

Institutional Barriers to Small- and Medium-Sized Enterprise Operations in Transition Countries

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ABSTRACT. Building on institutional theory and on existing literature regarding barriers to private businesses in transition countries, this paper examines the inter-related effect of nineteen factors grouped into four types of barriers (formal, informal, environmental and skills) on existing small- and medium-sized enterprise operations in Lithuania. Regression analyses on a sample of 332 business owners indicate that perceived formal barriers are associated with perceived informal barriers such as corruption and perceived environmental barriers are associated with perceived skill barriers such as management problems. The transition effect based on business start-up date was not found to play a significant role.

KEY WORDS: transition, economics, SMES.

JEL SUBJECT CLASSIFICATION: M13, P20, P30, P39.

1. Introduction

Small- and medium-sized enterprise (SME) development is seen as a key to economic growth, innovations and market competition in most advanced western economies (Acs and Audretsch, 1990). In countries undergoing economic transition, the role of SMEs is of no lesser importance. Not only are SMEs important for the role they play in sustaining the ideology of the free market, SME's are also a crucial source of

innovative potential and job creation possibilities (Johnson and Loveman, 1995). Many transition countries today continue to wrestle with persistently high unemployment rates even after being on the 'transition' path for over a decade. A strong SME sector could provide further employment opportunities and contribute to economic growth as well as the development of a competitive market system.

In general, and taking into account that there is considerable variation between countries, the characteristics of private businesses in transition countries are not necessarily different than in mature market economies; yet they are unique because they tend to take on extreme proportions (Smallbone and Welter, 2001). In many cases, private businesses in transition countries must contend with governmental interference, corruption and environmental changes on a much larger scale than in advanced western economies.

Previous studies of private businesses in transition countries have identified a multitude of barriers affecting business operations. The most important barriers seem to be *formal barriers* such as the high level of taxes (Bohata and Mladek, 1999; Hashi, 2001; Bartlett and Bukvic, 2001) and the general regulatory environment (Brunetti et al., 1998; Hashi 2001). *Informal barriers* such as the implementation of regulations (Jancauskas, 2000; Bartlett and Bukvic, 2001), corruption (Bohata and Mladek, 1999) and unfair competition from the large informal economy (Muent et al., 2001). *Environmental barriers* such as lack of financing (Pissarides et al., 2000; Hashi, 2001; Bartlett and Bukvic, 2001) and low purchasing power (Jancauskas, 2000) further interfere with SME development. Lack of quali-

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fied workers (Bohata and Mladek, 1999) and late payment by clients (Bartlett and Bukvic, 2001) form additional environmental barriers. *Skill based barriers* such as the lack of business-related skill development stem from the lack of previous private business experience in transition countries (Roberts and Tholen, 1998). Though private business owners may not be aware of their skill shortcomings, lack of adequate business skills can impede with the survival and growth of private businesses in transition countries.

A number of studies currently exist on SMEs and business barriers in transition countries however, none of the available studies explore the inter-related effect that may exist between different types of business barriers. In order to explore this issue, we use institutional theory and focus on the subjective perceptions of existing SME owners. Empirical research conducted in Sweden has indicated that subjective opinions or 'reality-as-perceived' by the business owner has an influence on both growth motivation and direct behavior (Davidsson, 1991). Furthermore, theoretical support for the effect of perceptions on actual behavior is an integral part of institutional theory. As North writes: *Individual perceptions about the fairness and justice of the rules of the game obviously affect performance...* (1997:3). In this sense, subjective opinions (i.e., ideological attitudes) are valuable not only because they provide insights, but because they have an effect on economic performance. Descriptive statistics and regression analyses are used to address the central question:

Are the perceived barriers to business operations that existing SME owners face inter-related?

Though business barriers can be examined in isolation of one another, exploring their interrelatedness can provide a deeper level of understanding with regards to the interactions between business barriers. For example, if formal barriers are inter-related with informal barriers then a change to formal barriers may imply effects to informal barriers and vice versa. By studying this relationship, it may be possible to improve the predictions of the broader, inter-related effects that changes to certain types of business barriers may bring about.

In this paper, we provide two contributions to the existing research: First, utilizing institutional theory, we develop a model for conceptualizing the effect of business barriers on existing SME operations in transition countries. Second, we empirically test the inter-related effect of perceived business barriers on existing SME operations.

The results of our analysis indicate that there is significant perceived inter-relatedness between business barriers especially between formal and informal barriers on the one hand, and environmental and skill barriers on the other.

Lithuania provides an excellent case study of a transition country that has chosen to rapidly switch from a centrally planned economy to a market-based economy. As in other former Soviet Union countries, no forms of legal private business ownership were previously allowed in Soviet Lithuania until the mid 1980s. In the late 1980s limited forms of cooperative style enterprises were permitted. A year after regaining independence in 1991, Lithuania embarked on an ambitious stabilization and reform program supported by the International Monetary Fund and the World Bank which allowed for all forms of private enterprises. The Lithuanian case depicts some of the institutional conflicts that can emerge during the process of transition as a result of the clash between new and old laws, values and practices.

This paper is structured as follows: a presentation of the conceptual model and three hypotheses to be tested are developed in section two. Section three describes the data used and sample characteristics. Section four presents the methodology used and section five presents the results. A discussion of the results is given in section six and conclusions are presented in section seven.

2. The model

Institutional theory has been used by a number of authors to explain the stalled or even stagnated economic development occurring in transition countries (North, 1997; Feige, 1997; Dallago, 1997; Yeager, 1999). We propose a model to conceptualize the four main influences on existing SME operations in transition countries as shown in Figure 1. In our model, the

role of the state exerts its influence both in terms of formal and informal rules. The distinctions made between formal and informal rules are based on Institutional theory as introduced by North (1990). Our model shows that formal rules such as tax policies and business legislation are associated with the role of the state. Though informal rules can be attributed to a much broader range of issues, we limit informal rules to those practices associated with the role of the state. These include both the unofficial acceptable governmental culture such as various forms of corruption as well as issues related to the failure of formal rule enforcement. Corruption-related factors include the 'implementation of business regulations' and the 'number of tax inspections' since these represent 'official means' for obtaining bribes. Issues related to lack of formal rule enforcement results in informal barriers such as 'late payment by clients' and 'Mafia and racketeering' activities.

We further extend North's institutional approach to include environmental and skill factors which are both important in the transition context. Environmental barriers capture the overwhelming impact of transition that has fundamentally changed the entire 'playing field' for business activities and includes factors such as 'low purchasing power' and 'lack of information'. In addition, the transition process has brought great demands on the individual skills of SME owners who generally have no private business experience and have limited access to formal business training programs (as opposed to the case in many western developed economies).

Though our model shows formal, informal, environmental and skill barriers to be distinct categories, we would also expect that the effect of certain barrier groups to be inter-related. A study by Djankov et al. (2002) based on 85 countries indicated a link between highly regulated business environments (formal barriers) and corruption (informal barriers). This leads us to formulate our first hypothesis:

H1: Perceptions of formal business barriers will be associated with perceptions of informal business barriers especially corruption-related informal barriers.

We would also expect that informal barriers will be associated with formal barriers. SME owners

who are not able to circumvent informal barriers such as corruption through their networks and contacts, are likely to also be affected by formal barriers such as tax level and business legislation. In essence, the more restricted the ability for SME owners to not comply with formal rules, the greater likelihood that formal rules will be perceived as barriers to business operations.

H2: Perceptions of informal business barriers will be associated with perceptions of formal business barriers.

In transition countries, the ability to continue SME business operations under uncertain and often hostile macroeconomic environment (Smallbone and Welter, 2001) is likely to place high demands on a SME owner's management capabilities as well as their ability to grow into new markets. We therefore would expect that the perception of skill barriers will also be associated with the perception of environmental barriers and this leads to our third hypothesis:

H3: SME owners perceptions of environmental business barriers will be associated with perceptions of skill business barriers.

Significant interrelations between perceived business barriers can be affected by a number of factors. We control for factors such as transition stages, and the business and personal characteristics of the SME owners. In terms of transition stages, in Lithuania, we control for two distinct transition periods: before 1994 and after 1994. The period 1990–1994 was characterized by transition chaos and a general lack of a regulatory framework and the period after 1994, was characterized by increasing macroeconomic stabilization but also over regulation.¹ These environmental changes had a potentially significant effect on SME owners who started their businesses before or in 1994.² In order to control for the potential influence of the 'transition effect', we include this variable in all our models.³

Studies on SME owners in advanced western countries have demonstrated that there are significant differences between male and female SME owners.⁴ In transition countries studies have shown that there are significant differences between male and female business owners in terms of business size (Hisrich and Fulop, 1994;

Zapalska 1997; Aidis, 2003), business turnover and lack of management skills (Hisrich and Fulop, 1994). In order to control for the influence of sex on perceived business barriers, we include this variable in all our regression models.

Human capital variables were included controlling for owner's education level, previous business-related experience, previous management experience and owner's age which have been shown to affect business performance (Becker, 1975; Honig, 1998). As in Hashi (2001), we also control for business sector.

Transition related control variables included were under-reporting of earnings, facility ownership, home-based businesses and business location. A study by Johnson et al. (2000) has found that hiding output amongst businesses in Poland, Slovakia and Romania is significantly associated with high bureaucratic corruption. In our model, we include a variable measuring under-reporting of business earnings.⁵ Dummy variables for business facility ownership⁶ and home-based businesses were further included since they both serve as indicators for ownership of business premises.⁷ Location in terms of rural or urban business setting was not found to be significant for business growth aspirations in Norway (Kolvereid, 1992), but it may be important for the effect of business barriers. In Lithuania as in other transition countries, a large gap exists between economic development in urban centers and in smaller cities or rural areas.

3. Data set and sample characteristics

Our analysis is based on survey data collected by the author in Lithuania⁸ (Aidis, 2003). Approximately three-fourths of the SME respondents were male. The vast majority of the SME respondents were highly educated, which is also a characteristic observed in other transition economies (Smallbone and Welter, 2001) but is significantly higher than was found by a study of business owners conducted by the Lithuanian Department of Statistics (LDS) (Jancauskas, 2000). However, survey method may have influenced these differences in outcome.⁹ Our sample is based on a mail survey which may have resulted in a higher proportion of more highly educated respondents.¹⁰

Our survey asked the respondents to identify the main 'perceived' barriers that they encounter in their business operations from a list of nineteen variables. The respondents were given six options according to a Likert scale (Babbie, 1998). The responses given by SME owners are based on their subjective viewpoints with regards to the barriers they encounter in their day-to-day business operations.

4. Methodology and identification of dependent variable groups

In order to analyze the relationship between barrier groups and other independent variables, we used Ward's grouping method for hierarchical clustering,¹¹ logit and multinomial logit models. Hierarchical cluster analysis is a procedure used to identify relatively homogenous groups of individual cases based on selected characteristics, using an algorithm that starts with each case in a separate cluster and combines clusters until only one case is left¹² (see Appendix I for further description). The four new variables formed using Ward's grouping method for hierarchical clustering shown in Table I, distinguish between SME owners affected by formal, informal, environmental and skills barriers groups.

The formal and skill barrier categories provide clear and distinct categories for SME owners perceived to be affected by these categories. However for informal and environmental categories, three non-categorical groups were created, respectively. Informal barriers group 1 represents the individuals most affected by corruption at all levels. Informal barriers group 2 represents individuals affected by weak bargaining position. Similarly, environmental barriers group 1 represents individuals affected by all the environmental barriers (excluding lack of information) while environmental barriers group 2 represents those individuals specifically affected by low purchasing power. The four barrier groups formed (Table I) are used as the dependent variables in our regression analysis.

Logit regression models were used to test the probability of SME owners perceiving themselves to be affected by formal and skill barriers.¹³ Multinomial logit models¹⁴ were used to test the probability of an SME owner perceiving them-

TABLE I
Ward's grouping method for hierarchical clustering of barrier types

Formal Barriers (<i>n</i> = 277)	Group 1: Formal barriers (<i>n</i> = 114)	Group 2: No pattern to responses (<i>n</i> = 163)	
Taxes too high	X	–	
Frequent changes to tax policies	X	–	
Ambiguity of tax policies	X	–	
Business Legislation	X	–	
Informal Barriers (<i>n</i> = 253)	Group 1: Corruption at all levels (<i>n</i> = 37)	Group 2: Weak bargaining position (<i>n</i> = 79)	Group 3: No pattern to responses (<i>n</i> = 137)
Implementation of Business Regulations	–	–	–
Too many tax inspections	X	–	–
National governmental corruption	X	X	–
Regional governmental corruption	X	–	–
Time spent negotiating with local officials and inspectors	X	X	–
Late payment by clients	–	X	–
Tax inspector corruption	X	X	–
Mafia, racketeering	–	–	–
Environmental barriers (<i>n</i> = 277)	Group 1: Environmental barriers (<i>n</i> = 49)	Group 2: Low purchasing power only (<i>n</i> = 120)	Group 3: No pattern to responses (<i>n</i> = 108)
Low purchasing power	X	X	–
Lack of funds for business investment	X	–	–
Competition from illegal businesses	X	–	–
Lack of information	–	–	–
Competition from legal businesses	X	–	–
Skill barriers (<i>n</i> = 293)	Group 1: Skill barriers (<i>n</i> = 100)	Group 2: No pattern to responses (<i>n</i> = 193)	
Inability to grow into new markets	X	–	
Management problems	X	–	

X: SME owners do not disagree that this variable is a barrier to their business.

selves to be affected by informal and environmental barriers.

To test our hypotheses, barrier variables representing the nineteen individual possible barriers were used as explanatory variables. We control for human capital (business owner's education, previous business experience, previous management experience and business owner's age) and business characteristics (business sector, business facility ownership, home-based busi-

nesses, beginning the business from scratch, business location and under-reporting of business earnings) further described in Appendix II. Special emphasis was placed on the possible influence of the transition effect as measured by business start-up date and business owner sex. These two control variables were included in all our model's results. Other variables were included in our final models only if they contributed significantly to our model.

5. Regression results

The interrelationship between barrier types to existing SME operations is analyzed using regression models. Whether an SME owner perceives an identified factor as a barrier (as shown in Table I) affecting their business operations is controlled for in each model by the same set of independent variables. The model shown includes the effects of significant individual barrier variables and control variables.¹⁵ In addition, the effect of SME owner sex and the transition effect are included in all the models shown.

The interpretation of the logit model regression results is straightforward though interpreting the effect of the independent variable may be complicated in a multinomial logit model. Therefore we include the relative risk ratio (RRR) which indicate the ratio of relative risk for a one-unit change of the explanatory variable relative to the base category. In our case, the relative risk ratios indicate the relative contribution of the variables to the explanatory power of the model.

5.1. Formal barriers model

As Table II shows, two groups of SME owners can be distinguished: those perceived to be affected by formal barriers and those who perceive not be affected by formal barriers. The probability of perceiving to be affected by formal barriers is significantly related to the probability of perceiving to be affected by informal barriers such as the implementation of business regulations, too many tax inspections, and national governmental corruption. Individuals who perceived that 'lack of information' presents an environmental barrier had a higher probability of perceiving to be affected by formal barriers than the sample as a whole.

Our control variables indicate that SME owners who rent their business facilities and those whose businesses are located in smaller cities or rural areas were found to be significantly more affected by formal barriers than businesses located in urban areas¹⁶ or SME owners who own their business facilities. Both sex of the SME owner and the transition effect were not significant to our model.

TABLE II
Logit regression model – formal barriers

Dependent variable		
$Y \begin{cases} 1 = \text{Affected by all formal barriers} - \text{response variable} \\ 0 = \text{no clear pattern to responses} \end{cases}$		
Variables	Coefficient	SE
Constant	-2.24***	0.53
(I) Implementation of business regulations	0.97***	0.30
(I) Too many tax inspections	0.61*	0.33
(I) Natl govt corruption	0.84**	0.38
(E) Lack of information	0.60**	0.29
Own facilities	-0.70**	0.30
Rural location	0.70**	0.30
Transition effect -Bf 1994	0.08	0.38
Sex	0.16	0.33

SE: Robust standard errors.

(F): formal barrier; (I): informal barrier; (E): environmental barrier; (S): skill barrier.

Probability values: ***: p -value significant at the 1% test level, **: 5% test level, *: 10% test level.

Pseudo R^2 : 0.11.

Total number of observations: 277.

These results provide support for our first hypothesis that perceived formal barriers will be associated with informal barriers such as corruption. National governmental corruption and implementation of business regulations are both informal barriers that are highly significant in our model and are both corruption-related.

5.2. Informal barriers model

As Table III shows, three groups of SME owners can be distinguished: those perceived to be affected by corruption at all levels (group 1), those individuals who perceive to be affected by a weak bargaining position¹⁷ (group 2) and those individuals who show no clear pattern to their responses (group 3). In comparison with the base category (group 3), the probability of individuals perceiving to be affected by corruption at all levels (group 1) was strongly associated with formal barriers such as 'taxes too high'; and environmental barriers such as 'competition from illegal businesses'. SME owners who perceive illegal competition as a barrier are four times more likely to be affected by corruption. In addition,

TABLE III
Multinomial logit regression – informal barriers

Variables	Coefficient	SE	RRR	SE RRR
Group 1: Most affected by corruption at all levels (response variable)				
Constant	-12.47**	5.16	—	—
(F) Taxes too high	1.33*	0.68	3.77*	2.54
(E) Illegal competition	1.44***	0.51	4.20***	2.14
(E) Lack of information	-1.34**	0.53	0.26**	0.14
Business experience	-0.56	0.48	0.57	0.28
Age	0.55*	0.29	1.73*	0.51
Age squared	-0.01**	0.00	0.99**	0.00
Home-based business	1.86***	0.71	6.44***	4.58
Under-report earnings	1.49***	0.50	4.44***	2.23
Business turnover	-0.61***	0.21	0.54***	0.11
Sex	0.30	0.58	1.35	0.78
Transition effect – Bf 1994	-0.79	0.69	0.45	0.31
Group 2: Weak bargaining position (response variable)				
Constant	-4.70	3.44	—	—
(F) Taxes too high	1.64**	0.69	5.19**	3.55
(E) Illegal competition	1.05***	0.34	2.86***	0.97
(E) Lack of information	0.12	0.34	1.13	0.38
Business experience	-1.17***	0.36	0.31***	0.11
Age	0.13	0.15	1.14	0.18
Age squared	-0.00	0.00	1.00	0.00
Home-based business	0.40	0.66	1.04	0.69
Under-report earnings	0.07	0.34	1.07	0.37
Business turnover	-0.15	0.14	0.86	0.12
Sex	0.36	0.41	1.43	0.58
Transition effect – Bf 1994	0.41	0.54	1.50	0.82

SE: robust standard errors.

RRR: relative risk ratio.

SE RRR: robust standard errors for relative risk ratio.

(F): formal barrier; (I): informal barrier; (E): environmental barrier; (S): skill barrier.

Probability values: ***: *p*-value significant at the 1% test level, **: 5% test level, *: 10% test level.

Total number of observations: 239.

Dependent variable $Y = \begin{cases} 1 = \text{most affected by corruption} \\ 2 = \text{affected by some corruption and late payment of clients} \\ 3 = \text{no clear pattern to responses (base category)} \end{cases}$

SME owners perceiving to be affected by corruption at all levels had a lower likelihood of perceiving to be affected by 'lack of information'. Though this result was significant, it contributed rather weakly to our model.

The likelihood of perceiving to be affected by corruption at all levels was also strongly associated with the control variables for home-based businesses and SME owners who under-report their business earnings. SME owners with a home-based business were six times as likely to perceive corruption at all levels (group 1) than SME owners that did not have a home-based

business. Those SME owners that under-report their business earnings were four times as likely to perceive corruption at all levels as a business barrier than SME owners that did not under-report their earnings. Further, older SME owners displayed a significantly higher probability of perceiving to be affected by informal barriers than younger SME owners.¹⁸ A lower rate of annual turnover for 1999 was also significant but contributed weakly to our overall model.

Similar to group 1 individuals, those individuals affected by weak bargaining position (group 2) were significantly associated with the likelihood of

perceiving to be affected by taxes and illegal competition. In terms of control variables, those SME owners without previous business-related experience were also more likely to perceive to be affected by some corruption and late payment of clients than the sample as a whole. SME owner sex or the transition effect were not found to be significant in this model.

Our results provide some support for our second hypothesis that SME owners affected by informal barriers will also be affected by formal barriers since 'high tax rate', a formal barrier is highly significant in our model.

5.3. Environmental barriers model

As Table IV shows, three groups of SME owners can be distinguished: those perceived to be most affected by environmental barriers (group 1), those individuals affected by low purchasing power only (group 2) and those individuals not affected by environmental barriers (group 3). The likelihood that a SME owner will perceive to be

affected by environmental barriers (group 1) is significantly and strongly associated with the perception of the skill barrier variables: 'inability to grow into new markets' and 'management problems'. SME owners who perceive to be affected by the 'inability to grow into new markets' are two times more likely to perceive to be affected by environmental barriers. None of our control variables were found to be significant.¹⁹

The results were quite different for those SME owners perceived to be affected by group 2 (low purchasing power only). The likelihood that a SME owner will perceive to be affected by low purchasing power was significantly associated with SME owners perception of being less affected by national governmental corruption and female SME owners. However, these two variables made only a weak contribution to the model. The transition effect was not significant in this model.

Our results provide strong support for our third hypothesis that SME owners perceived to be affected by environmental barriers will also perceive to be affected by skill barriers.

TABLE IV
Multinomial logit regression – environmental barriers

Variables	Coefficient	SE	RRR	SE RRR
Group 1: Most affected by environmental barriers (response variable)				
Constant	-2.98***	0.85	–	–
(S) Inability to grow	1.07**	0.43	2.91**	1.24
(S) Management problems	0.63*	0.37	1.87*	0.69
(I) Natl govt corruption	0.49	0.55	1.62	0.90
Sex	-0.08	0.40	0.93	0.37
Transition effect – Bf 1994	0.91	0.67	2.49	1.66
Group 2: Affected by low purchasing power only (response variable)				
Constant	1.05**	0.42	–	–
(S) Inability to grow	0.04	0.28	1.04	0.30
(S) Management problems	0.32	0.30	1.38	0.42
(I) Natl govt corruption	-0.95***	0.33	0.39***	0.13
Sex	-0.57*	0.34	0.57*	0.19
Transition effect – Bf 1994	-0.28	0.35	0.76	0.26

SE: robust standard errors.

RRR: relative risk ratios.

SE RRR: robust standard errors for relative risk ratios.

(F): formal barrier; (I): informal barrier; (E): environmental barrier; (S): skill barrier.

Probability values: ***, *p*-value significant at the 1% test level, **, 5% test level, *, 10% test level.

Total number of observations: 277.

Dependent variable $Y = \begin{cases} 1 = \text{most affected by environmental barriers} \\ 2 = \text{affected by low purchasing power only} \\ 3 = \text{no pattern to responses (base category)} \end{cases}$

TABLE V
Logit regression – skill barriers

Variables	Coefficient	SE
(I) Mafia	0.99***	0.36
(E) Legal competition	0.54**	0.27
(E) Lack of information	1.43***	0.28
Own facilities	0.69**	0.28
Sex	0.00	0.33
Transition effect – Bf 1994	0.18	0.41
Constant	-2.30***	0.47

SE: robust standard errors.

(F): formal barrier; (I): informal barrier; (E): environmental barrier; (S): skill barrier.

Probability values: ***: p -value significant at the 1% test level, **: 5% test level, *: 10% test level.

Pseudo R^2 : 0.13.

Total number of observations: 293.

Dependent variable

$Y = \begin{cases} 1 = \text{most affected} \\ \text{by skills barriers } (n = 100) - \text{response variable} \\ 0 = \text{no pattern to responses} (n = 193) \end{cases}$

5.4. Skill barriers model

As Table V shows, two groups of SME owners can be distinguished: those perceived to be affected by skill barriers and those not affected by skill barriers. The probability of perceiving to be affected by skill barriers is significantly associated with individuals perceived to be affected by the informal barrier, ‘Mafia and racketeering’ and by the environmental barrier, ‘lack of information’.

In terms of control variables, those SME owners perceived to be affected by ‘competition from legal businesses’ also displayed a higher probability of perceiving to be affected by the skill barriers group. Further, SME owners perceived to be affected by skill barriers have a higher probability of owning their business facilities.²⁰ Sex of SME owner and the transition effect were not significant in this model.

6. Discussion of results

Our regression results provide support for all of our three hypotheses. SME owners perceived to be affected by formal barriers were found to also perceive themselves to be significantly affected by informal barriers such as governmental corruption at the national level and the implementation of business regulations (H1). The inverse effect

was also significant: SME business owners perceived to be affected by informal barriers were also more likely to perceive to be significantly affected by the high level of taxes, a formal business barrier (H2). SME owners perceived to be affected by environmental barriers were found to be more likely to perceive to be affected by skill barriers (H3). Also, though not hypothesized, SME owners affected by skill barriers were more likely to be affected by environmental barriers such as legal competition and lack of information.

Though ‘Mafia and racketeering’ was found to be significantly related to skill barriers, the overall low percentages of SME owners affected by ‘Mafia and racketeering’ (17 percent – see Aidis, 2003) seems to indicate that this barrier has diminished in importance since the mid-1990s and has a relative limited effect on SME owners in 2000. Interviews with SME owners in Lithuania verify this standpoint²¹ as does a study of business owners in Russia (Puffer and McCarthy, 2001: 29).

The transition effect was not significant in any of our models. We expected the dramatic changes that have taken place in the environment to have a significant impact on businesses started before or in 1994 as compared with those started after 1994. However the lack of significant results may have resulted from the limitations of our data set. Only existing businesses were analyzed and it could very much be the case that those businesses that were strongly affected by the ‘transition effect’ had already ceased business operations prior to our study.

We also expected owner’s sex to be a significant factor in the perception of barriers by SME owners. But it was only weakly significantly associated with ‘low purchasing power’. These unexpected results seem to suggest that the perceived impact of barriers is great for SME owners regardless of their business start-up dates, sex, sector, and most other personal and business characteristics.

Though this study focused on Lithuania, the results discussed here may also be relevant for other FSU countries such as Latvia or Eastern European countries such as Poland who are also in the midst of a dramatic and similar systemic change. The situation in these countries may not be identical, but given the similarities in

institutional change and the relative newness of the SME sector, issues such as the conflict between new formal rules and existing informal rules seem to be generally applicable.

Causality between dependent and independent variables in our regression models should be interpreted with caution and our results should be viewed as descriptive rather than causal. For example, our regression results indicate that business owners who do not own business facilities or have home-based businesses are significantly more affected by formal barriers (for own facilities), or informal and environmental barriers (for home-based). But it may also be the case that the reason these SME owners have home-based businesses or do not own their business facilities is due to lower levels of business acumen. Since we do not control for this effect, our results simply establish that there is a relationship between the dependent and independent variables.

As with most surveys, our survey has its limitations. It was a cross-sectional study and as such may have excluded high-growth businesses (i.e., gazelles) from our sample as well as businesses that have ceased business operations. The consequences of these exclusions could have resulted in the insignificance of the transition effect. Also, though our models provide explanatory value for our dependent variables, the generally low R^2 values for our regression models indicate that we have not completely captured all the influences on the dependent variable.

7. Conclusion

The inter-relatedness of business barriers is an important area for research since it addresses business barriers not in isolation but analyzes their interlinked effects. Our analysis explored the inter-related nature of four business barriers groups: formal, informal, environmental and skill barriers on existing SME operations. The significance of these barriers was based on the perceptions of the SME owners. Though perceptions are not objective measures, perceptions or reality-as-perceived have been shown to influence business growth motivation and direct behavior (Davidsson, 1991).

In this study, nineteen possible barriers to existing SME business operations were analyzed. An institutional framework was operationalized and extended to include environmental and skill barriers. The dataset based on a mail survey sample of 332 SME owners in Lithuania indicates that when tested for importance and significance the most significant barriers are formal barriers related to frequent changes to taxes, the tax level, ambiguity of tax policies and environmental barriers related to low purchasing power and lack of funds for business investment. The nineteen possible barriers were further grouped into four barrier groups (formal, informal, environmental and skill barriers) using the Ward's grouping method for hierarchical clustering.

SME owner's perceptions regarding the four types of barriers have been analyzed by way of regressions. The main results provide support for our three hypotheses that stipulate that the perceived effect of formal barriers will be associated with informal barriers (H1 and H2); and, the perceived effect of environmental barriers will be associated with skill barriers (H3). In addition, personal and business characteristics such as facilities ownership, location, turnover and SME owner's age were also significant factors to the perceived effect of different business barriers. The interrelations between business barriers make clear that change in one type of barrier may lead not only to a change in the perception of this barrier but also in the perception of other types of barriers.

Even though this study focused on Lithuania, the results discussed here may also be relevant for transition countries. The situation in these countries may not be identical, but given the similarities in institutional change and the relative newness of the SME sector, issues such as the conflict between new formal rules and existing informal rules seem to be generally applicable.

A number of relevant issues are beyond the scope of this paper. Our results show the significant effect of ownership of business facilities on the perception of formal, environmental and skill barriers. This is an area for further research. A comparison between start-up enterprises and existing SMEs may shed more light on the changing effect of business barriers as SMEs develop. Also cross-country comparisons between

transition countries are essential in order to obtain more insight as to specific national and regional characteristics.

Appendix I: Hierarchical clustering using Ward's method

Hierarchical clustering is a method that starts with each object describing a cluster, and then combines them into more inclusive clusters until only one cluster remains. If two objects or groups **P** and **Q** are to be united one obtains the distance to another group (object) **R** by the following distance function:

$$d(R, P + Q) = \delta_1 d(R, P) + \delta_2 d(R, Q) + \delta_3 d(P, Q) + \delta_4 |d(R, P) - d(R, Q)|$$

The δ_j 's are weighting factors that lead to different agglomerative algorithms

$$\begin{aligned}\delta_1 &= \frac{n_R + n_P}{n_R + n_P + n_Q} \\ \delta_2 &= \frac{n_R + n_Q}{n_R + n_P + n_Q} \\ \delta_3 &= \frac{-n_R}{n_R + n_P + n_Q} \\ \delta_4 &= 0\end{aligned}$$

where $n_P = \sum_{i=1}^n I(x_i \in P)$ is the number of objects in group **P**. The values of n_Q and n_R are defined analogously.

Ward (1963) proposed a clustering procedure seeking to form the partitions $P_k, P_{k-1}, \dots, P_1$ in a manner that minimizes the loss associated with each grouping and quantifies that loss in readily interpretable form. Information loss is defined by Ward in terms of an error sum-of-squares (ESS) criterion. ESS is defined as the following

$$ESS = \sum_{k=1}^K \sum_{x_i \in C_k} \sum_{j=1}^p (x_{ij} - \bar{x}_{kj})^2$$

with the cluster mean, $\bar{x}_{kj} = (1/n_k) \sum_{x_i \in C_k} x_{ij}$ where x_{ij} denotes the value for the i -th individual in the j -cluster, k is the total number of clusters at each stage, and n_j is the number of individuals in the j -th cluster. The main difference between the Ward method and other hierarchical clustering methods is in the unification procedure. The Ward method does not put together groups with the smallest distance, but it joins groups that do not increase too much a given measure of heterogeneity. The aim of the Ward method is to unify groups such that the variation inside these groups is not increased too drastically. This results groups in clusters that are as homogeneous as possible.

APPENDIX II Explanatory variables

Variable name	Definition	N	Mean	SD
Own facilities	One if the respondent owned their business facilities, zero otherwise.	327	0.58	0.49
Home-based	One if the respondent ran their business from their home, zero otherwise.	323	0.12	0.33
Scratch	One if business was started from nothing, zero otherwise.	331	0.82	0.38
Manuf	One if business is engaged in manufacturing, zero otherwise.	332	0.22	0.41
Trade	One if business is engaged in trade, zero otherwise.	332	0.42	0.49
Rural	One if business is located in a small city or rural area, zero if located in a big city (Vilnius, Kaunas, Klaipeda) or medium city (Siauliai, Panevezys, Alytus).	329	0.27	0.44
Transition effect	One if the business was started before or in 1994, zero otherwise.	326	0.83	0.38
Under-report	One if the respondent agreed that in order to survive and grow, many firms in their industry misreport their operational and financial results, zero otherwise. The response to this question is considered a proxy for the respondent's own behaviour.	327	0.49	0.50
Business turnover	Ordinal variable indicating annual business turnover for 1999. Five categories were possible: (1) up to 100 000 Lt; (2) 100 001–500 000 Lt; (3) 500 001–1 000 000 Lt; (4) 1 000 001–5 000 000 Lt; (5) more than 5 000 000 Lt	321	2.73	1.31
Sex	One if female, zero if male.	332	0.27	0.44

APPENDIX II
Continued.

Variable name	Definition	N	Mean	SD
Education	One if university educated, zero otherwise.	329	0.69	0.46
Business exp.	One if the respondent had previous job-related work experience in their business's current activities, zero otherwise.	325	0.46	0.50
Mngt. exp.	One if the respondent had previous work-related management experience, zero otherwise.	327	0.50	0.50
Age	Age in years.	326	43	8.86
Age squared	Age variable squared.	326	1895	798
Formal barriers	One if the respondent was affected by formal barriers, zero otherwise.	277	0.41	0.49
Taxes	One if the respondent completely agreed or agreed that 'taxes are too high' formed a main barrier to their business, zero otherwise.	330	0.86	0.34
Ambiguity of tax pol	One if the respondent completely agreed or agreed that 'ambiguity of tax policies' formed a main barrier to their business, zero otherwise.	331	0.84	0.37
Informal barriers	Non-categorical variable with 3 possibilities: (1) No pattern to responses, (2) Affected by some corruption and late payment by clients; (3) Most affected by corruption	253	1.60	0.73
Implementation	One if the respondent completely agreed or agreed that 'implementation of business regulations' formed a main barrier to their business, zero otherwise.	325	0.56	0.50
Tax inspections	One if the respondent completely agreed or agreed that 'too many tax inspections' formed a main barrier to their business, zero otherwise.	328	0.68	0.47
Natl govt corruption	One if the respondent completely agreed or agreed that 'governmental corruption on at national level' formed a main barrier to their business, zero otherwise.	329	0.74	0.44
Mafia	One if the respondent completely agreed or agreed that 'Mafia and racketeering' formed a main barrier to their business, zero otherwise.	320	0.16	0.37
Environmental barriers	Non-categorical variable with 3 possibilities: (1) No pattern to responses, (2) Affected by low purchasing power only; (3) Affected by all environmental barriers.	277	1.79	0.72
Information	One if the respondent completely agreed or agreed that 'lack of information' formed a main barrier to their business, zero otherwise.	329	0.39	0.49
Legal competition	One if the respondent completely agreed or agreed that 'competition from legal businesses' formed a main barrier to their business, zero otherwise.	329	0.42	0.49
Illegal competition	One if the respondent completely agreed or agreed that 'competition from illegal businesses' formed a main barrier to their business, zero otherwise.	326	0.52	0.50
Skill barriers	One if the respondent was affected by skill barriers, zero otherwise.	293	0.34	0.47
Growth	One if the respondent completely agreed or agreed that 'inability to grow into new markets' formed a main barrier to their business, zero otherwise.	328	0.59	0.49
Management	One if the respondent completely agree or agreed that 'management problems' formed a main barrier to their business, zero otherwise.	325	0.33	0.47

N = total number of observations.

SD = standard deviation.

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Notes

¹ See Aidis (2003) for further description.

² From this point further we refer to these categories as before or after 1994, which implicitly compares

businesses, started in or before 1994 to businesses started after 1994.

³ To avoid full correlation between duration of firm operations and the transition effect, the new dummy variable created is dichotomous, i.e., the business duration before or after 1994 is not taken into consideration.

⁴ See Brush (1992) for an overview.

⁵ Though SME owners will be reluctant to reveal the level of their own under-reporting, we presume that SME owners will most often respond based on their own experiences, and with caution we believe the responses can be interpreted as indicating the SME owner's own behavior (see Johnson, et al., 2000).

⁶ Business premises ownership as opposed to rental of business facilities seems to provide a more stable business

environment given the frequent changes to legislation and problems with the enforcement of contracts that characterize the transition process.

⁷ Businesses started from privatized assets are more likely to also be embedded in the existing informal networks than businesses started from scratch and this may effect the perception of business barriers.

⁸ A total of 1011 valid questionnaires were sent out and 505 completed questionnaires were returned of which 332 were SME business owners. Due to the inability to obtain accurate lists of operating SMEs, the survey was not a random sample and most addresses were obtained from the membership lists of entrepreneurship organizations. This may have resulted in a bias for businesses that are older and have higher turnovers than the average SME in Lithuania.

⁹ The LDS results are based on structured personal interviews. The raw data from this survey was not available.

¹⁰ Previous studies have shown that better educated professionals are more likely to return questionnaires (Miller, 1991).

¹¹ Factor analysis was not performed since the assumption of equal distribution of responses was violated by our data set.

¹² More often used in regional economics, hierarchical clustering is used for the identification of regions for climate studies (DeGaetano, 1996), communities (Stimson et al., 2001) and the sectorisation (Valios, 2000).

¹³ The logit estimation model is a binary linear probability model that allows for two values for the dependent variable. The logit model takes the form of:

$$\log \frac{\text{Prob(affected)}}{1 - \text{Prob(affected)}} = \beta_1 + \beta_2 Z_2 + \dots + \beta_k Z_k m$$

where the Z 's represent the business owner characteristics given in Appendix I and Prob (affected) represents the probability of a business owner being affected by a group of business barriers.

¹⁴ Multinomial logit models were chosen since we had three categories in our dependent variable without a clear order. The multinomial logit model specifications are as follows:

The probability that a business owner will not display any clear pattern of responses (i.e., not affected by groups of business barriers) can be expressed as a conditional expectation function, $P(Y = k|X) = p_{ki}$, where $k = 1, 2$ if individual belongs to group 1 or 2, respectively, and X is a vector of individual characteristics and other factors that are believed to affect barrier perception. The probability that individual i experiences group 1 as a barrier is

$$p_{1i} = \frac{\exp(X_i \beta_1)}{1 + \exp(X_i \beta_1) + \exp(X_i \beta_2)}$$

and the probability that the business owner experiences group 2 is

$$p_{2i} = \frac{\exp(X_i \beta_2)}{1 + \exp(X_i \beta_1) + \exp(X_i \beta_2)}$$

The indicated specification requires independence of the three barrier states, where no clear pattern to responses (group 1) is taken as the base category.

¹⁵ Each model has first been tested for the effect of the control variables on the dependent variable.

¹⁶ Using control variables only, having a home-based business and not having previous business-related experience was significantly associated with the likelihood of perceiving to be affected by formal barriers.

¹⁷ Corruption and late payment of clients.

¹⁸ Using control variables only, age of SME owner was not significant.

¹⁹ Using control variables only, home-based businesses and higher business turnover were associated with the likelihood of an SME owner perceiving to be affected by environmental barriers.

²⁰ Using control variables only, ownership of business facilities was no longer significantly associated with the likelihood of an SME owner perceiving to be affected by skill barriers. While SME owners engaged in the manufacturing sector were significantly associated with the likelihood of perceiving to be affected by skill barriers.

²¹ Though there are exceptions, Mafia and racketeering operations have become less threatening to the business owner because in many cases their activities have become 'legitimized' through legally registered private security companies (see Aidis, 2003).

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