington, 2005), not referring solely to secondary degree education.

Gianneti and Simonov (2009), assert that substantial entrepreneurial activity is to be influenced by positive entrepreneurial climate in the close regions, giving a special place to social interactions, as one of the main entrepreneurial drivers, that also enhance faster learning through social effect. The usage of many proxies makes this finding challenging in general application and opens a door to new entrepreneurial climate insights. Schields (2005), acknowledges the importance of culture and social factors and family relations, placing higher influence on successful rural entrepreneurship management, linking individuals to rural community development.

External opportunities and threats play important role in rural entrepreneur's activity, where entrepreneurs creativity and motivation comes into play, if businesses are planning to survive. Characterized by constant depopulation, rural areas and rural entrepreneurs face a challenge more than ever before, in striving to attract skilled and educated labor, on one hand, and maintain supply of products that should correspond to demand in the market. The logical consequence to this is generally lower firm entry rate in rural areas than in urban areas (Plummer and Headd, 2008, Yu et al., 2008).

It is important to note, that successful rural development is highly influenced by institutional support. This does not exclude the possibility of regional development itself, but slows the pace of development in a fast competitive global area and drives down any further motivation and success. Institutional support consists of formal and informal rules. Formal (codes of conduct) are written in the legal framework, directly

applying (Schiebold, 2011) to the business performance, while informal are shaped in norms, cultural values (Shirley, 2008).

Infrastructure plays prominent role in its impact on rural entrepreneurship success, such as road, broadband access and access to water (Walzer, 2009). The more developed infrastructure, the more successful rural entrepreneurs we have (Okurut, 2008). Access to utilities, such as electricity, communication, markets and road, contributed to the growth of the microbusinesses in rural Kenya (Kirubi, 2006). Infrastructure refers to physical and non-physical. Physical infrastructure refers to roads or energy. Non-physical infrastructure consists of market structure. Infrastructure plays an important link of rural entrepreneurs in the urban market. Neglected by institutions in the rural development planning and investment, due to its substantial cost issue, infrastructure is one of the main impediments in transitional countries. Due to the characteristic of rural areas in the sense of their remoteness, additional challenges to rural development are transportation costs (Smallbone, 2006) and infrastructure, affecting entrepreneurship base (Ahmad and Hoffman, 2006).

One of the limiting factors is a small local market that influences differently rural entrepreneurship sectors (North and Smallbone, 1996), pushing rural entrepreneurs to export markets from its very first establishment (Smallbone et al, 1993, Dabson 2011). This clearly provides insight into the importance of external and institutional support of rural firms. The evidence from the different research sources, indicate the ability of rural firms to overcome the influence of rurality and to adapt to exporting market conditions, more successfully than their urban counterparts (Gale, 1998). The pace of this adoption is facilitated by the level of the country's development and opens a door to export markets, institutional and policy support (Wyer and Smallbone, 1999) in developing and post transitional countries.

Short supply chain as a constraining factor, has been recognized by France, in the new strategy for rural entrepreneurship development and is highly welcomed by Member States and drafted in New EU Rural Development Policy 2011 (NRN 2011). Rural businesses are often involved in the chain with the middlemen (Alsos et al, 2011), who by charging its margin, raises the price of the product and in one or another way affects the pace of sales. Shortening the chain, by introducing direct sales to customers, through farm shops, road stands, online sales, fair sales (Alsos et al, 2011) and other forms, reduces costs and allows producers to

interactively engage in sales. Yet, Verghaegen and Van Huyenbroeck (2001) acknowledge another angle to this issue, stressing out that direct sale to producers, require marketing and sales skills as a prerequisite and may take valuable time. As this might be true, for remote rural enterprises, we believe that short supply chain has possibility to contribute in general through various ways.

To some extent, the external factors are more interlinked with lacking and skillful labor force (Petrin, 1994), whose decreasing motivation to rural employment is compensated with a growing propensity to urban market opportunities. This leads to faster ageing of the rural population that influences the possibility of dynamic rural enterprise growth. Even Dabson (2001), points out on the significance of population in the rural area, that creates demand for rural products, without which rural products cannot decrease overhead costs, due to large production.

BiH agriculture is still behind regional countries Croatia, Serbia and Macedonia, on the competitiveness scale (Zekić et al, 2009), due to low productivity level, crop yields, inefficient and obsolete production techniques and broken links between production and supply chains. Volk (2008) asserts that agricultural enterprises in Bosnia and Herzegovina, face serious obstacles to their development and production, where the most cited are related to obsolete technological processes, subsistence farming, poor irrigation techniques, deficient capitalization level, marginal production innovation, dependence on the inputs and natural production. BiH agricultural demand dominates the domestic agro-supply, despite Bosnian natural and climate advantages and leads to large agro-import.

## **Methodology**

### **Model**

Extending the model developed by Headd (2000) by business characteristics of rural entrepreneurship, and combining it with the recent research findings as presented in the literature review, we developed the following baseline model specification:

$$y_i = \beta_0 + \beta_j \sum OC_{ij} + \beta_k \sum BC_{ik} + \beta_l \sum CSF_{il} + u_i \quad (1)$$

This specification is estimated by three models, with alternative specification of the dependent variable. In the first model, it is expresses

as average annual change in number of employees (aace). In the second, it is average annual growth in number of employees (aage), while in the third model it is expressed as a dummy variable taking value of 1 if number of employees increased (successdv). Due to such specifications of the dependent variable, the first two models were estimated by OLS method, while probit was used for the third one (with a dummy variable). The choice of employment increase is based on recent empirical studies on determinants of growth of firms, where employment was found as more appropriate than sales data, which are commonly underreported in surveys. Additional motivation for the choice of employment data is that they are more informative, as employment generation should be the most important objective of rural development activities in BiH, rather than growth of output.

The main independent variables<sup>iii</sup> are factors determining growth of rural businesses, a presented in Equation (1) are:

OC – list of demographic characteristics of the owner, such as age, sex, education level, migration experience,

BC – characteristics of the business (age of business, whether it was established by current owner or inherited, export orientation, etc.), including industry (5 types of businesses) and region dummies (3 regions)

CSF – a list of 21 critical success factors (obstacles), expressed as dummy variables indicating that interviewed owner answered that she/he is, in running the business, facing these obstacles frequently.

The list of critical success factors was prepared base on previous qualitative research, conducted by authors for the World Bank in 2012. In order to reach the best possible specification of the reduced model, we decided not to rely only on test-statistics from the hypothesis testing of statistical significance of coefficients from the estimated model for selection of the success factors, but also to identify the most influential factors by using descriptive statistics results<sup>iv</sup>. Then, the list of the most important factors was included into the model, and it was further reduced by excluding some of the insignificant variables related to owner's or business characteristics.

Female owners are found to be in minority and face various obstacles due to gender issue, especially in complying with financial requirements (Papadaki and Chami, 2002) by financial institutions, although it has no implications to firm survival rate (Cooper et al, 1994). Age of the

entrepreneur is shown to be positively related to some extent and as owner ages, it becomes less dynamic affecting the business performance (Selaman et al., 2011).

Family business presents a healthy ground for young entrepreneurs, who are in a position to learn from their family on rural entrepreneurship from the very beginning, to learn about processes and resources (Walzer, 2009). Although in advanced position, empirical evidence shows that businesses started from owners' own interest (not inherited) are more successful in the long term (Walzer, 2009). High growing entrepreneurships are negatively related to family businesses (Bjuggren et al., 2010).

Beneth and Smith (2002), emphasize how the remoteness of rural areas contributes to decreasing tendency of access to trainings and knowledge transfer, associated with larger costs of services, inadequate training support, and obsolete knowledge. The more distant enterprises have a transportation cost as a significant part of the price calculation and it directly reduces its margins and profit (Walzer, 2009). Geographic location (Bosworth, 2011) is unprecedentedly defining the type of products harvested or services provided in the rural area of one country. The comparative advantage for the purpose of efficient production is important, but the geography provides no crucial obstacle to rural firms.

Financing is ever growing obstacle, very sensitive in the aspect of rural entrepreneurship in the context of credit collateral and credit history. It is extended to difficulties in loan procedures and documentation (Nurbani et al., 2010). Confessing the fact that start-up in general have financial issues, as is supported by the research of Nurbaini et al. (2010), even providing the access to various financial schemes does not guarantee success.

### **Data and Descriptive Statistics**

Since there are no available data for the purpose of analysis presented in this paper, a survey among 300 entrepreneurs in BiH was conducted. The sampling frame used for sample selection consists of various sources, of over 1.300 entities, as there is no single database of rural entrepreneurship existing in Bosnia and Herzegovina. From the database we have selected 300 rural businesses for our sample. Response rate was 70 percent, so we have ended up with 210 respondents. For selection of rural entrepreneurs, we applied settlement based definition of rurality, where rural businesses are the ones operating in villages.



The predominant form of rural businesses is micro and small business, where they account for 90 percent of all rural establishments (Buss and Yancer, 1999) and nearly two-thirds of all rural jobs, making them a vital part of the rural economy (McDaniel, 2001). Almost 75 percent of rural small businesses have fewer than 20 employees, accounting for a quarter of rural jobs, but only a fifth of rural payrolls (McDaniel, 2001). Therefore, we decided to focus on micro and small (0-49 employees) businesses in our research.

The sampling selection procedure applied here was two stage stratification. First stage stratification was stratification of businesses according to their type. All businesses were grouped into five large groups (fruits, vegetables, rural tourism, rural retail, other businesses) and the number of businesses from each of these strata were selected into the sample according to their share in the sampling frame. In the second stage, we divided entire BiH into three regions, characterized by diverse characteristics of rural businesses present there. The regions are Northern Bosnia, Central Bosnia, and Herzegovina (southern part of the country). From each area, number of businesses selected into the sample was according to the proportion of the businesses in each type of business (first stage strata) from each region based on their share in the sampling frame. This way, we assured coverage of all types of businesses and representativeness of businesses predominantly located in a particular region, since it is expected that different types of businesses in different regions face obstacles (e.g. transportation) at a different extent.

Descriptive analysis of data reveals some interesting findings, informative for the further econometric analysis. Entrepreneurs are mostly men (in 86.95% of cases), 47.8 years old on average, have a secondary education level (in 57.76% of cases), with 19 years of total experience and 12 years of experience in the sector of their business. Businesses are mostly established (82,43% cases) from the owner's interest and only a few are inherited (11.2%) from the family, and are using the owner's asset (in 87.14% of cases). Successful rural businesses have written contracts (60%) with one or two crucial customers (68%). Rural businesses are mainly established by one owner, using owner's savings and in a few cases, by using a combination of bank credit and owner savings. It employs 9 employees currently, have a 10% in growth employment, and a 4.5% growth in sales annually, on average, with a large standard deviation. It has written contracts (in 59.52% of cases) and sells to 2 different groups of customers.

The rate of the rural business progress can be seen in a positive change in

the number of employees. Rural businesses in BiH on average employ one worker for every two years of a business existence. Ninety two percent of businesses are growing but the rate of its progress is very slow, particularly including average age of the business. Rural businesses are 7 km away from the closest bank or microcredit affiliates and 5 km away from the road. Supply of water, electricity, internet and access to the road are supplied in the 97% of cases on average, with no impediments. Rural businesses mostly have signed contracts and we have a situation where a group of business who signed no contract, in 48.57% of cases had no success, and businesses that signed a contract, by 22.11% faced the same situation. What makes those two groups distinct, is an uneven distribution of success. Micro businesses are burdened with the costs of transportation (51.41%).

More than 68% of rural businesses which answered that their business faces complicated administrative procedures are micro businesses (employing 1 up to 10 employees), who are successful, employing 2 to 5 additional workers. Out of those, 43% are those faced with this obstacle the most and have zero employment growth, meaning zero success. Real interest rate as an obstacle, has an impact on micro businesses („the slow growers“) in 62.4%, affecting businesses that employ 1 to 5 employees the most.

What is interesting is the nature of relations among owner's total experience, intention to expand the business and a written business plan. Almost 55% of owners do not have a written business plan. Of those who do have, 15th and 20th year of the business is crucial in planning. Owners express their intention and motivation to expand the business, but plan their activities every 10 years on average. Education of the owner does not particularly affect his/her motivation to write a business plan. Owner of the successful business in 82.24% of cases had the intention to expand the business, and 72.2% of them had a written business plan. Only those established by the pure interest of the owner (77.14%) using owners' savings as a starting capital (63.7%) is the most successful (77.14%).

## **Results**

The results of regression analysis of three alternative specifications of the reduced model from Equation (1), with different dependent variable, are presented in the table below (t-statistics in parentheses):

Table 1. Results of various models

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| Variables                                 | Model 1<br>OLS                     | Model 2 OLS                            | Model 3<br>Probit                    |
|---|------------------------------------|--|--------------------------------------|
| Dependent                                 | Average annual change in employees | Average annual growth in employees (%) | = 1 if number of employees increased |
| Age of owner                              | -0.012<br>(-0.92)                  | -1.223<br>(-0.94)                      | 0.006<br>(-0.40)                     |
| If owner resides in rural areas           | -0.455*<br>(-1.83)                 | -44.64*<br>(-1.76)                     | -0.304<br>(-1.14)                    |
| Owner has tertiary education              | 0.331<br>(-1.43)                   | 33.876<br>(-1.43)                      | 0.326<br>(-1.26)                     |
| Business was inherited                    | 0.586<br>(-1.51)                   | 58.858<br>(-1.5)                       | 1.344**<br>(2.33)                    |
| Business was started by using own savings | 0.691*<br>(2.42)                   | 69.649*<br>(2.38)                      | 0.414<br>(-1.38)                     |
| Owner receives remittances                | 0.463*<br>(-1.77)                  | 46.973*<br>(-1.76)                     | 0.713**<br>(2.09)                    |
| Exports                                   | 0.901**<br>(3.16)                  | 90.491**<br>(3.13)                     | 0.015<br>-0.05                       |
| Taxes and contributions                   | -0.36<br>(-1.01)                   | -36.583<br>(-1.01)                     | 0.779*<br>(2.32)                     |
| Lack of support by local authorities      | -0.699*<br>(2.45)                  | -69.314**<br>(2.35)                    | -0.967**<br>(2.68)                   |
| High costs of transport                   | -0.784**<br>(2.32)                 | -78.964**<br>(2.30)                    | -0.033<br>(-0.1)                     |
| Exchange rate volatility                  | -0.325<br>(-1.26)                  | -31.567<br>(-1.19)                     | -0.258<br>(-0.83)                    |
| Large competitors                         | 0.262<br>(-1.06)                   | 27.125<br>(-1.06)                      | 0.294<br>(-1.09)                     |
| Difficult to obtain loan                  | 0.717**<br>(2.37)                  | 70.756**<br>(2.23)                     | 0.908**<br>(2.93)                    |
| Constant                                  | 1.202<br>(-1.67)                   | 120.627<br>(-1.65)                     | -0.679<br>(-0.91)                    |
| Observations                              | 135                                | 132                                    | 166                                  |
| R-squared                                 | 0.25                               | 0.25                                   |                                      |

Source: Calculation done by authors

\*\* statistically significant at 1% level, \* statistically significant at 5% level

The results presented in the table above show that the most important factors affecting growth of a rural firm in BiH are lack of support by lower

levels governments (institutional factor), high transportation costs (infrastructural factor), and difficulties in obtaining a loan (access to finance factor). Some other success factors, such as presence of large competitors, large taxes and contributions, or exchange rate volatility, appeared as statistically significant factors in one of the three models, but the significance was not consistent across the models. In addition, significant variables affecting growth of rural businesses are, according to the estimation results from Table 1, export orientation of a business, if business was established by using own savings, if owner has tertiary education, and if owner receives remittances from abroad.

The models were tested for standard OLS assumptions and no significant problems were identified. It was assumed that the high level of multicollinearity could be expected; however, the results of the correlation and variance inflation factor analysis did not suggest significant degree of colinearity between these variables<sup>v</sup>.

Possible endogeneity of the set of variables for critical success factors was identified. Less successful entrepreneurs could be more likely to report more significant obstacles. However, appropriate instruments were not available in the dataset, and it can be assumed that any possible endogeneity problem, arising from the correlation between these variables and the error term, was reduced by inclusion of a set of demographic characteristics of the owner. Exclusion of these variables would increase the endogeneity bias.

## **Conclusions**

The results of the rural entrepreneurship survey reveal that the main factors affecting success of rural enterprises in Bosnia and Herzegovina are related to financial, institutional and infrastructural constraints. The model has shown almost each factor to have a similar level of impact on the rural success, which means we need to work on those factors simultaneously, without prioritizing one over another.

Institutional factors, primarily related to the business climate, severely affect growth of rural businesses, as any other. BiH is well known as a country which has lowest rating with regards to business climate in Europe, and is among the worst in the world. Average number of days for starting a new business, according to the World Bank's Doing Business reports, is more than 70 days. The government needs to start implementing necessary reforms of administrative procedures, improve functioning of their services to businesses, including better targeting and

coverage of subsidies, and to make other improvements of business climate (e.g. reducing tax burdens to businesses). These reforms, as we saw from the results presented, will help rural entrepreneurs to grow faster, but would also increase entrepreneurial activities by other people in BiH as well as attract more foreign investments. All these would result in increase of employment, which is highest in Europe and should be one of the goals at the top of the agenda of the BiH government.

The results also show that rural entrepreneurs expect more support from local than state level government. This should be taken into account in evaluation of the results of government at different level, as well as for design of strategies for rural development and related activities. Support by the local government is particularly expected in the activities related to improvement of local infrastructure, such a local roads, access to water, and access to phone and internet.

Successful businesses have a need for a source of finance, on a regular basis, especially when it comes to buying new machines and facilities or refurbishing old ones, and investing in new skills. In addition, easier access to start-up funds for new entrepreneurs would have positive influence on boosting entrepreneurial activities in rural areas. Such a support by the government would be directly transformed into the employment growth.

Finally, besides the results provided above, additional research of rural entrepreneurship is necessary for better understanding of this issue, which is of extreme importance for BiH. Since data availability is the first condition for a proper research, a census of rural businesses and establishment of comprehensive database of such businesses is the first step in this direction. Establishment of the database is also one of the key EU requirements for BiH in order to be eligible for funds available for rural development in BiH (IPARD).

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Appendix 1. Description of the variables

| <b>Variable</b>                 | <b>Description</b>                              | <b>Survey Question</b> |
|---------------------------------|---|------------------------|
| <b>Owner's characteristics</b>  |   |                        |
| O_male                          | =1 if owner is male                             | A1                     |
| O_age                           | Owner's age in years                            | A2                     |
| O_birth                         | =1 if owner born in rural area                  | A3                     |
| O_resr                          | =1 if owner lives in rural area                 | A4                     |
| O_prim                          | =1 if owner has primary education               | A5                     |
| O_sec                           | =1 if owner has secondary education             | A5                     |
| O_tert                          | =1 if owner has tertiary education              | A5                     |
| O_exp-tot                       | Years of total experience of the owner          | A6a                    |
| O_exp-s                         | Years of experience in that sector of the owner | A6c                    |
| O_duration_migr                 | Years spent abroad                              | A7                     |
| <b>Business characteristics</b> |   |                        |
| B_age                           | Age of business                                 | B1                     |
| fruits                          | =1 if business is in fruits sector              | B3                     |
| Vegetables                      | =1 if business is in Vegetables sector          | B3                     |
| Tourism                         | =1 if business is in Tourism sector             | B3                     |
| retail                          | =1 if business is in retail sector              | B3                     |
| other                           | =1 if business is in other sectors              | B3                     |
| north                           | =1 if business located in northern region       |                        |
| south                           | =1 if business located in southern region       |                        |
| owners                          | Number of owners                                | B2                     |
| contract                        | 1=firm has long-term contract with customer     | B16                    |
| Empl1                           | Number of employees now                         | B3a                    |
| Empl2                           | Number of employees at start-up                 | B3b                    |
| inherited                       | =1 if business inherited                        | B5b                    |
| established                     | =1 if business established by owner             | B5a                    |
| assets                          | -1 if own assets used in business               | B8                     |
| saving                          | Dummy variable, 1= savings, 0=other             | B11                    |
| rem                             | =1 if receives remittances                      | B12                    |
| export                          | Dummy variable, 1=if firm exports, 0=No         | B17                    |

|                  |  |                        |
|------------------|--|------------------------|
| coop             | 1=member of a cooperative  | B19                    |
| <b>Obstacles</b> |  |                        |
| Ci_1             | =1 if facing obstacle 1, "Complicated procedures for obtaining subsidies", frequently          | C1                     |
| Ci_2             | =1 if facing obstacle 2, "Lack of support by the government", frequently                       | C2                     |
| Ci_3             | =1 if facing obstacle 3, "High taxes and contributions", frequently                            | C3                     |
| Ci_4             | =1 if facing obstacle 4, "Lack of local community support", frequently                         | C4                     |
| Ci_5             | =1 if facing obstacle 5, "Difficulties in obtaining standards, certificates, etc.", frequently | C5                     |
| Ci_6             | =1 if facing obstacle 6, "Other institutional", frequently                                     | C6                     |
| Cii_7            | =1 if facing obstacle 7, "High transportation costs", frequently                               | C7                     |
| Cii_8            | =1 if facing obstacle 8, "No access to water", frequently                                      | C8                     |
| Cii_9            | =1 if facing obstacle 9, "No access to phone, internet, etc.", frequently                      | C9                     |
| Cii_10           | =1 if facing obstacle 10, "Other infrastructural", frequently                                  | C10                    |
| <b>Variable</b>  | <b>Description</b>   | <b>Survey Question</b> |
| Ciii_11          | =1 if facing obstacle 11, "Lack of trained labour force", frequently                           | C11                    |
| Ciii_12          | =1 if facing obstacle 12, "Other skill related", frequently                                    | C12                    |
| Ci_13            | =1 if facing obstacle 13, "Difficulties in selling the products", frequently                   | C13                    |
| Civ_14           | =1 if facing obstacle 14, "Low price of products offered by resellers", frequently             | C14                    |
| Civ_15           | =1 if facing obstacle 15, "Too volatile exchange rates", frequently                            | C15                    |
| Civ_16           | =1 if facing obstacle 16, "High degree of competition", frequently                             | C16                    |
| Civ_17           | =1 if facing obstacle 17, "Expensive   | C17                    |

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|                                 |   |     |
|---------------------------------|---|-----|
|                                 | raw materials”, frequently  |     |
| Civ_18                          | =1 if facing obstacle 18, “Remote from the larger groceries or discount center”, frequently   | C18 |
| Civ_19                          | =1 if facing obstacle 19, “Other market related”, frequently  | C19 |
| Cv_20                           | =1 if facing obstacle 20, “High interest rates”, frequently   | C20 |
| Cv_21                           | =1 if facing obstacle 21, “Difficulties in obtaining a loan”, frequently  | C21 |
| Cv_22                           | =1 if facing obstacle 21, “Other finance related”, frequently   | C22 |
| <b>Stratification variables</b> |   |     |
| type                            | Categorical variable for type of business (=1 fruits, =2, vegetables, =3 retail, =4 tourism, =5 other types; for Albania first 4 for four types with largest share, 5 for the rest) | B3  |
| region                          | Categorical variable for region (=1 centre, =2 north, =3 south)   |     |

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<sup>iii</sup>Detailed description of each variable included in estimation is provided in Appendix 1.

<sup>iv</sup> Here, we used Pearson's  $\chi^2$  statistics.

<sup>v</sup>All correlations were below 0.5 and all VIF factors were below 10, while the average VIF was below 4.