Economic Systems xxx (xxxx) xxx

Contents lists available at ScienceDirect

Economic Systems

journal homepage: www.elsevier.com/locate/ecosys

It's a man's world? The rise of female entrepreneurship during privatization in Serbia

Vladan Ivanović[a,b], Vadim Kufenko[c,*]

[a] University of Kragujevac, Faculty of Economics, Liceja Kneževine Srbije 3, 34000 Kragujevac, Serbia
[b] CERGE-EI Foundation, CERGE-EI, Politických vězňů 7, 111 21 Prague, Czech Republic
[c] University of Hohenheim, Faculty of Business, Economics and Social Sciences, Schloss Hohenheim 1d, 70599 Stuttgart, Germany

ARTICLE INFO

JEL classification:
J16
L26
D72
P26

Keywords:
Central Europe
Female entrepreneurship
Gender economics
Political economy
Transition

ABSTRACT

We focus on the rise of female entrepreneurship in Serbia and collect an extensive biographical dataset of women, who took part in privatization during 2002–2019. Although women enjoyed the same *de jure* rights as men, they faced a number of informal restrictions such as patriarchal values and tradition-related occupations in low-wage sectors. Nevertheless, using controls for firm and personal characteristics, we find that own entrepreneurial success of new female owners was decisive for firm survival and that female ownership during the privatization was not solely a facade for the activities of their powerful husbands or parents.

1. Introduction

The interplay between female empowerment and economic development is one of the most complex relationships. As in Pampel and Tanaka (1986), economic development drives increases in female labor force participation. Gaddis and Klasen (2014) critically assess the interaction between structural change in the economy and female workforce participation, stating that the transition from an agrarian economy to a service-driven one may have a substantial impact on female participation, although the magnitude and direction of this impact is still open to debate. Bloom et al. (2009) analyze the impact of institutional developments, such as the introduction of laws permitting or outlawing abortion on female workforce participation through the fertility channel. Another stream of literature suggests that female empowerment may substantially contribute to economic growth and development, thus focusing on different links in the causal chain. Diebolt and Perrin (2013) state that gender equality contributes to demographic transition and triggers the take-off to modern economic growth, and Geddes et al. (2012) argue that granting equal rights to women is associated with increasing accumulation of growth, promoting human capital, and Duflo (2012) notes that female empowerment and economic development are mutually reinforcing. Undoubtedly, gender equality and female empowerment play an important role in economic development. Female entrepreneurship, in particular, plays a pivotal role in social and economic progress in developing countries (Terjesen and Amorós, 2010; Minniti and Naudé, 2010). The number of women entrepreneurs in developing countries is

* Corresponding author.
E-mail address: vadim.kufenko@uni-hohenheim.de (V. Kufenko).

https://doi.org/10.1016/j.ecosys.2023.101091
Received 20 July 2021; Received in revised form 21 December 2022; Accepted 22 December 2022

Please cite this article as: V. Ivanović and V. Kufenko, It's a man's world? The rise of female entrepreneurship during privatization in Serbia, Economic Systems, https://doi.org/10.1016/j.ecosys.2023.101091

constantly growing, although they have a lower propensity to start and own a business (Minniti, 2010). However, considerable differences are found between countries in this regard (Estrin and Mickiewicz, 2011). Although, in theory, women's empowerment is a straightforward concept, few empirical proxies are available: gender inequality indexes based on income or education; job segregation indexes; distribution of political rights between men and women; female workforce participation and, surprisingly rarely, female entrepreneurship rates. The research on female entrepreneurship and economic development is scarce,[1] despite the fact that the importance of the given topic in economics, political science and politics has been increasing during the recent years.

Over the past two decades, women-owned businesses have grown rapidly, with a significant influence on innovation, employment, and wealth creation (Brush and Cooper, 2012; Ascher, 2012), and questions regarding the emergence of female entrepreneurship, especially in developing countries, have begun to attract more attention. Previous studies concentrated on different aspects of growth and performance at firms owned by women, their management styles, financing issues, the importance of human capital and the labor market, and social entrepreneurship (Minniti and Naudé, 2010). In our paper, we take a look at the emergence of female entrepreneurship in Serbia between 2002 and 2019, during and after privatization. Since the 2000 s, Serbia has experienced one of the largest increases in the overall extent of economic reform (Cameron, 2009), which makes this country a particularly interesting subject for a gender-related study. We consider this setting ideal for the this research question for the following reasons: (1) the Serbian economy experienced a rough transition from a planned economy to a market economy; (2) women in Serbia have the same rights as men de jure but de facto are less economically active for numerous cultural reasons; (3) the privatization process and outcomes are well documented, and background information on new and subsequent owners is available. These factors make Serbian privatization attractive for an empirical study, making it an example of the emergence of female entrepreneurship in a transition country.

The nature and availability of data on Serbian privatization allow us to overcome the survivorship bias and to include firms that successfully underwent privatization and firms that failed. Thus our analysis is not subject to survivorship bias, the phenomenon of measurement error, a well-known bias in finance (Elton et al., 1996). Instead of analyzing the profits and financial ratios of the firms that survived, our dependent variable measures the existence of the firm per se. This allows us to cover more cases and infer the reasons for failure.[2] Measuring failure has another important advantage: Failure rates, such as bankruptcy, are less subject to measurement error than proxies for success. We formulate our research questions more precisely with respect to analyzing the risks of failure of the newly privatized firms: (1) was the prior success of a new female owner decisive or was it due to the success of their male partners or parents? (2) was female participation in the privatization only a facade for the activities of their male partners?

To the best of our knowledge, this study is the first in which the emergence of female entrepreneurship during privatization is analyzed in the context of transition from a socialist planned economy to a market economy. In addition, the questions we analyze are novel in the literature on female entrepreneurship, because we distinguish the sources of prior success.

In order to address these questions, we organize our paper as follows: Section 2 focuses on the formal and informal context of female entrepreneurship in Serbia; Section 3 presents the dataset; Section 4 contains empirical analysis of the determinants of failure using logistic regressions and an extensive residual diagnostics; and Section 5 contains a critical assessment and discussion of the results. We summarize our findings in the conclusion.

2. Privatization in Serbia – equal chances for men and women?

Late transition and economic instability, paired with the devastating effects of regional armed conflicts and international sanctions during the 1990 s, limited the potential for the development of entrepreneurship. Serbia experienced one of the worst hyperinflation episodes in history, the gross domestic product (GDP) plummeted, and unemployment increased. The communist legacy, although it was the case of soft communism based on central planning and hybrid market mechanisms, together with imbalances created during the 1990 s, contributed to the fact that, in the mid-2000 s, the private sector comprised only 40% of GDP (Uvalić, 2018). A large public sector, specific to socialist and planned economies, creates an additional burden on entering the market, especially for women (Estrin and Mickiewicz, 2011). It was not only the scarcity of physical capital but also the lack of formal institutions that hindered entrepreneurial activities. These initial conditions created a slow start, and the inconsistency and the low speed of reforms represented an additional burden (Estrin et al., 2006). The transition was generally characterized by decline in access to assets, property, and political representation (Hughes and Slay, 2007), and in Serbia a slow and ineffective transition limited the opportunities for both men and women as entrepreneurs even further. The most substantial burden inherited from the communist era was the lack or severe restriction of entrepreneurship and the legal concept of private property and private capital in general (Kucherov, 1962). The development of formal institutions was not only sluggish but also associated with the emergence of gaps and loopholes in legislation (Ivanović, 2015), which jeopardized privatization. Although the main waves of privatization took place in 2002–2008, the legislative framework was not mature enough to address issues such as asset stripping and rent seeking (Ivanović et al., 2019).

Did the formal legislative framework of privatization favor women? Serbia was a latecomer in reforms and started its

[1] In a few studies the interplay between female entrepreneurship, female empowerment and economic development has been noted (McAdam, 2013; Duflo, 2012).

[2] Because of the varying definitions of business failure, from discontinuation of businesses to termination of business initiated by the owner (winding up a company), we followed the approach of Robinson (2007), who consider it a bankruptcy. Bankruptcy is an obvious form of failure, whereas in other cases, many factors may produce discontinuity or closure of a business (e.g., retirement or other personal circumstances of the new owner).

democratization and transformation to a market economy in the early 2000 s. The idea of privatization in Serbia was perceived to be the main pillar of restructuring the economy. It was expected to set up appropriate incentives by moving property rights from the inefficient state to private hands. The fact that privatization more slowly than in other transition economies, raised hopes that the majority of mistakes and inefficiencies experienced in other transition countries during the 1990 s could be avoided. The central institutional actor was the Privatization Agency (PA), which claimed to be independent from any government department.[3] As an executive body, it was in charge of the initiation, organization, and supervision of the privatization process as defined by law. The main point of the PA was to signal credibility and commitment by the government to reforms, whereas the main goal was to ensure a competitive and transparent process of privatization, leading to the fulfillment of multiple objectives: Distributing property to the most efficient owners; generating urgently needed revenue for the state, and partly freeing the government from the burden of ownership. Two models of privatization were chosen to achieve these objectives: the tender procedure for large companies and the auction procedure for medium-size and small firms. At the beginning, the so-called Dutch auction was used, and later, in order to speed up the process, the English auction replaced it. Investors could buy enterprises with a lump sum payment or installment payments. Installment payments were reserved as a option only for Serbian citizens but not for firms or foreign investors. The goal of the latter measure was to spark competition, enabling more entities to compete for enterprises and to enable domestic investors with less capital to take part in privatization. In order to foster further development by the newly privatized enterprises, the regulatory framework imposed numerous restrictions on new owners. In addition to paying the price of the enterprise, every owner was also obliged to invest a certain amount of money in the firm. In most cases, the new owners had to retain incumbent employees for a period of five years and the core business and could not sell the enterprise to others. In case of violations of these contractual obligations, PA had a right to terminate the contract. Although de jure, the framework appeared to be well thought out at a first glance, de facto it malfunctioned, and the goals of privatization were only partially met. The privatization process led to significant losses: In the aftermath, almost 50% of the privatized firms disappeared, resulting in tens of thousands of lost jobs.

Loopholes in the broader institutional context and excessive rent seeking explain the majority of the negative outcomes of privatization (for details see Ivanović et al., 2019; Denisova et al., 2012; Vujačić and Petrović-Vujačić, 2011; Cerović and Mitrović, 2007). The rapidly changing regional and global political and economic landscape as well as the unfavorable domestic environment created obstacles to efficient privatization. Political instability created additional risks, for example, the assassination of Prime Minister Zoran Djindjić, Montenegro's independence in 2006, six changes of government between 2001 and 2014 – all these events increased uncertainty for businesses. Serbia is characterized as a "mostly unfree" country (Heritage Foundation Index of Economic Freedom, 2022), with poor specification and protection of property rights, widespread corruption, a Leviathan state, dominance and strong influence by the executive power over other branches of government, as well as closed markets and low regulatory efficiency – these features are toxic for entrepreneurial activity. Moreover, AP as the central institutional pillar could not escape the influence of the broader institutional context – between 2005 and 2014, nine officials were accused of violating the law and abusing power. According to Anti-Corruption Agency (2015) reports vast discretionary power, inefficient bylaws, and strong political influence led to abuse and fraud in a systematic manner. The legislative framework de jure was gender neutral. The gender burden was formally nonexistent, with no formal discrimination between men and women. However, the weak institutional environment created the need for additional capital, in particular social and human capital, to survive.

Was the institutional and cultural context favorable for female entrepreneurship? Serbia's general environment and historical background are not favorable for women entrepreneurs. In this way, Serbia is similar to many transition and developing countries. The frequently highlighted legacy of communism also included the emancipation of women (Fidelis, 2010). It was the result of the fact that the socialist states took over a range of social and economic functions of a family, creating a generous welfare system, including child care, which enabled women to actively participate in the workforce under the old regime (Kolin, 2010). Some researchers claim that, in the socialist system, the gender gap was relatively small, and it increased after the collapse of the socialist system (LaFont, 2001). Although the Serbian socialist system made some contributions to female emancipation, three important facts from the communist period remain as they became substantial problems during the transition. First, gender equality was just the official ideology of the one-party system. The reality was different. Men were dominant in business as well as in public affairs. The same was true of other communist countries (Manolova et al., 2007; Wells et al., 2003). Second, the jobs that women occupied during the communist era, such as those in the public sector, textiles, and education, were to a large extent either lost or characterized by low wages in the new environment (Kolin, 2010). Third, deeper informal rules regarding the subordinate role of women in society remained extremely strong (Gavrilović and Stjepanović-Zaharijevski, 2012) and reemerged after the communist ideology vanished. The presence of authoritarian, traditional, and patriarchal values and the absence of values related to political and economic liberalism could even be traced back to the delayed modernization in the late nineteenth and early twentieth century (Pešić, 2016). All this made it hard for women to break through as business entrepreneurs. One could argue that the unfavorable conditions for female entrepreneurs in Serbia are same or similar in most of the transition countries in Europe: a lack of experience and market-based expertise, a lack of material endowments and resources, and a lack of financial support (Herman and Szabo, 2015). Therefore, the setting in Serbia could just as well be that of the other transition economies in the Eastern Europe.

[3] The legal framework for the privatization process was defined by two pillars. The first was the Law on Privatization, which defined the key principles, goals, models of privatization, rights, and responsibilities of different actors–the investors, the state, the privatization agency, and the employees (Law on privatization, 2001), in which the PA took a role, formally conducting the privatization process (Law on Privatization Agency, 2001).

It follows that privatization in Serbia faced economic and institutional challenges similar to those in other transition countries: a lack of capital and loopholes in legislation. The de jure privatization process, as well as the laws, which originated in the communist era, offered the same formal conditions for men and women. Moreover, gender equality was officially propagated (Welter & Smallbone, 2010). Nonetheless, women de facto faced at least two important disadvantages: (1) the minor role of women in society, which was based on rather traditional historical roots in a patriarchal society; and (2) predominant employment of women in low-wage sectors of the economy, such as textiles. These factors lead to a grim outlook for female entrepreneurship in Serbia, and one could assume that in the majority of cases in which women privatized firms, female ownership was just a facade for the activities of their powerful husbands or parents. Yet the data seems to contradict this statement, and, as we will see, in many cases, the women who purchased firms during privatization had a track record of their own entrepreneurial achievements, independent of their parents or husbands.

3. Data

To examine the research questions, we used the dataset from Ivanović et al. (2019). The sources of the data are the Databases of the Privatization Agency (PA), the Serbian Business Registers Agency (APR), the Bankruptcy Supervision Agency (ALSU), and privatization contracts. Additionally, we identified professional and entrepreneurial background on the new female owners using online search for their biographies, information in newspapers, specialized portals covering economic events, business social network profiles, and personal and corporate web pages, if possible. Newspapers, weekly magazines, television, and radio station websites were used to identify people with an entrepreneurial background such as Politika, Blic, Danas, NIN, Novosti, Kurir, Vesti, Vreme, Press, Glas Javnosti, Progressive Magazin, Vesti, B92, Radio-Television of Serbia, and Radio-Television of Vojvodina. Specialized information portals on which we found information about prior entrepreneurial activities in individual cases include ekapija.com, paunpress.com, mondo.rs, vidovdan.org, dragas.biz, 021.rs, sredidom.com, namestaj.rs, and soinfo.org. These sources enable us to identify the entrepreneurial background of female owners. Regarding the personal entrepreneurial records of female owners, it is plausible to suppose that female owners with strong entrepreneurial experience made them publicly available. When available, it was hard to hide such information from the public. Additionally, the privatization process was covered in detail by the media, because of the importance and the very nature of the process. Auctions were public and often directly shown in the media. The information regarding wealthy and influential husbands or parents inevitably leaked into newspapers, and in some cases, where this connection existed, the media reported about it.

Before focusing on the determinants of failure, it is important to consider the context of all privatized firms. It follows that around 7% of firms were privatized by women entrepreneurs. Although at first glance, this share might appear to be relatively small, these firms had more than 8300 employees, constituting 4.5% of the workforce of the privatized firms in our sample. Additionally, it confirms the findings of Kepler and Shane, (2007), who find that women are less prone to purchasing businesses. Table 1 shows similar bankruptcy rates for male and female owners, with slightly higher failure rates for female owners (45% vs. 43%). This is in line with a number of other studies that compare failure rates between men and women (Minniti and Naudé, 2010; Headd, 2003; Kalnins and Williams, 2014). The rest of the firms in the overall sample can be classified as mixed ownership consortia or legal entities (enterprises), and therefore in such cases ownership cannot be attributed to any gender: Such firms tended to exhibit lower failure rates. For the full sample of firms, the gender of the firm owner is an insignificant predictor of failure (see Table 2), which confirms that the difference in failure rates between the sexes is negligible. To support this claim, we perform a survival analysis of the bankruptcy rates across types of ownership: Table A.2 and Fig. A.1 confirm that the difference in the bankruptcy rates is not statistically significant. The hazard functions move in parallel, and the confidence intervals overlap. Therefore, we focus on firms bought by female entrepreneurs and analyze them, in order to reveal the determinants of failure.

In Table 3 we summarize the variables used in the estimations. One of the first thing that we notice is the relatively high rate of bankruptcies; however, the bankruptcy rate for men is at a similar level (see Table 1). More striking is the rate of changes in ownership, which means that around 65% of firms privatized by women were later taken over by other actors (men, mixed ownership, or other legal entities).

The variable *background* or *BG*, which represents the background success of the owner, deserves special attention. We distinguish three proxies for background: Own, husband's, and parent's prior success, and absence of prior success is the omitted category. We label a case as a woman's *own prior success* if the given woman was either a firm owner or founded at least one firm, which existed before and during privatization or a firm CEO or member of the board of directors before privatization. The channels of the negative effect of previous successes on the risk of bankruptcy are intuitive. We assume that having a successful entrepreneurial experience (whether the success of female investors or their male counterparts or members of their families) is decisive in several ways. The first

Table 1
Bankruptcy rates by type of ownership.

	Male	Female
share of firms	0.753	0.072
bankruptcy rates	0.429	0.453

Table 2
Logistic regression predicting probability of bankruptcy using the gender variable in context of the full sample.

Variables	(1) *P* (bankrupt)	(2) *P* (bankrupt)
female	0.202	0.252
	(0.202)	(0.205)
construction and mining		0.508 **
		(0.226)
manufacturing		0.812 ***
		(0.209)
services and retail		0.0703
		(0.206)
constant	-0.392 ***	-0.782 ***
	(0.0526)	(0.190)
Observations	1606	1596

Note: logistic regression, dependent variable: probability of bankruptcy Standard errors in parentheses * ** p $<$ 0.01, * * p $<$ 0.05, * p $<$ 0.1

Table 3
Descriptive statistics (sample with full set of controls).

Variables	mean	SD
Dependent variables		
bankrupt	0.470	0.501
ownership change	0.670	0.472
Owner's background		
own prior success	0.078	0.270
husband's prior success	0.087	0.283
parent's prior success	0.017	0.131
Firm's characteristics		
ln (price + investments)	16.092	2.926
ln distance to Belgrade	3.976	2.013
ln workers	3.504	1.339
construction and mining	0.217	0.414
manufacturing	0.270	0.446
services and retail	0.435	0.498
Personal characteristics		
ln distance to place of birth (POB)	2.229	2.250
lump sum payment	0.191	0.395
contract change	0.174	0.381
age at purchase	40.739	11.967
concentration	0.191	0.395
Sample of female entrepreneurs	121	
Sample with full set of controls used for estimations	115	

reason is the prior knowledge and experience with local markets and formal and informal institutions compared to inexperienced newcomers. The second reason is the advantage of networks and connections: These advantages could turn out to be crucial in terms of access to finance or resolving bureaucratic issues, some of the main obstacles to entrepreneurship in Serbia, according to Schwab et al. (2006). Because the weak institutional environment, especially fragile property rights protection, disadvantages women more than men (Estrin and Mickiewicz, 2011), it would have amplified the advantages of the prior entrepreneurial success in terms of having a lower risk of bankruptcy; however, it is crucial to identify the effects of prior female entrepreneurial success, unrelated to husbands or parents. Cases of prior success are rare, yet about 8% of them can be attributed to their own independent success before privatization. Cases in which the success of the female entrepreneur can be attributed to her husband (*husband's prior success*) comprise almost 9%, whereas cases in which parental success was decisive are few, less than 2%. The data on price and investment and the number of workers in logarithm show that women primarily purchased small and medium-size firms with around 70 workers on average, with the majority of firms having fewer than 51 workers (see Table 4). Another interesting feature is that women tended to purchase firms not very far from their place of birth, yet many of these privatized firms were located far from the capital, Belgrade. This fact shows that the rise of female entrepreneurship was not concentrated in one place but, rather, was scattered throughout the country. As for industrial distribution, women were dominantly in the trade and service sector (Herman and Szabo, 2015; Yetim, 2008; McGowan et al., 2012; Terjesen and Amorós, 2010), which corresponds to the fact that many women held jobs in services and retail trade before privatization (see Section 2). Table 4 shows that agriculture was a less preferred sector for female entrepreneurs. In the next section, we estimate the probability of failure and ownership change using the given variables.

Table 4
Types of firms, privatized by women.

Industry	
Type	Share
agriculture	7.83%
construction and mining	21.74%
manufacturing	26.96%
services and retail	43.48%
Number of workers	
below 51	61.67%
between 52 and 251	35.00%
between 252 and 500	3.33%

4. Estimations and Results

To analyze the determinants of failures, we adopt a well-established framework of logistic regressions. As a proxy for failure, we use an indicator for bankruptcy, which represents the worst possible outcome. As for the independent variables, we are interested in the effect of ownership by females with certain backgrounds. A registered success before privatization should be inversely related to the risk of failure, and prior success can be defined in more precisely to address our research question: We distinguish among prior success with prominent and successful parents, a successful husband, and a woman's own success. This distinction is crucial for our research question: a significant role of a woman's own entrepreneurial background in prior success would mean that independently obtained positive experience helped to prevent failure during privatization. By contrast, a significant role of prior success attributed to parents would hint at nepotism, and a significant role of a husband would reveal an influential man behind female ownership. With these assumptions in mind, we can set up a simple model that explains the probability of failure.

The latent variable framework, as in Wooldridge (2002, pp. 458–459), enables us to construct the key relationships between the variables. We can assume that a binary classification of failure, for example, bankruptcy, is related to a continuous latent variable that represents the risk of failure (ε_i) for a particular case i.

$$bankruptcy = \begin{Bmatrix} 1 & \text{if } \varepsilon *_i > 0 \\ 0 & \text{if } \varepsilon *_i \leq 0 \end{Bmatrix} \tag{1}$$

In our logistic regression model $P(\varepsilon *_i > 0|BG_i, F_i, P_i) = P(bankruptcy_i = 1|BG_i, F_i, P_i) = \pi(BG_i, F_i, P_i)$ where, if the conditional risk of failure exceeds zero, a bankruptcy occurs. As noted in Section 3, BG_i denotes attribution of a prior success to parents, husband, or women themselves; F_i represents controls for firm characteristics, such as price and investment commitment and the number of workers as a proxy for size; industrial attribution and distance to the capital, whereas P_i represents controls for personal characteristics, such as distance to the place of birth, age at the time of acquisition, and conditions related to the privatization agreement, as well as changes in them. In addition, we control for the distance to the place of birth (POB) of the first female owner as a proxy for social capital and a concentration dummy to account for the synergy effect of multiple ownership.

In addition, we test for robustness with respect to the dependent variable by changing *bankruptcy* to *ownership change*. Whereas the variable *ownership change* does not imply that the given firm ceases to exist, the variable *bankruptcy* does. In both cases, the initial female owners lose control over their firm. Both conditional probabilities are determined by the logistic regression model $\pi(BG_i, F_i, P_i)$ as follows:

$$\pi(BG_i,\ F_i,\ P_i) = \frac{e^{g(BG_i,\ F_i,\ P_i)}}{1 + e^{g(BG_i,\ F_i,\ P_i)}} \tag{2}$$

Therefore, the logit of the model takes a linear form after the logistic transformation, as in Hosmer and Lemeshow (2013, p. 434). Then, we estimate the logit equation (3) and obtain the related coefficients (βs), which represent the change in the log likelihood of bankruptcy with a change in a given independent variable. The nature of the logit function does not allow direct interpretation of the coefficients, and therefore average marginal effects (AMEs) have to be calculated as an average change in probability when a given independent variable increases by one percentage point.

The logit function g can be presented in a linear form, which we later estimate:

$$g(BG_i,\ F_i,\ P_i) = \beta_0 + \beta_B\, BG_i + \beta_f\, F_i + \beta_p\, P_i \tag{3}$$

Postestimation diagnostics are performed as well: We conduct a goodness-of-fit test and report the related p-value as in Hosmer and Lemeshow (2013, pp. 157–169) and display other standard measures of the predictive power of the logistic model: Cragg and

Table 5
Explaining bankruptcy (1 and 2) and ownership change (3 and 4).

Variables	(1) *P* (bankrupt)	(2) AME	(3) *P* (change)	(4) AME
own prior success	− 2.292 **	− 0.569 **	− 1.504 *	− 0.317 *
	(1.126)	(0.277)	(0.826)	(0.174)
husband's prior success	− 1.725 *	− 0.428 *	− 0.495	− 0.104
	(0.931)	(0.230)	(0.868)	(0.183)
parent's prior success	0.475	0.118	− 1.128	− 0.237
	(1.985)	(0.492)	(1.940)	(0.408)
ln (price + investments)	0.00358	0.000888	0.0203	0.00428
	(0.0960)	(0.0238)	(0.104)	(0.0220)
ln workers	0.0451	0.0112	0.503 **	0.106 **
	(0.205)	(0.0508)	(0.223)	(0.0464)
ln distance to Belgrade	0.0454	0.0112	− 0.102	− 0.0214
	(0.111)	(0.0276)	(0.121)	(0.0253)
construction and mining	0.807	0.200	0.199	0.0419
	(0.919)	(0.228)	(0.941)	(0.198)
manufacturing	0.368	0.0913	− 0.115	− 0.0242
	(0.891)	(0.221)	(0.930)	(0.196)
services and retail	0.245	0.0609	1.123	0.236
	(0.820)	(0.203)	(0.865)	(0.181)
lump sum payment	1.089 *	0.270 *	0.600	0.126
	(0.600)	(0.149)	(0.652)	(0.137)
contract change	0.406	0.101	0.672	0.141
	(0.612)	(0.152)	(0.640)	(0.135)
ln distance POB	0.138	0.0343	0.143	0.0302
	(0.106)	(0.0263)	(0.114)	(0.0238)
age at purchase	− 0.0252	− 0.00625	− 0.0163	− 0.00343
	(0.0186)	(0.00461)	(0.0202)	(0.00426)
concentration	− 0.748	− 0.186	− 0.514	− 0.108
	(0.600)	(0.149)	(0.623)	(0.131)
constant	− 0.0526		− 0.952	
	(1.837)		(2.000)	
Observations	115	115	115	115

Note: logistic regression, dependent variable: probability of bankruptcy Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Uhler's and Efron and McFadden's pseudo R-squared values as in Long and Freese (2006, pp. 120–129). The explanatory power of the model can also be assessed with the help of the area under the receiver operating characteristic (ROC) curve, as in Hosmer and Lemeshow (2013, pp. 174–181), building a relationship between the true and false positive rates. When the area is higher, the model is better able to predict positive cases. The 45-degree line denotes the random classifier benchmark. We examine the patterns in deviation residuals, as in Hosmer and Lemeshow (2013, pp. 191–197), in order to identify influential outliers. In addition, we test the validity of the link function, as mentioned in Hosmer and Lemeshow (2013, p. 50), because it allows us to rule out specification errors. The latter test is implemented as a significance test of the squared predicted probability; if the second polynomial is not significantly different from zero, then our logit function should be a linear combination of the independent variables as specified. An inference into the collinearity of the independent variables is performed with the variance inflation factor (VIF) and tolerance, which have an inverse relationship.

We can now focus on the three proxies on the background of female owners and the related estimation results: a woman's own entrepreneurial success, the presence of successful parents, and the presence of a successful husband before the purchase of the firm. These three variables enable us to compare the effects of women's own success to those related to powerful parents or husbands. The success of siblings could have been considered as well, but there were few such cases. The logistic regression (Table 5) with these background variables as determinants of bankruptcy shows that women's own success and a successful husband significantly decrease the risks of failure almost by 43%, and the average marginal effect of a woman's own success is higher, around 57%. Although each of these effects, which are negative with respect to the risk of bankruptcy, may appear to be large, other variables in the regressions have a positive effect on the risks of bankruptcy: Even though the other controls turn out to be insignificant, these risk factors outweigh the effects associated with the background of the female owners. Nevertheless, these findings also mean that a woman's own success before the acquisition of the firm is almost as important regarding the avoidance of bankruptcy as that of a partner.

Among the control variables, only the dummy for lump-sum payments was significant, increasing the risk of bankruptcy by around 27%. The lump-sum payment indicator controls for agreements with a condition: that the purchase would be carried out with one single payment, instead of installment payments. There are two possible explanations for the significance of the given effect.

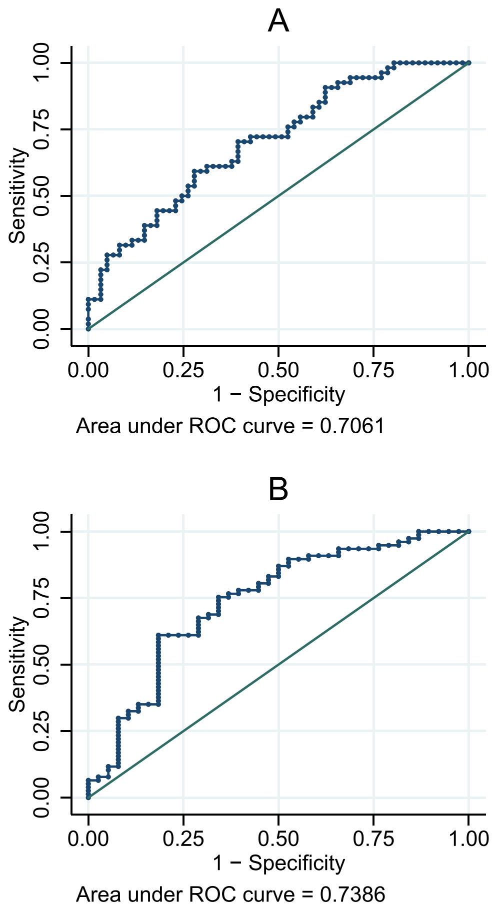

Figure 1. ROC curves.

First, if the buyer wrongly anticipated the overall costs of restructuring, managing, and developing the business by taking over the firm, a large lump-sum payment made right after the purchase would exhaust the available resources and eventually jeopardize the long-run survival of the firm if additional financing was needed. Considerable financial burdens coupled with extensive bureaucracy following the privatization process and making it very costly for the new owners, as well as the fact that the Serbian economy was adversely affected by the financial crisis in 2008/2009, and experiencing two additional recessions in 2012 and 2014 because of European sovereign debt crisis, eventually contributed to the privatization failure. The second reason is related to the fact that the new owners wanted to shorten the period of supervision by the PA,[4] in order to make more independent business decisions or because of asset- stripping activities. The latter practice was quite widespread during the Serbian privatization process (Cerović and Mitrović, 2007; Ivanović et al., 2019), including cases in which women were the investors. The indicator of changes in the agreements is insignificant, although the sign is positive, indicating that revisions in the agreements (in most cases initiated by the buyer of the firm) may be associated with increasing risks of insolvency. In addition, we control for the distance of the firm purchased from the place of birth of the first female owner; with this variable we try to capture the social capital of the owner. However, it turns to be insignificant. The result is not surprising. Local networks were of less importance for at least four reasons. First, the privatization process was highly centralized. All relevant decisions and conflict resolutions regarding the privatization were controlled by the PA. Second, the overall social capital and not solely local business and social networks, was obviously of importance. A lot of firms are located in small and densely populated municipalities in which newcomers would need to establish new networks or join existing ones. Third, it is very hard for a woman to succeed in male-dominated work environments (Yetim, 2008; McGowan et al., 2012). Finally, women in Serbia in general have a relatively low level of social capital (Babovic, 2012). This implies that the lack of social capital should be observed as general obstacle to female entrepreneurship. Additionally, the age and the concentration dummy decrease the risk of bankruptcy, but these variables are not significant either.

[4] The period of supervision by the PA in the case of lump sum payment was three years longer than the one for cases, in which the new owners purchased the firm *'on rates'* with scheduled installment payments. Under standard conditions the duration of supervision for lump sum purchases amounted to two years, whereas with installment payments is would last up to five years.

We have also taken advantage of the data on changes in ownership to test whether having a successful husband is related to a subsequent ownership change from a female owner to male or mixed ownership. This can be considered a robustness check with respect to the dependent variable, because, in the latter case, the firms might not necessarily cease to exist, but the female owners would fully or partially lose control over the firm. The estimation of the determinants of ownership changes allows us to state that the only significant predictors were women's *own prior success*, which has a weak negative effect, and the size of the firm captured by the number of workers. Table 5 shows that the number of workers was significant only at the 10% level, and the latter effect could be related to the fact that large firms, especially in manufacturing, faced higher financial risks during the crises. One should bear in mind that this effect may be nonlinear because of firms that are too big to fail and may be subject to financial aid from the government. If powerful husbands tended to take over the firms of their wives, in general or after the end of supervision, the given marker of the successful husband (*husband's prior success*) would be significant; however, this is not the case.

The last important point to make concerns a postestimation diagnostic. In Table A.3 we report the link test results: Nonlinearities in the combination of our explanatory variables can be rejected because the quadratic term in the link test regression is not significantly different from zero. Thus, our specification (Equation (3)) holds. The Hosmer-Lemeshow goodness-of-fit test rules out specification errors as well. The absence of specification errors allows us to use standard errors for estimation of the effect's significance. The explanatory power of our model despite a large number of predictors is rather moderate: The area under the ROC curve (Fig. 1) is slightly higher than 0.7, which is considered good in the literature, yet far from perfect. The R-squared approximations confirm this. Although the explanatory power is rather moderate, residual diagnostics using deviation residuals (Fig. A.2) do not show any distinct outliers. We can also rule out substantial collinearity between the predictors, because in almost all cases, the variance inflation factor is relatively low (Table A.4).

Our empirical analysis allows to obtain several findings, with respect to the research questions on the emergence of female entrepreneurship during privatization in Serbia. The robustness check involving the probability of ownership change shows that, first, a woman's own entrepreneurial success before privatization was almost just as important in terms of preventing bankruptcy of the newly purchased firm as the entrepreneurial success of the husband before privatization; second, the entrepreneurial background of parents did not play any significant role in determining the risks of failure; and, third, the probability of a change in ownership to male or to mixed ownership is not related to the presence of an influential husband in the background.

Thus, the emergence of female entrepreneurship in Serbia combines the presence of self-made independent business women and the involvement of powerful men in the background of new female owners. Although we do not detect a relationship between the presence of having an influential husband and a subsequent change in ownership after privatization, it is still possible that powerful men channel their influence through the activities of their wives, if they retain ownership of the firm; however, such cases are harder to detect.

5. Discussion

According to Gorji and Rahimian (2011), the involvement of women in entrepreneurial activities is largely determined by individual characteristics, such as family status or education, organizational barriers (including financial capacity, marketing skills, and physical resources), and broader environmental barriers, such as social and cultural norms, as well as a formal framework for doing business. In general, entrepreneurship in Serbia has weakly development and a discontinuous tradition. Putting aside the short period of capitalist development in the interwar period in the first half of the twentieth century, the socialist revolution after World War II ignored private property, the market, and entrepreneurship. All of this was detrimental to entrepreneurial initiatives, innovation, and risk taking in highly regulated economy (Babovic, 2012). Bearing in mind the distinctive nature of the Serbian transition marked by instability and slow pace of reforms and informal, cultural limitations of the role of women in society, we could argue that all these factors had a rather negative influence on the overall success of women in privatization. In addition, the fact that women had predominantly low-wage jobs before privatization did not favor their success because financial burdens are the most common obstacle in developing entrepreneurship (Klapper et al., 2006). According to the Global Competitiveness Report (Schwab and Sala-i Martin, 2011), one of the most substantial barriers, other than corruption, inefficient government bureaucracy, and political instability, is access to finance. With respect to these factors, women did not enjoy any advantages either.

Another reason for a relatively low share of women as new owners in the privatization process is the so-called glass ceiling effect, or invisible barriers that limit the career prospects for women (Bass and Avolio, 1994). As a result, despite the relatively high managerial potential related to the fact that, in the 1990 s, women constituted more than 53% of all university students (Statistical Office of the Republic of Serbia, 2004) the share of female entrepreneurs was relatively low. After 2015, in the aftermath of the privatization, the average share of highly educated women in different industries was almost 49.47% (Stošić et al., 2015), whereas the share of female entrepreneurs was almost 26%, close to the average in member countries of the Organization for Economic Cooperation and Development (OECD).

Do our findings have economic significance? The 7% of female entrepreneurs in the full sample of privatized firms might seem to be small, and the majority of these firms were taken over later, but these proportions had far-reaching implications and paved the way to female empowerment and the promotion of gender equality. Women tend to hire other women, reducing the unemployment gap and contributing to the weakening of discrimination biases (Radović-Marković, 2015; Aidis et al., 2007). The probability of hiring a woman for an executive position is much higher at female-owned companies than male-owned businesses: 41% of female-owned firms would hire a woman for an executive position, whereas only 6% of male-owned companies (Reva, 2012, p.8) would do so. Hence, one could argue that a male-dominated environment is not supportive of female entrepreneurship. The fact that women become entrepreneurs and tend to hire women for executive positions leads to capitalization of experience, acquired skills and obtained training at female-owned companies, reducing gender inequality (Ramadani et al., 2015) and fostering further female empowerment.

The female entrepreneurship rate in Serbia could be higher. Path dependence, based on traditional cultural values that limit the role of women in society, still poses a substantial problem. Female entrepreneurs in Serbia still feel more insecure than men and are inclined to solve issues in an informal way: 10% of female-owned vs. 6% of male-owned businesses report that they usually or always make gifts or additional payments to get things done regarding customs, taxes, licenses, regulations, and other government services (Reva, 2012, p. 10). Female-owned firms report that they face greater regulatory hurdles than the male-owned firms. For instance, they are more likely to consider certain business regulations a major or very severe obstacle to current firm operations and are concerned about crime and safety (Reva, 2012, p. 8). The regulatory framework of Serbian privatization was stringent: After the signing the privatization contract, owners were responsible for fulfilling numerous obligations related to social programs and employment guarantees to investment plans. These safeguards limited property rights, but offered the firms and their staff some protection. This severely hampered decision making and flexibility, especially during the global financial crisis (2008–2009) and the recessions in 2012 and 2014.

According to several studies, women tend to set diverse objectives in their entrepreneurial activities. Orhan (2005) notes that, for many women, financial independence and self-realization are among the main motives for buying or starting a business. Push factors or “necessity-driven” reasons refer to situations in which women are entering into entrepreneurial activity simply because they do not have “better work option or [are] unable to sustain themselves financially” (Ribes-Giner et al., 2018, p. 182). According to Brush and Cooper (2012), women in developed countries are more likely to be pulled into entrepreneurial undertakings, whereas in developing countries entrepreneurial engagement is dominantly pushed by necessity. However, when it comes to incentives for women to take part in Serbian privatization, we still strongly claim that their decisions were dominantly, if not exclusively, driven by opportunity, rather than necessity. In such an unfavorable formal and informal environment, with a strong regulatory burden following the privatization process, a significant amount of capital needed for purchase and investment, decisive reasons for engaging in privatization were pull factors – such as independence, a sense of accomplishment, social status, and power. We may not even exclude the possibility that their decision to act as investors in the privatization process was influences by family members, especially husbands, as noted in other studies (McGowan et al., 2012). This may be true as well because of the absence of clear boundaries between family and work (Desrochers and Sargent, 2004).

Robichaud et al. (2007) state that women are more likely to run a business such that nonfinancial measures of success are of greater importance, because they are less aggressive, more risk averse, and less competitive (see also Morris et al., 2006). These facts do not favor female entrepreneurs, because during the privatization process, the PA set very strict objectives and deadlines in the privatization contracts – if they were not met, the buyer would face the risk of termination of the contract and a subsequent change of ownership. This fact could explain the relatively high share of cases in which new female owners had to give up their firms.

As McAdam (2013) states, entrepreneurs who develop their business using various forms of capital tend to be more successful and their firms grow faster than the ones financed by a single form of capital. Our findings confirm the thesis that capital matters – previous success indicates the existence of (various forms of) capital that help a firm to survive. Bourdieu (1986) points to three forms of capital: economic, cultural, and social.[5] Female entrepreneurs who went into the privatization process with a considerable amount of all three forms of capital on average experienced less failure. Those with previous entrepreneurial experience alone or in the form of support from a husband were better equipped with all three forms of capital, in addition to gaining human capital from their past successful experience. In a risky institutional and business environment, such as Serbia, it guarantees more adaptability and flexibility in running a business. Additionally, the relatively small proportion of women who took part in privatization (7%) could be explained by access to capital. Access to capital may play a crucial role: Brush and Cooper (2012, p. 2) point out that “men and women may not engage in entrepreneurship to the same extent because of differential access to (various forms of) capital.”

Although the explanation for the success of privatization when the woman has an entrepreneurial record is straightforward – all forms of capital were critical factors in preventing failure – the cases in which the female entrepreneur had an influential husband require additional explanation. If women were not a front for buying the firm, as our analysis of a subsequent change in ownership indicates, why was a successful husband a decisive factor in preventing the firm from bankruptcy? At least two factors are considered very important. First, the nature of a (traditional) family and close family ties probably meant that these women had active support in managing the business. In Serbia, when it comes to the use of financial resources (investment), strategic decisions are strongly influenced by men (Babović, 2010). So, the decision to engage in privatization and deal with every serious obstacle in carrying on the business, in all likelihood, were under the influence of the male partner. The second factor is related to the de facto distribution of property rights within the family. However, this explanation is complementary to the first one: de facto, women actively participated

[5] Economic capital is usually institutionalized in the form of property rights, and it is easily and quickly convertible to monetary form; cultural capital refers basically to educational qualifications, which have a monetary value; and social capital is essentially linked to the number and quality of social connections of a person in a society. As conceived by Bourdieu (1986), the notion of cultural capital is very closely related to that of human capital.

in developing the core business of their families but did not hold the property rights of those businesses de jure.[6] If this was the case, then social and human capital were shared between the partners, although a successful husband emerges as the visible property holder in full or in part. Another challenge to identification of the effect is assortative mating, in which women and men from the same social and income classes tend to marry each other. This could introduce bias in the coefficient on the husband's success, though some studies state that membership in the same income group may not be decisive for family planning (Kalmijn, 1994). In addition, Serbia's socialist past had a rather equalizing effect on income distribution and, therefore, assortative mating in this country most likely was not driven solely by income.

Our discussion might lead to the conclusion that women's contribution to economic development is an evolutionary process that is strongly influenced by capital accumulation. This has a clear policy implication: All short- and long-term policy measures supporting the growth of human, social, and financial capital among the female population encourages female entrepreneurship and eventually contributes to economic development. A woman's own successful entrepreneurial experience in business decreases the risk of failure, in strong contrast to that of women who lack this kind of successful experience, a powerful husband, or helpful parents. These novice female entrepreneurs are extremely vulnerable and require additional support from the government in order to build on their initial success. This support would help to decrease the risk of failure for this category of owners.

Multiple factors worked against female entrepreneurs during privatization in Serbia, and the cases in which women's own independent success enabled them to build on their previous positive experience, and purchase and run firms that survived the aftermath of privatization are noteworthy.

6. Conclusion

Undoubtedly, female empowerment enhances economic development, as many scholars note (Diebolt and Perrin, 2013; Geddes et al., 2012; Duflo, 2012). But female empowerment is extremely complex, involving formal and informal aspects, and few papers have investigated its early stages. The emergence of female entrepreneurship during privatization in Serbia is one such example, and, by taking a close look at it, we contribute to the literature.

The economic transition from the planned to a market economy in Serbia was rather slow, and privatization took place later there than in the other post-socialist countries. Poor economic conditions and loopholes in legislation (Ivanović et al., 2019) to a certain extent jeopardized the results of privatization. The de jure privatization framework and the related formal institutions gave equal chances to both men and women,[7] but in practice the circumstances and broader institutional environment worked against it. Women in Serbia were traditionally employed in low-wage sectors, such as the public sector, textiles, and education, which hindered their accumulation of physical capital. In addition, although the previous communist ideology encouraged the emancipation of women, women's de facto role in society was governed by informal rules determined by Serbian patriarchal values, which have a longer history. As in other transition societies, during the transition Serbia experienced a "renaissance of patriarchy" (Zhurzhenko, 2019) and a tendency toward "retraditionalization" (Babovic, 2012), which put additional pressure on women and their position in these transforming societies, dampening their prospects for engaging in entrepreneurial activities. Therefore, women did not have any advantages during privatization – in fact, it was even harder for them to take part in it.

Nevertheless, women actively participated in privatization, and the business failure rate was not substantially higher for women than for men. We expand the dataset from (Ivanović et al., 2019) with biographic details of the female entrepreneurs and analyze the determinants of bankruptcy in order to answer two questions: (1) was prior success by a new female owner decisive in preventing failure, or was the prevention of failure due more to the success of their male partners or parents? (2) was female participation in privatization only a front for the activities of their male partners?

Our results suggest, that after controlling for firm and owner characteristics, prior entrepreneurial success solely attributed to the new female owners was at least as significant with respect to preventing bankruptcy as the success of their husbands. The important role of parents was not confirmed, as this variable was not significant. In addition, we conduct a robustness check and model the probability of the ownership change to a male and mixed ownership and find that having a successful husband was not related to a subsequent ownership change, thus female ownership is less likely to be a formal facade for the entrepreneurial activities of their husbands. This leads us to the conclusion that various forms of capital, accumulated during previous successful entrepreneurial experiences, are a decisive factor in a firm's survival, independently of unfavorable conditions and the institutional environment. Therefore, the following policy implications emerge: the most effective way for public policy to empower women and activate their contribution to economic development is to support inexperienced female entrepreneurs and ensure that they have an opportunity to accumulate physical, human, and social capital by offering financial support, education, and training.

The average share of female entrepreneurship across OECD countries is from 20% to 40% (OECD, 2012, p. 276). The share is similar in transition countries, even those in which reform is lagging, such as Serbia. The share of women involved in entrepreneurial activities in Serbia is around 26% (Pantic Popovic, 2014). Moreover, the share of female entrepreneurs in privatization reflects the overall share in the Serbian economy: Women make up a quarter of the owners of shares in companies, a fifth of directors, and only

[6] Nevertheless, they hold de jure property rights of the family businesses indirectly. Namely, according to the Family Law (2005) §171, property created during the marriage belongs to husband and wife equally, regardless of who is the official property rights holder.

[7] At the beginning of the transition in the 2000 s, no normative framework covering gender issues existed. Nonetheless, in 2009 two important laws supporting more gender equality were passed by the Serbian parliament: Law on Prohibition of Discrimination (2009) and Law on Gender Equality (2009).

14% of board members at the companies (Babovic, 2012, p. 51). Clearly, privatization contributed to female empowerment in Serbia, yet around 65% of the firms in our sample were taken over by men or by legal entities with mixed ownership. As shown in our analysis, the important role of women's own entrepreneurial success, independent of parents and husbands, shows the emergence of female entrepreneurship. This example can shed light on similar dynamics in other transition countries in Eastern Europe. Nevertheless, there is a long way to go in terms of gender equality and the informal role of women in these societies.

Acknowledgements

We thank Ljubomir Radonjić for helping us with data collection and their validation. Vadim Kufenko gratefully acknowledges support from the Faculty of Business, Economics, and Social Sciences at the University of Hohenheim within the research area and Economic Policy Analysis (INEPA).

Appendix A. Appendix

Tables A.1, A.2, A.3, A.4.

Table A.1
Variables, measurement and sources.

Variable	Units	Sources
Dependent variables		
bankrupt	binary, 1 in case of bankruptcy	Business Register Agency APR (2019) and Bankruptcy Supervision Agency ALSU (2019)
ownership change	binary, 1 in case of ownership change	Business Register Agency APR (2019)
Owner's background		
own prior success	binary, 1 in case of own prior success	Various online and offline sources (see Section on Data)
husband's prior success	binary, 1 if owner has successful husband	
parents' prior success	binary, 1 if owner has successful parents	
Firm's characteristics		
ln (price + investments)	log of the price and investment obligations in Serbian dinars (RSD)	Privatisation Agency PA (2019) contracts
ln distance to Belgrade	log of the driving distance between Belgrade and headquarter of a privatized firm	Distance (2019)
ln workers	log of the number of workers in an enterprise at the date of privatization	Privatisation Agency PA (2019) website firm profiles
construction and mining	binary, 1 if belongs to sector	North American Classification System NAICS (2019)
manufacturing	binary, 1 if belongs to sector	
services and retail	binary, 1 if belongs to sector	
Personal characteristics of female owners		
ln distance to place of birth (POB)	log of the distance between the place of birth of new owner (determined by personal ID of the entrepreneur) and the headquarter of the privatized firm - all the data are from the contract	Distance (2019)
contract change	binary, 1 if contract had been changed	Privatisation Agency AP (2019) contracts and Business Register Agency APR (2019) for variables below
lump sum payment	binary, 1 if lump sum payment was registered	
age at purchase	years, full age of female owner at the time of signing the contract	
concentration	binary, 1 if purchased more than one firm	

Table A.2
Similarity of the hazard functions across ownership types (see Fig. A.1).

Testing the equality of the hazard functions	χ^2	P value
Peto and Peto (1972) and Prentice (1978) test	1.58	0.2094
Generalised Wilcoxon test (see Gehan, 1965; Breslow, 1970)	1.70	0.1921
Tarone-Ware test (see Tarone and Ware, 1977)	1.53	0.2164

Note: the H_0 of equality of hazard functions is assumed

Table A.3
Goodness-of-fit.

Test / Equation	*P* (bankrupt)	*P* (change)
Link test *(p-value)*	0.769	0.364
Hosmer-Lemeshow test *(p-value)*	0.8455	0.2787
AUROC	0.7061	0.7386
Cragg & Uhler's R sq.	0.213	0.223
Efron's R sq.	0.149	0.178
McFadden's R sq.	0.125	0.138

Table A.4
Collinearity diagnostics.

Variable	VIF	Tolerance
own prior success	1.11	0.9007
husband's prior success	1.18	0.848
parent's prior success	1.47	0.6792
ln (price + investments)	1.86	0.5383
ln workers	1.75	0.5712
ln distance to Belgrade	1.19	0.8389
construction and mining	3.43	0.2917
manufacturing	3.72	0.2687
services and retail	3.96	0.2524
lump sum payment	1.22	0.8215
contract change	1.21	0.8281
ln distance POB	1.35	0.7412
age at purchase	1.22	0.8204
concentration	1.23	0.8099
Mean VIF	1.85	

Figures A.1, A.2.

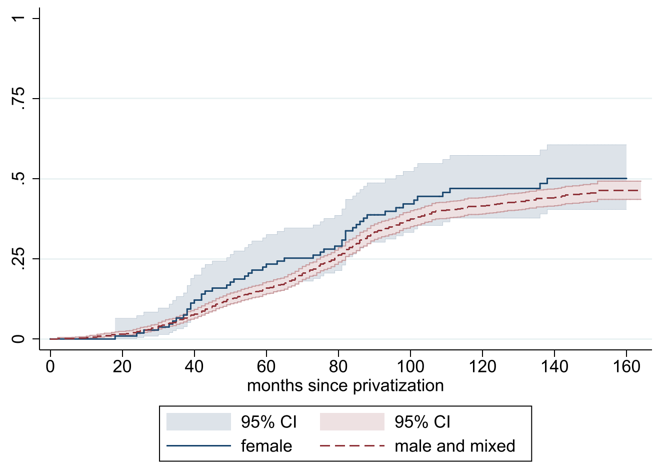

Figure A.1. Kaplan-Meier estimate of hazard functions for ownership types.

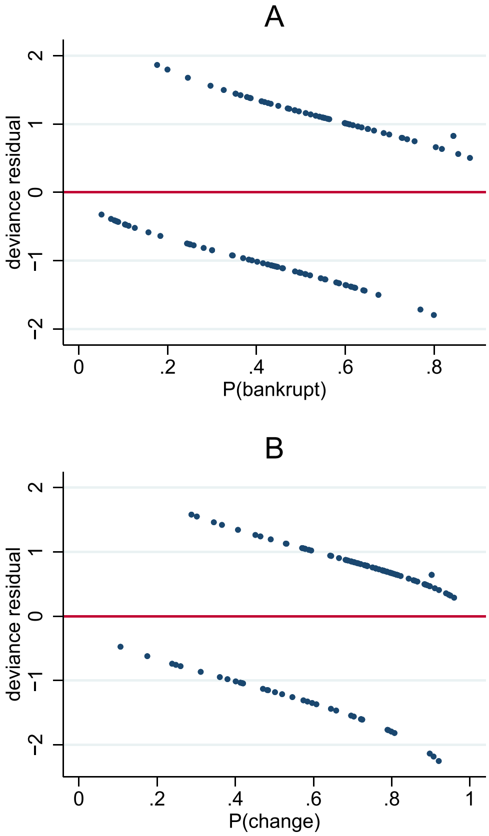

Figure A.2. Residual diagnostics.

References

Aidis, R., Welter, F., Smallbone, D., Isakova, N., 2007. Female entrepreneurship in transition economies: the case of Lithuania and Ukraine. Fem. Econ. 13 (2), 157–183.
Ascher, J., et al., 2012. Female entrepreneurship – an appropriate response to gender discrimination. J. Entrep., Manag. Innov. 8 (4), 97–114.
Anti-Corruption Agency. 2015. Report on the Implementation of Privatisations against the Law.Government of Republic of Serbia - Anti-Corruption Council NR72.
Babović, M. 2010. Rodne ekonomske nejednakosti u komparativnoj perspektivi: Evropska unija i Srbija. Sociološko udruženje Srbije i Crne Gore.
Babovic, M., 2012. Polazna studija o preduzetništvu žena u srbiji. UNDP, UN Women, Projekat Unapređenje ekonomskih i socijalnih prava žena u Srbijii i Crnoj Gori, Beograd, Srbija.
Bankruptcy Supervision Agency ALSU. 2019. Website: https://alsu.gov.rs/en/stecaj/stecajevi/ (Accessed 25 July 2019).
Bass, B.M., Avolio, B.J., 1994. Shatter the glass ceiling: Women may make better managers. Hum. Resour. Manag. 33 (4), 549–560.
Bloom, D., Canning, D., Fink, G., Finlay, J., 2009. Fertility, female labor force participation, and the demographic dividend. J. Econ. Growth 14 (2), 79–101.
Bourdieu, P., 1986. The forms of Capital, In: Richardson, J (Ed.). Handbook of Theory and Research for the Sociology of Education. Westport, CT, Greenwood, pp. 241–258.
Breslow, N., 1970. A generalized Kruskal-Wallis test for comparing K samples subject to unequal patterns of censorship. Biometrika 57 (3), 579–594.
Brush, C.G., Cooper, S.Y., 2012. Female entrepreneurship and economic development: an international perspective. Entrep. Reg. Dev. 24 (1–2), 1–6.
Business Register Agency APR 2019. Website of the databank: https://pretraga2.apr.gov.rs/unifiedentitysearch (Accessed 29 July 2019).
Cameron, D.R., 2009. Creating market economies after communism: the impact of the European Union. Post-Sov. Aff. 25 (1), 1–38. https://doi.org/10.2747/1060-586X.25.1.1
Cerović, B., Mitrović, R.D., 2007. Privatisation effects: Some evidence from Serbia. Transit. Stud. Rev. 14 (3), 469–487.
Denisova, I., Eller, M., Frye, T., Zhuravskaya, E., 2012. Everyone hates privatization, but why? Survey evidence from 28 post-communist countries. J. Comp. Econ. 40 (1), 44–61.
Desrochers, S., Sargent, L.D., 2004. Boundary/border theory and work-family integration. Organ. Manag. J. 1 (1), 40–48.
Diebolt, C., Perrin, F., 2013. From stagnation to sustained growth: the role of female empowerment. Am. Econ. Rev. 103 (3), 545–549.
Distance, Calculator., 2019. Website of the tool. https://www.distance.to/ (Accessed 4 July 2019).
Duflo, E., 2012. Women empowerment and economic development. J. Econ. Lit. 50 (4), 1051–1079.
Elton, J., Gruber, J., Blake, C., 1996. Survivorship bias and mutual fund performance. Rev. Financ. Stud. 9 (4), 1097–1120.
Estrin, S., Meyer, K., Bytchkova, M., 2008. Entrepreneurship in transition economies. The Oxford Handbook of Entrepreneurship. In: Casson, M., Yeung, B., Basu, A. and Wadeson, N. (Eds.). Oxford University Press, pp. 693. https://doi.org/10.1093/oxfordhb/9780199546992.003.0027. isbn 9780199546992.
Estrin, S., Mickiewicz, T., 2011. Institutions and female entrepreneurship. Small Bus. Econ. 37 (4), 397.
Fidelis, M., 2010. Women, Communism, and Industrialization in Postwar Poland. Cambridge University Press.
Friederike, W., David, S., 2010. The embeddedness of women's entrepreneurship in a transition contex. Women entrepreneurs and the global environment for growth: A research perspective. Edward Elgar Cheltenham and Northampton, MA, pp. 96–117.
Gaddis, I., Klasen, S., 2014. Economic development, structural change, and women's labor force participation: a reexamination of the feminization u hypothesis. J. Popul. Econ. 27 (3), 639–681.

Gavrilović, D., Stjepanović-Zaharijevski, D., 2012. Tradicionalne i moderne vrednosti u tranzicionoj Srbiji. Teme 36 (3), 1087–1102.
Geddes, R., Lueck, D., Tennyson, S., 2012. Human capital accumulation and the expansion of women's economic rights. J. Law Econ. 55 (4), 839–867.
Gehan, A., 1965. A generalized Wilcoxon test for comparing arbitrarily singly-censored samples. Biometrika 52 (1/2), 203–223.
Gorji, M.B., Rahimian, P., 2011. The study of barriers to entrepreneurship in men and women. Aust. J. Bus. Manag. Res. 1 (9), 31.
Headd, B., 2003. Redefining business success: Distinguishing between closure and failure. Small Bus. Econ. 21 (1), 51–61.
Family Law. 2005. Family law. Official Gazette of Republic of Serbia (18/2005; 72/2011; 6/2015).
Heritage Foundation Index of Economic Freedom 2022. https://www.heritage.org/index/visualize (Accessed 29 June 2019).
Herman, E., Szabo, Z.K., 2015. Gender (In) equality in Entrepreneurship: Challenges for Romania. In: Ramadani, V., Gerguri-Rashiti, S., Fayolle, A. (Eds.), Female entrepreneurship in transition economies. Palgrave Macmillan Books Palgrave Macmillan, pp. 129–158. https://doi.org/10.1057/9781137444516_8
Hosmer, D.W., Lemeshow, S., 2013. Applied Logistic Regression. John Wiley & Sons, Inc., Hoboken, New Jersey.
Hughes, J., Slay, B., 2007. Gender in Transition. U. Nations Dev. Program. Lond. Sch. Econ. Political Sci.
Ivanović, V., 2015. Economic performance and rule of law in Southeast and Central Europe. Faculty of Economics University of Kragujevac, Kragujevac, Serbia, pp. 129–148.
Ivanović, V., Kufenko, V., Begović, B., Stanišić, N., Geloso, V., 2019. Continuity under a different name: the outcome of privatisation in Serbia. N. Political Econ. 24 (2), 159–180.
Kalmijn, M., 1994. Assortative mating by cultural and economic occupational status. Am. J. Sociol. 100 (2), 422–452.
Kalnins, A., Williams, M., 2014. When do female-owned businesses out-survive male-owned businesses? A disaggregated approach by industry and geography. J. Bus. Ventur. 29 (6), 822–835.
Kepler, E., Shane, S., 2007. Are male and female entrepreneurs really that different? Office of Advocacy, US Small Business Administration, Washington, DC.
Klapper, L., Laeven, L., Rajan, R., 2006. Entry regulation as a barrier to entrepreneurship. J. Financ. Econ. 82 (3), 591–629.
Kolin, M., 2010. Gender inequalities and the status of women in the labor market in transitional Serbia. Anthropol. East Eur. Rev. 28 (1), 119–137.
Kucherov, S., 1962. Property in the Soviet Union. Am. J. Comp. Law 11 (3), 376–392.
LaFont, S., 2001. One step forward, two steps back: women in the post-communist states. Communist Post-Communist Stud. 34 (2), 203–220.
Law on Gender Equality, 2009. Law on gender equality. Off. Gaz. Repub. Serb (104/2009).
Statistical Office of the Republic of Serbia. 2004. Regular annual statistical report.
Law on Privatization. 2001. Law on privatization. Official Gazette of Republic of Serbia (38/2001; 18/2003; 45/2005; 123/2007; 30/2010).
Law on Privatization Agency. 2001. Law on privatization agency. Official Gazette of Republic of Serbia (38/2001; 135/2004; 18/2005; 30/2010; 115/2014; 89/2015).
Law on Prohibition of Discrimination. 2009. Law on prohibition of discrimination. Official Gazette of Republic of Serbia (22/2009; 52/2021).
Long, J.S., Freese, J., 2006. Regression models for categorical dependent variables using stata, 2nd ed. Stata Press.
Manolova, T.S., Carter, N.M., Manev, I.M., Gyoshev, B.S., 2007. The differential effect of men and women entrepreneurs' human capital and networking on growth expectancies in Bulgaria. Entrep. Theory Pract. 31 (3), 407–426.
McAdam, M., 2013. Female Entrepreneurship. Routledge.
McGowan, P., Redeker, C.L., Cooper, S.Y., Greenan, K., 2012. Female entrepreneurship and the management of business and domestic roles: Motivations, expectations and realities. Entrep. Reg. Dev. 24 (1–2), 53–72.
Minniti, M., 2010. Female entrepreneurship and economic activity. Eur. J. Dev. Res. 22 (3), 294–312.
Minniti, M., Naudé, W., 2010. What do we know about the patterns and determinants of female entrepreneurship across countries? 22(3). Springer.
Morris, M.H., Miyasaki, N.N., Watters, C.E., Coombes, S.M., 2006. The dilemma of growth: Understanding venture size choices of women entrepreneurs. J. Small Bus. Manag. 44 (2), 221–244.
North American Classification System NAICS 2019. Website of the databank: https://www.naics.com/search/ (Accessed 9 July 2019).
OECD, 2012. Closing the gender gap. OECD Publishing.
Orhan, M., 2005. Why Women Enter into Small Business Ownership. International Handbook of Women and Small Business Entrepreneurship. Edward Elgar Publishing, Cheltenham, UK. https://doi.org/10.4337/9781845425586.00008
Pampel, F.C., Tanaka, K., 1986. Economic development and female labor force participation: a reconsideration. Soc. Forces 64 (3), 599–619.
Pantic Popovic, S., 2014. An analysis of female entrepreneurship and innovation in Serbia in the context of EU competitiveness. Econ. Ann. LIX (200), 61–90.
Pešić, J.N., 2016. Value Orientations in Postsocialist Societies of Serbia and Croatia (doctoral dissertation). University of Belgrade, Faculty of Philosophy.
Peto, R., Peto, J., 1972. Asymptotically efficient rank invariant test procedures. J. R. Stat. Soc. Ser. A (Gen.) 135 (2), 185–207.
Prentice, L., 1978. Linear rank tests with right censored data. Biometrika 65 (1), 167–179.
Privatisation Agency AP 2019. Website: https://privatizacija.privreda.gov.rs/Naslovna (Accessed 29 May 2019).
Radović-Marković, M., 2015. Female entrepreneurship in transition economies: An overview. In: Ramadani, V., Gerguri-Rashiti, S., Fayolle, A. (Eds.), Female Entrepreneurship in Transition Economies. Palgrave Macmillan Books Palgrave Macmillan, pp. 9–30. https://doi.org/10.1057/9781137444516_2
Ramadani, V., Fayolle, A., Gërguri-Rashiti, S., 2015. Introduction: Female entrepreneurship in transition economies as a significant but understudied field. In: Ramadani, V., Gerguri-Rashiti, S., Fayolle, A. (Eds.), Female Entrepreneurship in Transition Economies. Palgrave Macmillan Books Palgrave Macmillan, pp. 1–8. https://doi.org/10.1057/9781137444516_1
Reva, A., 2012. Gender inequality in the labor market in Serbia. The World Bank.
Ribes-Giner, G., Moya-Clemente, I., Cervelló-Royo, R., Perello-Marin, M.R., 2018. Domestic economic and social conditions empowering female entrepreneurship. J. Bus. Res. 89, 182–189.
Robichaud, Y., Zinger, J.T., LeBrasseur, R., 2007. Gender differences within early stage and established small enterprises: an exploratory study. Int. Entrep. Manag. J. 3 (3), 323–343.
Robinson, S., 2007. Business failure rates: a look at sex and location. Acad. Entrep. J. 13 (1), 45–56.
Schwab, K., Porter, M.E., López-Claros, A., 2006. The Global Competitiveness Report 2006–2007. World Economic Forum, Palgrave Maxmillan, Basingstoke, Hampshire, the UK.
Schwab, K., Sala-iMartin, X., 2011. The global competitiveness report 2011–2012. World Economic forum.
Stošić, D., Stanković, J., Milić, V.J., Radosavljević, M., 2015. Glass ceiling phenomenon in transition economies - the case of South Eastern Serbia. Facta Universitatis. Ser.: Econ. Organ. 309–317.
Tarone, R., Ware, J., 1977. On distribution-free tests for equality of survival distributions. Biometrika 64 (1), 156–160.
Terjesen, S., Amorós, J.E., 2010. Female entrepreneurship in Latin America and the Caribbean: characteristics, drivers and relationship to economic development. Eur. J. Dev. Res. 22 (3), 313–330.
Uvalić, M., 2018. The rise and fall of market socialism in Yugoslavia. DOC Research Institute.
Vujačić, I., Petrović-Vujačić, J., 2011. Privatization in Serbia: Results and institutional failures. Econ. Ann. 56 (191), 89–105.
Wells, B.L., Pfantz, T.J., Bryne, J.L., 2003. Russian women business owners: evidence of entrepreneurship in a transition economy. J. Dev. Entrep. 8 (1), 59.
Wooldridge, J.M., 2002. Econometric analysis of cross section and panel data. MIT Press.
Yetim, N., 2008. Social capital in female entrepreneurship. Int. Sociol. 23 (6), 864–885.
Zhurzhenko, T., 1999. FIFTEEN. Gender and Identity Formation in Post-Socialist Ukraine: The Case of Women in the Shuttle Business. In: Bridgman, R., Cole, S., Howard-Bobiwash, H. (Eds.), Feminist Fields, Ethnographic Insights. University of Toronto Press, Toronto, pp. 243–263. https://doi.org/10.3138/9781442602571-016. isbn 9781442602571.