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How firm characteristics affect the level of constrain to growth: An empirical analysis of micro and small firms in Vietnam

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Abstract

Economic literature has introduced large theories on critical role of micro and small firms (MSEs) in the economic development. Particularly in developing countries, the development of the sector has become a channel of poverty reduction by providing job opportunities and creating welfares. Besides, MSEs might be seen as embryonic form of sizable firms in the future, then contribute to the innovation process and economic growth. Consequently, promoting the growth of micro and small firms is in the center of interest of many developing countries, so does the case of Vietnam. By investigating the importance of firm characteristics with regard to the barriers that facing MSE in the growth process, this analysis brings some more light into the sector that unfortunately is still an under researched area. Using firm sample drawing from the Survey on Household's Living Standard in 2004 in Vietnam, we find that firms with different characteristics, among them: firm size, firm age, legal status, industrial sector and location, experiencing different levels of constraints. The level of signification of firm characteristics differs from barriers to barriers. In general, more sizable firms have often to face with higher level of constraints. These results enable policymakers to create more suitable MSEs fostering policies which better account for the different obstacles due to firm heterogeneity.

Keywords: firm performance, micro-small enterprises, barriers to growth, Vietnam.

JEL classification: D21, L25, O53

Abstract

La croissance des micro et petites entreprises (MPE) est largement reconnue comme un outil efficace dans la création des emploies et dans la réduction de la pauvreté chez les pays émergents. Dans l'espoir que ces entreprises pourraient devenir de plus grandes firmes dans l'avenir, la croissance des MPE devient une préoccupation importante des autorités. Nous tenons à étudier dans ce papier l'impact des caractéristiques de l'entreprise sur le niveau de contraintes à la croissance. Cette étude permet les policy-maker de mieux créer les politiques pour promouvoir la croissance des MPE. Utilisant un échantillon de MPE tiré de l'enquête du niveau de vie des ménages au Vietnam (VHLSS2004), nous trouvons que le niveau de contrainte auquel l'entreprise doit faire face dans sa processus de croissance varie en fonction ses caractéristiques, et en fonction de la nature des contraintes. En général, les plus grandes entreprises des PME manifestent plus de plaints contre les barrières de croissance.

Mots-clés: performance de l'entreprise, micro et petite entreprise, barrière à la croissance, Vietnam.

JEL classification: D21, L25, O53

1 Introduction

The debate on how the size of firms affects firm growth has become a "classical" question in economic literature. It leads to many questions concerning how different large firms and small firms affect the development of the country. In fact, the role of entrepreneurship in the economic growth and particularly the role of small enterprises are well recognized by the entrepreneurship literature (Audretsch, 1995).

A majority of empirical analysis have concentrated on factors determining the success of firms in business (Majumdar, 1997, Heshmati, 2001, Papadaki and Chami, 2002, Alvarez and Crepsi, 2003, Brown and al., 2005, Bigsten and Gebreeyesus, 2007). Less attention has been paid to constraints that entrepreneurs have to encounter with their business activities. However, we still refer to some analysis of Sleuwaegen and Goedhuys (2002), Pissarides et al. (2003), Robson and Obeng (2008), Coad and Tamvada (2008), Moghal and Pfau (2008).

Before, a great number of studies have been carried out for firms in developed countries. In recent years, thank to the increasingly important role of developing countries in the worldwide economy and the availability of data, development of firms in these countries have received much more attention of economic researchers.

Besides, the critical role in introducing new products and new techniques into the market, micro and small firms in developing countries are seen as an effective tool in creating job and welfare, therefore a way to run out poverty. However, as a way of run out of unemployment, a non-negligible part of entrepreneurs of MSEs might have not a true "entrepreneur spirits" in the sense that they do not bring innovations or bring about reform in stagnant markets (Santarelli and Vivarelli, 2006). Furthermore, in many cases small businesses are considered to be a last resort rather than a first choice (Beck et al., 2005), whenever possible, entrepreneur will exit the market to pursuit another career path. Hence, many firms might be less productive than incumbent, entrepreneurs might not care about efficiency, productivity and enlargement of the firms. Together with barriers to growth that firms in small scale have to encounter such as financing access, land for production, lack of management skill etc., this leads to the fact that firms which enter small stay small and do not have capability to innovate and invest in new technologies and growth. Indeed, several researchers have raised the question about the "missing middle" in the entrepreneurial network with its related consequence.

Given special characteristics of MSEs and their role in economic development, promoting the growth of MSEs has become an important mission of policy makers in developing countries and in Vietnam in particular. However, it is important that the supports of MSEs should not be identified based on subjective evaluations of policy makers. Furthermore, that we have several policies that fit demands of each "group" might be more efficient than "one size fits all" policy. Consequently, we need to know their objectives, abilities, difficulties and who need an aid before give them any assistant.

In order to light up partly this research area, our paper aims to answer the question of how characteristics of firms affect the level of constraint to growth in business environment in Vietnam. We use MSEs data base extracted from the survey of living standards in Vietnam in 2004, in which information on household business have been collected. The analysis is accomplished by using OLS regression where dependent variables are the level of constraints facing firms in several aspects of business conditions and explicative

variables are firm characteristics.

Our brief results suggest that firm characteristics play an important role in determining how serious firm growth is affected by business constraints and that they vary a lot along the type of constraints facing firms. Firms differ in size, age, regional location and sector provide significantly different answers about the level of constraints.

In the section 2, we provide some theoretical and empirical underpinnings of constraints to growth. Next, background features of enterprise sector and description of the data used in this paper are presented. Section 4 follows with the definition of variables and summary statistics of the sample of firms. Methodology approach and results are presented in the section 5 and we conclude in section 6.

2 Theoretical and empirical underpinnings

In the theoretical literature dealing with the factors that affect the creation and performance of firms, three groups of factors have been defined, the characteristics of firm, of the entrepreneur and of the environment in which the entrepreneurs and firms operate. The issue of what personal characteristics make entrepreneurs is widely reported in both theoretical and empirical analysis[1].

The question of which characteristics of firm and its entrepreneur affect the firm performance is also the old one (See Sutton, 1997). From the standpoints of bounded rationality, agency problem and strategic behaviour (see e.g., Ben Ner et al., 1993; Holmes and Zimmer, 1994), the impact of structure or internal organization of firm has been studied via empirical variables such as legal status, ownership status or variables that control for the governance strategies.

In the context of constraints of the environment faced by firms, the environmental factors often consist of the existence and functioning of the financial and other markets, the extent of development of infrastructure and the presence of a legal framework, regulation and institution of enforcement (Pissarides et al., 2003). The effect of financial constraints on firm performance and growth does not simply imply the barrier of access to credits or credit cost but also are brought about by the underdevelopment of financial market. Levine (1997) has provided a large theoretical survey on the role of financial sector development on economic growth through better identification of investment projects, better availability and lower cost of external financing to firms, improved risk taking, technological innovation. Rajan and Zingales (1998) present empirical evidences from a large sample of countries that firms needing external finance tend to develop more slowly in countries with less-developed financial markets. Similarly, Pissarides et *al.*(2003) find that constraints on external financing limit in important way the ability to expand production in the case of Russian and Bulgarian small and medium firms. However, Johnson et al. (1999) find in a survey of private manufacturing firms in Poland, Romania, Slovak Republic, Ukraine and Russia that the absence of external financing does not prevent firms from investing. They conclude that the financial constraint is not restrictive in that internal finance can substitute for external finance. Similar results are found in the studies of Johnson et *al.*(2000) and Brown et *al.*(2004). According to Brown et *al.*(2004),

[1]For more information theoretical model see: De Witt (1993), on empirical literature see Blanchflower and Oswald (1998), Le (1999). Citation should not be exhaustive.

some aspects of institutional environment - property rights, contract enforcement, efficient regulation- may be important determinants of small firm growth and perhaps more important than financial access.

Regarding the effect of other components, in the context constraints of environment facing firms, the legal framework, regulation and institutional enforcement, Covin and Slevin (1989) state that external environmental factors might have a strong impact on small firm viability, growth and firm performance. They also find that the performance of small firms is positively related to the entrepreneurial strategic posture or entrepreneurial orientation (EO) in other word, which, in turn is strongly affected by socio-economic environment of enterprise. The positive relation between the EO and firm performance are also found in the study of Wiklund (1999). It might be noted that not all small entrepreneurs have "EO" which has traditionally been viewed as actions that are more innovative, risk-taking and proactive, therefore determinants of EO is also an important field of research in entrepreneurial literature. Dickson and Weaver (2008) provide a theoretical framework in which the role of institutional environment in determining firm behavior towards entrepreneurial orientation is analyzed. They show that the choice of an EO may be significantly motivated by legal system and regulative forces of institutional environment.

With regard to the role of infrastructure on growth, it is generally accepted that infrastructure development affects economic growth. Infrastructure has often been seen as increasing productivity and attracting business activity by lowering transport and production costs and facilitating market access. Canning and Pedroni (2008), using a panel of cross-countries from 1952 to 1990, find that infrastructure development tends to cause long run growth and the effect of infrastructure development on growth varies across countries. Similar results are found in empirical studies of Egert et al. (2009) who focus on the role of physical infrastructure e.g. transport, electricity and telecommunication in economic growth for a sample of OECD countries.

3 Data

3.1 Some background features

Before transition, there was no private sector in Vietnam. State sector, including either state-owned enterprises (SOEs) or co-operatives sector existed as formal job-maker. Facing with the increase of socio economic crisis, the Government of Vietnam has had to conduct a program of economic reform[2] in the late 1980s. The transition from a central planned economy to market-oriented economy is widely reported in the literature. We refer to Auffret (2003); Arkadi and Do(2004), Justino and Litchfield (2003), Brassard (2004), Hemlin and *al.* (1998), Tran and *al.* (2009). The list should not be exhaustive.

The private business sector, therefore, has formally seen the light of day around 20 years ago. Together with the arrival of foreign direct investment, the economic structure has gradually changed from then on. The rapid growth triggered by this reform helped raise significantly income per capita and then reduce poverty rate from 58 percent in

[2]For more details see: Tamara (2006)

1993 and around 75 percent in 1990 to 37.4 percent in 1998 and 16 percent in 2006[3]. Preliminary results of transition process have enabled the improvement of living standards of the population, event for the poorest segment[4].

With the surface areas of more than 330 thousands km2 and Vietnam is ranked 13th in the world in term of population with a little more than 85 millions persons in 2008. The population of Vietnam is young with more than one half under 27 years old. Annual growth rate of the population is 1.2 percent. More than a decade since the early reform, Vietnam's per-capita GDP in 2008 is 820 dollars, the annual growth rate has been ranked among the top of world with 7 to 8 percent per year from 2002 to 2008. The table (1) shows some development and poverty indicator of Vietnam.

Panel A of the table (2) provides a simple view of the role of private sector (or non-state sector in other words) as major job-maker in the labor market. It is important to note that labors in agricultural activities are included in private sector. Panel B gives more detailed information on distribution of non-state worker, including workers in foreign investment sector, by kind of economic activities. We retain activities whose share of workers is closed to 1 percent or higher. We do not have unfortunately statistics for private sector without the foreign investment sector share. Outputs in panel B are author's calculation from statistics of total employed population and distribution of employment in state sector by kind of economic activities. The share of labor in agricultural is still dominant but a decreasing trend is obviously observed. Workers in manufacturing and in wholesale, retained trade, repair of motor vehicles, motor cycles and personnel and household goods take the second and the third largest share of employment. The higher growth of employment in manufacturing activity might be due to the equitation or privatization in other words of state owner enterprises. With regard to service sector, a majority of labors gather in 3 kinds of activities: hotel and restaurants; transport, storage and communication; community, social and personal service activities. We pay a little particular attention to education and training and health and social work activities. The share of non-state workers in these activities is small but its growth rate is rather rapid. From 2000 to 2007, the number of non-state workers in education and training service was doubled, and that in health and social work increased almost fourfold. This growth has partially represented the amelioration of living standard in Vietnam.

To some extent, these statistics imply that a larger part of non-farm private labors and none formerly SOEs labors often work in business activities of small and medium size. The table (3) and (4) provide clearer evidence of this statement. It has to be noted that firms in the census are all in formal status. Informal firms often escape from this kind of survey due to sampling method. Enterprise society is dominated by non-state firms in term of number of firms. Besides, net turnover of non state firm (table 5) has increased significantly from 2000 to 2006, in term of proportion. The share of net turnover of non state firm has risen from 25 percent to 41 percent, while that of SOEs has fallen from roundly 55 to 35.8 percent. In term of growth rate, during these 7 years, net turnover

[3]Poverty rates have been estimated by monthly average expenditure per capita according to the poverty lines by GSO and World Bank with different standards as follows: 1998: 149 thous. dongs; and 2006: 213 thous. dongs; Dong : Vietnamese currency; Exchange rate VND/USD was roundly 16000 dongs

[4]For further detail of poverty reduction in early transition period see "Vietnam poverty analysis [electronic resource] / prepared for the Australian Agency for International Development by the Centre for International Economics" (2002)

of non state firms in current price have increased more than fivefold and then taken the leader role in economic growth. One can say that this increase has resulted from the privatization process of SOEs[5]. It is obviously that it was part of the increase, but the growth rate of net turnover of limited and private companies which we can say created mainly by private agents has increased more than 5.3 and 3 times respectively, higher than growth rate of state sector. Furthermore, their share in net turnover of non-state sector is 3 times higher than that of joins-stock companies which are partly privatized SOEs. To summary, private sector has played more and more important role in the economic growth, job creation, and poverty eradication process in Vietnam.

3.2 Data description

We use, in this study the Vietnam Household Living Standard Survey in 2004 conducted by General Statistics Office (GSO) of Vietnam. The 2004 version is the only one of the living standard survey series in Vietnam where information on household business history is collected, especially in the section 10. Among other information, it provides a ranking of business climate or in other words, barrier to growth of micro and small firm in Vietnam. Data from around 9000 households collected all over the country show that more than 4000 non-farm business activities have been reported and that multiple activities can be carried within a household. Consequently, more than one third of Vietnamese households run at least one non farm business of one kind or other.

In this paper, the relation between the firm's characteristics and barriers to firm growth in the case of micro and small enterprises is considered. We restrict our study to non farm business activities. Within the framework of a household survey, business activities in our sample are often in small or very small size, therefore a lot of information that can be collected in the case of large enterprises can not be reported or are equal to zero in other words in the case of small enterprises. Hence, to reduce the missing value of the data, we exclude from this analysis all business activities which are not carried out in a fixed location, and which are run for less than three months per year.

It should be noted that, due to the definition of the firm growth in our study, the firms that have been created from 2002 up to 2004 (the moment of this survey) are dropped in our sample.

Our final sample consists of observations covering 8 regions of the country. We run our analysis on both the urban and rural areas, full time operating as well as non-full time operating firms.

4 Variables and descriptive analysis

Definition and some descriptive statistics of the variables used in our estimations are presented here after.

[5]For more detail on privatization of SOEs in Vietnam, see Sjoholm (2006)

4.1 Variables and definition

Obstacles that firms have to face with during growth process are measured by a series of questions of 7-point scale. Firms are requested to rank the 17 constraints according to ascending order of hurdle from 1 "No hurdles" to 5 "Serious hurdles" and the last two answers 6 "Irrelevant" and 7 "Unknown". Summary statistics are provided in the table (6).

The table (6) shows that the share of firm ranking a constraint as "major" or "serious" is very small. Whereas, the number of firms reporting a constraint as "irrelevant" or "no hurdle" is very large. This result seems not to be surprised because of the fact that our survey is consisted of very small size firms. As business activity could be a livelihood or a way to run out of unemployment, firm owners have then less or no concern for business environment.

As we can not determine the rank of "unknown" answer according to ascending degree of hurdle, we drop out observations whose answers are "unknown". Answers are re-ranked from 1 "Irrelevant" to 6 "serious hurdles". Our answer system is therefore close to Likert-type scale of 6 points.

Although the constraints to micro and small firm growth can be distinguished by many single factors, for example: 17 obstacles in our survey, but without loss of generality, these factors can be gathered to measure larger compositions of business constraints such as infrastructure, financial access and burden of legal system etc.

In our exploratory data analysis, we find that 17 items measuring the level of constraints to firm growth have close relation. The overall Conbrach alpha coefficient of these items is 0.9 which is relatively high. Since these answers are closely related, we can doubt the fact that the firm owner's ranking of constraints to growth is highly influenced by their just previous response.

The simple correlation among 17 items (table 7) seems not to confirm our hypothesis. Even if correlation coefficient of a couple of side by side variables is often the highest coefficient in the correlation matrix, the difference in absolute value with other coefficients is not very important for all cases. On the other hand, the number of cases where the correlation coefficient is not the highest is not negligible. The table (7) supports also our argument about gathering items into smaller numbers of composition. The correlation coefficients among some groups of items are higher.

The principal component analysis (PCA) has been carried and 4 factors have been retained from the process. The figure (1) shows us the plot of Eigen value of PCA. The table (8) then provides the rotated factor loading and unique variance of 17 items. The first factor ($INSTITUTION$) represents the level of constraints related to regulations on trading and custom, inconsistency in economic policies and instability of the macro economy including inflation, exchange rate and corruption. That how financial access, financial expenditure, taxes and business registration and operation license bothers business operation and development is measured by the second factor ($FIN-TAX-license$). The third factor ($SOCIAL-INSTABILITY$) shows firms owners evaluation toward obstacles caused by crime, lack of security and unfair or unhealthy competition. Constraint to firm growth due to infrastructure conditions including electricity, communication and postal services, transportation and land for production and business purposes, is represented by the last factor ($INFRA$)

To verify the robustness of the PCA results, we have calculated also the Conbrach's alpha coefficient for 4 factors. The results are respectively 0.83, 0.79, 0.75 and 0.64 for factor 1 to factor 4. It should be noted that it is not easy to determine the "should be" Conbrach's alpha value. The last value of alpha that we have obtained is relatively smaller than the conventional value of 0.7. However, we still retain the factor 4 as it represents clearly the degree of infrastructural constraints encounter firms.

Included in explicative variables are characteristics of firms themselves and of their entrepreneurs.

The firm age (*Age*) is represented by a set of dummy variables according to the year of birth interval (table 9). Two important benchmarks according to which firm age interval is chosen should be of interest. First, in 1986, Vietnam has carried out its program of economic reform. From then on the private sector has been formally recognized in Vietnam. Second, for the last interval of firm age, we choose the 2000 because the law on enterprises in Vietnam has come into force in this year. As for the role of size in firm performances, the literature on the role of firms is not conclusive. Numerous researchers find a negative relationship between age and the growth of firms [6], some others however reports a contradictory results[7].

The literature on the relation between the size and the performance and survival of firms does not provide us a very simple clear result (Evans, 1987a, b, Audretsch, 1995, McPherson, 1996, Hesmati, 2001, Liedholm, 2002) but still, size is always an important determinant of firms growth and of constraints facing firms in their business (Sleuwaegen and Goedhuys, 2002, Robson and Obeng, 2008, Coad and Tamvada, 2008, Moghal and Pfau, 2008).

We use variable (*LogNumber*) to capture the size of firm in term of regular labor, including firm's owner in logarithm value. One exception should be revealed in particular. That is a firm with 112 regular labors and this firm is a not "registered" one. This "outlier" is not included in our estimation.

The firm size in term of revenue is represented by variable (*Income*). As usual, firm revenue is measured in logarithm scale. Consequently, firms suffer from lost - negative revenue- can not be gathered in the sample as well. It has to note that this is one of several problems that econometric method has not been able to solve yet in empirical analysis (Parker, 2003).

As found in the research of Bartlett and Bukvic (2001), the performance status of firm might associate with some special constraints. The variable (*Growth*) measures the qualitative variation of firm revenue between 2004 and 2002. It could be not the most suitable measurement of firm performance but it is the only one we have in our hand. The state of firm performance is captured by a nominal variable which is equal (1) if firm reported an increase in revenue, (2) if the revenue was unchanged and (3) if the revenue decreased. Consequently we obtain 3 dummy variables. As mentioned in the study of Nguyen(2004), we are not able to take into account some aspects of subjective valuation of the respondent in the firm (for example : the answer "unchanged" can correspond in fact to a weak increase).

[6]Negative relation between firm age and firm growth is found in Liedholm(2002), Dollar et al. (2005), Sleuwaegen and Goedhuys (2002), Coad and Tamvada (2008).

[7]Positive relation between firm age and firm growth is reported in Das, (1995), Heshmati, (2001), Nichter and Goldmark (2008).

The survey that we use covers registered, not-formally registered and informal firm. The second refers to household firms that are not officially registered by provincial authorities under different establishment and enterprise laws but district authorities. They can but often neither register their company seal with the local department of Police, nor demand for a tax code at the local Department of Taxation. Therefore, they can not produce VAT invoice and consequently their tax payments can not be calculated on the base of their invoices. The amount of tax payments are negotiated between the "owners" and tax officials (Freeman and *al.*, 2005)

It is of interest to note that statistics in this analysis are draw from a household survey base. Hence, this sample is not really representative of the micro and small firm population in the country including household firm registered or not, private firm, limited liability firm and shareholding firm.

Unfortunately, we do not have any mechanism such as a weight value to correct this sample bias. Hence, the dummy variable (*Registered*) is used to represent legal status of firm. It is coded 1 if firms is registered (including formally and non formally registered firms) and 0 (including informal firms) otherwise

The financial access is captured by dummy variable. (*Credit access*) is equal 1 if household has borrowed only from bank and 0 otherwise. For this dummy, we are not able to identify which business activity loans are used in case there are more than one business operated by household's member but only they are used for a non farm business activity. We suppose that the households and firms must satisfy with some conditions imposed by bank institute in order to get a credit, as a result these conditions might be related to some particular obstacles to credit access and then to firm growth.

Vietnam is decomposed into 8 economic regions from the North to the South. Regional dummy variables are used therefore to capture these eight economic regions. Dummy variable for rural and urban areas (*Rural*) identified according to the administrative classification of Vietnam is also used in our equations.

Both full-time and part-time operating firms appear in our sample. We consider full-time operating firm all firms which have been run for more than 20 days per month and 9 months per year. Hence, a dummy for full-time operating firm (*Full-time*) is included in our estimations. Business activities can be carried out within households whose members run also other businesses than the activities in question. Consequently, to some extend MSEs results might be affected. Entrepreneurs could help each other or learn from family members. Dummy (*Single*) is used to represent the fact that observed business activity is unique business run by members within household. Finally, dummies representing economic sectors and provinces are used as controlled variables.

4.2 Descriptive statistics of the data

Summary statistics of 4 factors, or 4 dependents variables in other words and explicative variables are presented in the table (9).

As mentioned above, firms created between 2002 and 2004 are dropped in the sample, this section provides only statistics on firms created before 2002 and surviving till the end of 2004. Consequently, the statistics do not represent exactly characteristics of small firm population in Vietnam but firms with more than or equal two years old in 2004.

The first four variables are dependent variables. Their average values are close to zero.

The higher value of the dependent variables, the more serious hurdle firms have to face up with. The size of firm is represented respectively by the two following variables which are in log scale. In term of decimal scale, the average number of firms' employees in our sample is 1.75, which range from 1 to 30. Most of firm (87.5 percent) are one-person or two-person firm including firm owner (about 60 percent of firms are one-person firms). Regarding the firm income, it range from 62 thousands (equivalent to 5 USD) to 373380 thousands Vietnam dong (VND) (equivalent to 23 336 USD) with median value of 8050 thousands VND[8].

The number of registered firms in our sample is rather small, 24.5 percent versus 75.5 percent. Similarly, about 9 per cent of firms have used a bank credits during 12 recent months. 30 per cent of firms in our sample are seasonal firms. The share of firms in rural and urban area is 66.7 and 33.7 respectively. 32 per cent of enterprises are run in tertiary and secondary sector. 46.7 per cent are commercial firms in detailed sale or wholesale.

Regarding firm age, the share of firm younger than 10 years old is about 50 percent. Most of firms have been created after the economic reform (1986) and the number of micro firm has increasingly risen from then on. It should be noted that the group 2000 includes only firms created till 2002. If we include firms created in 2003 and 2004, the share of firm in this group is the highest.

It is of interest to look at the distribution of micro firms across the country. The River Red Delta, Mekong River delta and the Southeast are the 3 most important centers of economic development of the country. The first includes the capital of Vietnam, the third: the biggest center of economic in many aspects. That why the number of non farm business activities in these regions is the highest and it should be noted that the percentage of micro in these regions corresponds to their percentage of population compared to the country population. It is not surprised to see that the share of firms in the Northwest region is the lowest (1.8 percent). This is the region that has to deal with many difficulties in economic development. Per capita income in the region is always at the lowest level of the country. An other crucial reason for the small number of non farm business is that this region consists of only 4 provinces with roundly 3 percent of country population compared to the Central High Land, the North and South Center Coast with 5.7, 12.8 and 8.5 percent of country population respectively[9].

With regard to the firm performance, about 49 per cent of firms report an increase of total sales. The share of firms has had a total sales decrease is 14.43 per cent. We sort our firm sample into 3 sectors. In general, two third of micro firms have been run in tertiary sector. The share of firms in whole sale and retail is the highest (49.33 percent) and firms in service sector take 21 percent. The rest, 33 percent, is run in industrial sectors.

[8]The exchange rate was roundly 16000 VND/USD in 2004

[9]Statistics are calculated for 2004 from GSO data at: www.gso.gov.vn

5 Results and discussion on robustness test

5.1 Empirical results

In order to investigate the heterogeneity of firm across constraints to firm growth, the four factors resulted from the factor analysis presented above are used as dependent variable. As they are considered to be continuous variable, we carry OLS regression in our analysis. Equation to be estimated is written as follow:

$$y_i = \alpha + \beta X + \epsilon \tag{1}$$

where the subscribe $i = [1, 4]$ captures four factors; X is a vector of firms characteristics as presented in the variables section and finally ϵ is residue. Our approach is similar to Sleuwaegen and Goedhuys (2002) for Ivorinan firms, Robson and Obeng (2008) for Ghanain firms, Coad and Tamvada (2008) for Indian firms and Moghal and Pfau (2008) who analyse Pakistan firms.

As firms in our sample consist of 3 groups: firms whose turnover have increased, have been unchanged and have decreased compared to 2 years ago (turnover in 2004 vs. 2002). The small table (10) provides us a descriptive relation between the turnover status and constraints to growth. In term of average value, the level of constraint to growth varies a lot across growth status of turnover. In general, firms having good performance have reported higher level of constraint compared to other growth status. In term of median value, the difference among firm group is smaller but it should not be ignored. We suppose that turnovers status of firms must have particular impact on the evaluation of constraint to firm growth that dummy variables for each group of firm could not capture totally different effects of turnover growth status. Therefore, we run separate regression for each of group of growth status.

Regression results are presented in the tables (11 - 14) for four factors respectively. For some regressions, we include square of employees number or income as we detect the nonlinear relation between the level of constraint to firm growth and the size of firm. We discuss principally significant results in regressions.

5.1.1 Institutional constraints

In the table (11), dependent variable is constraint in institutional condition. In general, it seems that there is not relation between the size of firm and institutional constraints including hurdle from regulation on trading and custom, inconsistency in economy policy, instability of the macro economy including inflation, exchange rate and corruption. Other important characteristics of firms as for: legal status, having credit access, running in urban location in full time and having only one business within the household, have any significant relation with institutional barrier.

Variables that have significant sign are firm age, geographic location of firm and sector of activity. With regard to the firms having good performance, firms in three regions in the North of Vietnam have to face with more serious constraints in institution compared to other regions. It should be noted that the omitted region is the River Red Delta, one of the most important center of economic. This result suggests to some extent that

institutional condition in regions encountering more difficulties in economic development should be less favour to the firm growth.

In the group of unchanged turnover, the result reveals that institutional barrier affects significantly negative to firm growth for firms in younger group created from 1996. This outcome suggests some positive sign about the fact that micro and small firm have serious concern on their growth. Micro business is not only the way to run out of unemployment or poverty.

Regarding the third significant variable, business sector, firms in service activities are less affected by institutional constraint. For three groups of firms, the sign is always negative but significant only in the good performance group.

Other characteristics of firms, particularly our variable of interest: size of firm does not matter to institutional constraints.

5.1.2 FIN-TAX-LICENSE constraints

Results in the table (12) explain the barrier of financial, tax issues and license to firm growth along firm characteristics. We find that the size of firm in term of number of employees matters for the degree of constraint facing firms. In contrast to other researchers (Bari et al., 2002 and Moghal and Pfau, 2008) who indicate that larger firms held advantages because they are in better position to access financial credit, to have investment incentives and to obtain limited government licenses, our results reveal positive relation between firm size and constraints of tax, financing issues and license. It means bigger firms face up with more serious burdens. The sign of firm size in term of income level however is not significant.

The sign of variable "Registered" is consistent with the outcome above. Registered firms complain most about "Fin-Tax-License" issues. As indicated in Moghal and Pfau (2008), this fact can be explained by several reasons. Smaller firms and often non registered firms believe that they will not be welcomed by financial institution and therefore, they are discouraged to approach formal credit institution and find other sources of financing such as self financing or borrowing from family or friends. Furthermore, smaller firm is less willingness to take risk then avoid taking any liabilities related to the credit. Bigger and "more formal" firms, still micro and small firms, who can apply for a credit, have a lot of difficulties in approaching this source of financing.

Besides, the result of variable "Credit access" seems to be interesting. Its insignificant sign means that there is not statistical difference among firms having obtained bank credit and other firms. Additional information about "Credit access" variable should be provided. Credits that firms have obtained are financed by the poverty eradication program and might not bear the same characteristic as credits in general for firms and then they might not be accessible to every firm. However, its non significant sign implies that even with the "credit access" firms still complain the same.

Regarding the age of firm, we find that the youngest firms in the good performance group complain most about "FIN-TAX-LICENSE" compared to others firms. With the aim of enlarging their business, young firms have to encounter with more and more financing access, financing cost, tax and license issues and might find that these conditions are not very favour to their targets. One more time, the result implies that micro firm owners, particularly younger firms, have real "entrepreneur spirits" while having consid-

erable concern for business constraints and that micro and small businesses should not be always the last choice in the carrier path.

In other group of firm, firm age is not an important factor in determining how firms evaluate constraints of tax and financial issues and license.

Burdens of financial and tax issues and license differ statistically significant by firm location. Firms in three regions, Northwest, North Central Coast and South Central Coast complain much less about "Fin-Tax-License" issues for the group having increase in turnover. The sign is negatively significant in the regression. However, for the group of worse performance, firms having decrease in turnovers, the sign of Northwest is positively significant. This outcome seems contrary to the result of "Growing" regression. In fact, because of the small number of observation in this category, it is suggested that this result is strongly bias and not representative for the region. Even though, it reveals the question on how constraints of financial and tax issues and license affect the growth of firms in the "declining" group in the Northwest region.

In the same group, the "declining" group, controlling for others characteristics, firms in whole sale and retail trade complain significantly most about "Fin-Tax-License" constraints. Evaluation of firms in others groups does not differ across sectors. For the purpose of better understanding which are principle constraints facing firms among financial and tax issues and license, we calculate a simple average value of each item included in the Fin-Tax-License factor for every sector for firms in "declining" group. The result shows that firms in whole sale and retail trade complain most about access tax issues and then financing access[10].

It is interesting to look at view of firms in rural area and firms with "single" status on constraints to growth even though the results are not significant. Firms bearing these characteristics for all performance group voice lower complaints against financial, tax issues and license.

5.1.3 Social-Instability Constraints

Relation between complaint against social instability issues including crime, lack of security, unfair and unhealthy competition and characteristics of firms is presented in the table (13).

After controlling for other firm characteristics, we find the firm size does not matter for the level of constraint facing firms in the "growing" and "unchanged" group. Its effect, however seems to be contradictory for firms in the "declining" group. Bigger firms, in term of number of employees tend to complain less about social-instability constraints, while in term of income level their complaints are much severe. It should be noted that the degree of signification at 10 percent level is not so much strong then outlier might bias significantly our results. In fact, 4 biggest firms in term of number of labours report a relative lower level of constraints, by discarding these observations, the coefficient of variable "Number of employees" becomes non significant but still negative while the level of signification of firm income variable does not change. Therefore, the result implies that the degree of hurdle facing bigger firms is more serious than small firm with regard to income level. In term of employee number, the result is still ambiguous. Large sample might allow us light up more questions.

[10]Detail results are available by contacting author.

Still in the group of firm having bad performance, age of firm is a significant factor to determining the difference in complaint of firms against social instability issues. It is of interest of repeat that firm created from 1980 onward are omitted in the regression. So, younger firms face less constraints of social-instability than the oldest firms in the group. It has to be noted that the coefficient values and degree of significant do not change much along firm age groups. One might reveal a question on why these oldest firms complain most. Whether the crime, lack of security, unfair and healthy competition is such serious that private business could not grow up? It could be a possible reason. At this time, private business was not formally accepted in Vietnam, and then it was difficult to a private firm to operate and grow. Regarding crime and unfair or unhealthy competition, it should not be strong possible reasons.

Consistent with this statement, evaluation of oldest firms is based on experience in the past of firm owners and might not be considered their actual problem.

Regarding, geographic location, It is interesting to find that firms in two particular regions Northwest and Southeast of the country complaint significantly less about social-instability issues with the level of signification of 5 percent at most. Omitted region is always River Red Delta. Firms in some other regions report also negative coefficients but the results are not significant. To some extent, social-instability issues in River Red Delta are severe constraints of firms compared to firms in other regions.

The same results are found in the group with better performance, "growing" and unchanged group. The number of significant variables is even higher, especially in the "growing" group. Firm age however does not affect constraints facing firms.

In these two groups, firms in whole sale and retail trade voice louder complaints than those in industrial and service activities at the level of significant of 1 percent.

With regard to other characteristics that affect firm complaints against business conditions, for the group with best performance, firms having credit access present more severe complaints than other firms. In the "unchanged" performance group, seasonal or full-time running status affects significantly social-instability constraint level facing firms. Firms operating in full-time complain less loudly than the rest. For two other groups, the result is also negative but not significant. This outcome is similar to that of the previous section about financial, tax issues and license. It suggests weak evidence that firms operating in full time face fewer burdens due to business conditional than seasonal firms as coefficient are not significant for all regressions.

5.1.4 Infrastructure constraints

The table (14) shows how firm characteristics affect Infrastructure constraint level facing firms. Infrastructure constraints include burden caused by electricity, communication and postal services, transportation, land for production and business purpose and emitted water and solid disposal treatment. The results show clearly that for this time, the size of firms matter significantly constraint level of infrastructure including electricity, communication and postal services, transportation and land for production and business purposes.

The number of employees matters only in the first regression of the table. The size of firm in term of income level is positively significant in all three regressions. The results seem to be obvious. Bigger firms voice louder complaints against infrastructural

conditions.

Regarding other firm characteristics, Outcome varies much along group of firm performance. In the "growing" group, firms operating for full time complaint much less about infrastructural constraints. The age of firms appears to be an important determinant of how firms evaluate this constraint. A majority of younger firms than omitted firms in the regression present significant higher level of complaint against infrastructure. As for two other groups of firm performance, the age of firms is significant only for firm created from 1985 to 1990 in the unchanged performance group.

Again, the River Red Delta seems not to be a favour region of firm growth. For three regressions, some region dummy variables (the Southeast and North Central Coast) are negatively significant. This means firms in these regions complaint less about infrastructural conditions than firms in the reference region. It should be noted that the negative sign is found in several other region variables, but unfortunately is not significant. This result with those in the previous sub-section about social instability constraints might suggest that firms in the River Red Delta are somewhat more severe about business condition or that business environment of the region is really less favour to the development of micro firm compared to other region, even though this is one of most economic development center of the country.

The effect of business sector on how firms view infrastructural constraints corresponds to our expectation. Firms in business activities other than industry are less constrained by infrastructural conditions. Dummy variables for activity sectors are negatively significant in all three regressions.

For the group of firms having decrease in turnover, infrastructural burden facing registered firms is less serious. It is obvious to find that firm in urban area complaint less about this issue at the level of significant of 5 percent.

About multiple business activities within a household, we find different results along two group of firm performance. In the worse performance group, firms in household with unique business activity, complain less about infrastructure. Whilst in the unchanged performance group, firms complain much more.

5.2 Test of robustness

As presented in the above section we carry a factor analysis process before investigate the heterogeneity of firm across barriers to firm growth. One might want to know why we do not run an ordered logit (or probit) regression as some others researchers have done with ordered answer data. First, since many of firms in our sample are in "tiny" size, running a business, in the view of these firm owners, can be seen as a way to run out of unemployment. Therefore, they might have less "entrepreneur spirits" than we thought as usual and might have not much concern about constraints to firm growth. Empirical results in the table(6) seem to confirm the statement. The share of firms whose answers are "irrelevant" or "No hurdle" occupies an important part in our sample. The number of firms experiencing "important hurdle" or more serious hurdle is very small compared to other answers. Because of the small number of firms in some categories, the use of ordered and logit or probit regression is not a suitable solution. For the same reason, the multinomial logit or probit regression could not be used accept gathering some outcomes. Second, the crucial assumption of this econometric method, the "proportional

odds assumption" is not valid with our data. Consequently, OLS regression is used in our analysis.

For each regression, tests for omitted variable have been run and the results show that there is not omitted variable in our regression.

One should doubt the endogenous relation between barriers to firm growth and results of firm activities in term of income. For the first stage of instrumental variable regression, we run regression of firm income on several variables including firm characteristics and some geographic variable[11]. Most of variables in the income regression are significant and the test of omitted variable supports the absence of omitted variable in the equation. We then carry the instrumental variable regression with firm income as instrumented variable and the test for endogenous. The result does not support the presence of endogeneity in our regression.

6 Conclusion

This study examines the problem encountering firms in the growth process. Different firm characteristics are found to play significant roles in determining the level business constraints facing firms and the level of signification vary also along the type of constraints.

For institutional constraints, firm age, regional location and sector of activities are significant variables determining the difference in the level of hurdle facing firms in business operations. Firms in three regions in the North of Vietnam, voice louder complaint against institutional conditions compared to other regions. Younger firms tend to complain less than the older for the group of "unchanged" performance. Reporting also lower level of constraint are firms in service activities. However, significant difference is found only for the group of good performance.

Regarding financial, tax and license issues, firm size in term of employee number, including firm owner, matters significantly the level of burden encountering firms. Bigger firms voice louder complaints than smaller firms, it is important to keep in mind that they are always MSEs. Consistent with this outcome, registered firms report also a higher level of constraints than the non-registered ones. Together with these results, in the group of good performance firms, the significant higher level of constraints facing younger firms suggests that to some extent, micro and small businesses are not always the last choice in the carrier to run out of employment. The effect of regional location varies significantly along firm performance group. Firms in some region complain less against the "Fin-tax-license" issues and it should be noted that these regions are not those in better economic development level of the countries. This result might imply that policy makers in these regions have done something more than other regions to encourage the growth of MSEs and perhaps the entrepreneurial growth in general. In the "declining turnover" firm group, firms in whole sale and retail trade and service activities complaint significantly stronger than firms in industrial activities.

With regard to the social instability constraints, significant relation between firm size in term of employee number is found only for "declining" performance firm group. Bigger firms in term of income tend to complain more about social instability constraint than smaller firms. However, the effect of size of firm in term of number of employees remains

[11] Details on regression are available by contacting author.

unequivocal and need to be re-examined with a larger sample. In other group of firms size of firm is irrelevant determinant in the regression. Always in the "declining" group, oldest firms complain most about social instability but their evaluations should base on past experience rather than actual realities. Region location of firms is also an important determinant of the level of social instability constraints. Firms in the River Red Delta seems to report high level of hurdle than firms in other regions, but the results of regional dummies are significant only for in two regions: Northwest and Southeast. Sector of activities, credit access and full time status play significant role as well in determining the level of constraints facing firms. However the degree of signification varies along firm's performance group.

As for the last factor of constrained examined in this analysis, firm size matters significantly constraint level of infrastructure condition. Bigger firms voice louder complaints against infrastructural burden. Effect of other firm characteristics on the level of constraints as usual varies significantly along firm group. Younger firms report a higher level of constraint. The River Red Delta again is considered to be less favour to the growth of firm than other region, specially the Southeast and North central Coast. As we expect, industrial firms complaint more about infrastructural condition. The same tendency is found for firms in rural area.

Overall, our findings support the idea that the one-size-fits-all policy is not appropriate for improving the business conditions of MSEs in Vietnam. Policy makers should understand the level of constraints facing firms in each economic regions, each group of firms in term of sector of activity, firm age, firm size etc. The result implies also that MSEs might not only be the last exit of unemployment, but a carrier choice and that micro and small firm owners have real concern on the growth of their firms. Therefore, more and more research on policies aiming to promoting the growth of MSEs in Vietnam is necessary.

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7 Appendix

Table 1: Development indicators of Vietnam

		2000	2006	World 2006
Population	Millions	77	84	6538
	Avg annual % growth		1.2	1.13
GNI	Per capita dollars*	390	700	7457
GDP	Annual % growth	6.79	8.17	3.93
	Billions dollars*	31.17	61	48626
Life expectancy at birth	Years	69	71	68
Poverty rate***	% of population	37.4 **	16	
Value added as % of GDP	Agricultural	24.53	20.4	
	Industry	36.73	41.54	
	Service	38.74	38.06	

*: Value at current price

**: Value in 1998

***:Poverty rates estimated according to the poverty lines by GSO and World Bank

Sources: GSO and World Bank

Table 2: Employed population distribution

(Value in percentage)

	2000	2001	2002	2003	2004	2005	2006	2007
Panel A: Total employed population by ownership								
State	9.31	9.34	9.49	9.95	9.88	9.50	9.11	9.00
Non-state	89.70	89.49	89.01	88.14	87.83	87.84	87.81	87.52
Foreign investment	0.99	1.16	1.49	1.91	2.29	2.66	3.08	3.49
Panel B: Employed population of non-state and foreign sector								
Agriculture	71.11	69.35	67.77	66.28	64.60	62.54	60.40	58.74
Manufacturing	8.40	9.14	9.65	10.48	11.03	12.00	12.83	13.40
Construction	1.88	2.47	2.93	3.14	3.71	3.90	4.35	4.62
Wholesale	10.86	11.08	11.43	11.96	12.32	12.50	12.71	12.93
Hotels, restaurants	1.92	1.91	1.90	1.92	1.92	1.90	1.90	1.95
Transport	2.86	2.80	2.75	2.74	2.68	2.62	2.59	2.50
Other services	0.72	0.77	0.92	0.72	0.83	1.17	1.43	1.75
Education and training	0.43	0.48	0.57	0.63	0.69	0.73	0.86	0.91
Community	1.36	1.42	1.45	1.48	1.54	1.81	2.00	2.16

Panel A: Statistics from GSO, Vietnam(www.gso.gov.vn)
Panel B: Author's calculation from GSO statistics

Table 3: Firm distribution by size in 2006

Enterprise

	Total	**By size of employees**							
		< 5	5-9	10-49	50-199	200-299	300-499	500-999	1000-4999	≥ 5000
SOEs	**3706**	**19**	**27**	**657**	**1356**	**398**	**454**	**398**	**356**	**41**
Central	1744	12	6	161	559	204	254	259	252	37
Local	1962	7	21	496	797	194	200	139	104	4
Non-state enterprise	**123392**	**16656**	**57722**	**37503**	**8977**	**1017**	**742**	**526**	**238**	**11**
Collective	6219	327	3041	2323	421	49	34	20	4	
Private	37323	10830	15507	9543	1256	97	51	31	8	
Collective name	31	2	11	16	2					
Limited Co.	63658	4699	32158	20523	5031	517	368	255	100	7
JS Co. w. K. of State	1360	5	53	275	566	147	135	108	71	
JS Co. wo. K. of State	14801	793	6952	4823	1701	207	154	112	55	4
Foreign I. enterprise	**4220**	**159**	**231**	**1205**	**1344**	**322**	**329**	**334**	**267**	**29**
100% Foreign capital	3342	128	180	946	1043	258	255	271	235	26
Joint venture	878	31	51	259	301	64	74	63	32	3
TOTAL	**131318**	**16834**	**57980**	**39365**	**11677**	**1737**	**1525**	**1258**	**861**	**81**

Statistics from GSO, Vietnam(www.gso.gov.vn)

Table 4: Number of firms by type

	2000	2001	2002	2003	2004	2005	2006
				Enterprise			
State owned enterprise	**5759**	**5355**	**5363**	**4845**	**4597**	**4086**	**3706**
Central	2067	1997	2052	1898	1968	1825	1744
Local	3692	3358	3311	2947	2629	2261	1962
Non-state enterprise	**35004**	**44314**	**55237**	**64526**	**84003**	**105167**	**123392**
Collective	3237	3646	4104	4150	5349	6334	6219
Private	20548	22777	24794	25653	29980	34646	37323
Collective name	4	5	24	18	21	37	31
Limited Co.	10458	16291	23485	30164	40918	52505	63658
Joint stock Co. having capital of State	305	470	558	669	815	1096	1360
Joint stock Co. without capital of State	452	1125	2272	3872	6920	10549	14801
Foreign investment enterprise	**1525**	**2011**	**2308**	**2641**	**3156**	**3697**	**4220**
100% foreign capital	854	1294	1561	1869	2335	2852	3342
Joint venture	671	717	747	772	821	845	878
TOTAL	**42288**	**51680**	**62908**	**72012**	**91756**	**112950**	**131318**

Statistics from GSO, Vietnam(www.gso.gov.vn)

Table 5: Net turnover in 2006 by ownership

	2000	2001	2002	2003	2004	2005	2006
SOEs	**54.91**	**51.24**	**51.15**	**46.38**	**41.21**	**38.85**	**35.82**
Central	39.13	37.27	39.06	35.13	30.99	30.74	28.75
Local	15.78	13.97	12.08	11.24	10.22	8.11	7.07
Non-state enterprise	**25.09**	**29.02**	**30.35**	**33.57**	**37.05**	**39.44**	**41.96**
Collective	1.20	1.12	0.94	0.88	0.67	0.80	0.71
Private	8.78	8.63	7.69	7.22	7.89	7.99	8.15
Collective name	0.00	0.00	0.23	0.72	0.00	0.00	0.00
Limited Co.	13.08	15.23	17.01	18.78	20.61	20.52	21.25
JS Co. w. capital of State	1.27	2.45	2.46	2.96	3.64	4.81	5.13
JS Co. wo. capital of State	0.76	1.59	2.03	3.01	4.23	5.31	6.70
Foreign investment enterprise	**20.00**	**19.74**	**18.50**	**20.05**	**21.74**	**21.71**	**22.22**
100% Foreign capital	7.34	8.01	8.00	9.00	10.74	10.99	12.31
Joint venture	12.66	11.73	10.51	11.05	11.01	10.71	9.92
TOTAL	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Statistics from GSO, Vietnam(www.gso.gov.vn)

Table 6: Firm owners' evaluation of constraints to growth

	Irrelevant	Unknown	No hurdles	Small hurdles	Noteworthy Hurdles	Major Hurdles	Serious Hurdles	Total
var-a	298	22	2023	344	114	55	15	2871
b	472	37	2086	212	43	14	5	2869
c	260	29	1768	505	220	74	15	2871
d	403	37	1892	306	146	73	9	2866
e	544	65	1944	241	48	21	2	2865
f	562	103	1694	323	131	45	5	2863
g	595	113	1820	262	47	21	4	2862
h	329	74	1957	358	97	48	6	2869
i	350	112	2090	253	40	15	5	2865
j	526	138	2049	129	13	6	2	2863
k	438	107	1730	429	124	32	5	2865
l	780	215	1708	122	24	8	7	2864
m	606	244	1567	311	104	28	5	2865
n	607	326	1516	279	105	27	4	2864
o	804	234	1606	141	43	20	16	2864
p	445	114	1590	444	169	75	28	2865
q	305	145	1424	576	264	121	30	2865

Question to identify the degree of constraint facing firms: how does the following prevent the operation and development of this activity? Var-a: electricity; Var-b: communication and postal services; Var-c: transportation; Var-d: land for production and business purpose; Var-e: emitted water and solid disposal treatment ; Var-f: financial access ; Var-g: financial expenditures; Var-h: taxes; Var-i: business registration and operation license; Var-j: labor regulation; Var-k: skill and education level of worker; Var-l: trading and custome regulation; Var-m: inconsistent economic policies; Var-n: instability of the macro economy; Var-o: corruption; Var-p: crime and lack of security; Var-q: unfair and unhealthy competition.

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Figure 1: Eigen value plot

Table 7: Simple correlation of constraints to firm growth

	var-a	var-b	var-c	var-d	var-e	var-f	var-g	var-h
var-b	0.41	1						
var-c	0.2261	0.3939	1					
var-d	0.2913	0.3716	0.3022	1				
var-e	0.305	0.4144	0.2578	0.4452	1			
var-f	0.2313	0.3916	0.2703	0.3605	0.4436	1		
var-g	0.2552	0.466	0.2542	0.3637	0.4747	0.6751	1	
var-h	0.2489	0.3003	0.2887	0.3019	0.3541	0.4357	0.4425	1
var-i	0.2615	0.3697	0.2392	0.3197	0.3946	0.4231	0.4588	0.6182
var-j	0.2909	0.4442	0.2693	0.3481	0.4684	0.4486	0.5008	0.3736
var-k	0.3106	0.3777	0.3163	0.3199	0.3409	0.3724	0.3804	0.2611
var-l	0.2111	0.4181	0.2468	0.2679	0.4491	0.4449	0.5277	0.3571
var-m	0.2608	0.3922	0.2888	0.3366	0.4285	0.4013	0.4373	0.3757
var-n	0.2672	0.3971	0.2941	0.3551	0.3846	0.3984	0.434	0.3648
var-o	0.2244	0.4164	0.2246	0.2976	0.4066	0.4033	0.4579	0.3087
var-p	0.2316	0.3585	0.3445	0.3439	0.3254	0.3278	0.3079	0.3493
var-q	0.2155	0.3113	0.3652	0.3016	0.2922	0.3176	0.3051	0.3627

	var-i	var-j	var-k	var-l	var-m	var-n	var-o	var-p
var-j	0.4844	1						
var-k	0.3043	0.49	1					
var-l	0.4133	0.6174	0.3918	1				
var-m	0.3849	0.4738	0.4409	0.5819	1			
var-n	0.3339	0.4337	0.4006	0.5354	0.6707	1		
var-o	0.356	0.506	0.3805	0.578	0.5389	0.5806	1	
var-p	0.3354	0.3116	0.3232	0.3362	0.4823	0.4652	0.5077	1
var-q	0.3238	0.2621	0.3607	0.2367	0.4562	0.4241	0.352	0.61

See explication in table 6 for definition of items

Table 8: Rotated factor loadings and unique variances

Item	Institution	Fin-Tax-license	Social instability	Infra	Uniqueness
var-a	0.1622	0.1726	0.1766	**0.4201**	0.7362
var-b	0.3486	0.2502	0.2241	**0.4885**	0.527
var-c	0.1313	0.1749	0.3611	**0.3411**	0.7054
var-d	0.2177	0.2698	0.2622	**0.3889**	0.6598
var-e	0.3938	0.3536	0.1572	**0.3454**	0.5759
var-f	0.3883	**0.5313**	0.1267	0.2294	0.4982
var-g	0.4731	**0.5424**	0.0751	0.2487	0.4145
var-h	0.1908	**0.6274**	0.298	0.0568	0.4779
var-i	0.2624	**0.6301**	0.2151	0.1092	0.4759
var-j	**0.584**	0.3534	0.0712	0.2945	0.4423
var-k	0.3979	0.1707	0.2471	0.3561	0.6247
var-l	**0.728**	0.2811	0.0853	0.1187	0.3697
var-m	**0.6289**	0.1789	0.4204	0.0999	0.3858
var-n	**0.6152**	0.1458	0.4176	0.1108	0.4136
var-o	**0.6529**	0.1679	0.3046	0.1006	0.4426
var-p	0.3003	0.1685	**0.655**	0.1165	0.4388
var-q	0.1835	0.2045	**0.6622**	0.1324	0.4684

See explication in table 6 for definition of items

Table 9: Descriptive statistics of the sample

Variables	Min	Max	Mean	SD	Obs.
INSTITUTION	-2.567	5.773	-0.013	0.846	1949
FIN-TAX-LICENSE	-3.007	4.955	-0.019	0.795	1949
SOCIAL DESTAB.	-1.989	3.869	0.002	0.790	1949
INFRA	-2.623	3.808	-0.002	0.683	1949
Income (log scale)	4.143	12.830	8.950	1.127	1948
LogNumber	0	4.625	0.359	0.541	1947
	Value	Freq.	Percent		
Registered	0 (No)	1903	75.49		
	1 (Yes)	618	24.51		
Credit access	0 (No)	2281	90.48		
	1 (Yes)	240	9.52		
Rural	0 (No)	1672	66.32		
	1 (Yes)	849	33.68		
Full time operating	0 (No)	778	30.86		
	1 (Yes)	1743	69.14		
Firm age	1944-1980	113	5.82		
	1981-1985	103	5.3		
	1986-1990	213	10.96		
	1991-1995	496	25.53		
	1996-1999	622	32.01		
	2000-2002	396	20.38		
Economic region	River Red Delta	495	25.41		
	Northeast	221	11.34		
	Northwest	35	1.8		
	North Central Coast	234	12.01		
	South Central Coast	208	10.68		
	Central High Land	114	5.85		
	Southeast	297	15.25		
	Mekong river Delta	344	17.66		
Sector	Industrial	643	33.01		
	Whole sale and retail trade	895	45.94		
	Service	410	21.05		
Growth	Growing	961	49.33		
	Unchanged	706	36.24		
	Declining	281	14.43		

Table 10: Average value of constraints level by firm performance status

Growth status	INS.	FIN-TAX-License	SOC. DESTAB.	INFRA
Growing	**0.0264**	**0.0468**	**0.0453**	**0.0439**
	0.2432	-0.0610	-0.2542	-0.1124
Unchanged	**-0.0743**	**-0.1100**	**-0.0565**	**-0.0468**
	0.2432	-0.0610	-0.3772	-0.1124
Declining	**0.0056**	**-0.0136**	**0.0036**	**-0.0494**
	0.2769	-0.0610	-0.2938	-0.1124
Total	**-0.0131**	**-0.0188**	**0.0023**	**-0.0024**
	0.2432	-0.0610	-0.2964	-0.1124

INS: Institution; SOC-DESTAB. : Social instability; INFRA: Infrastructure
Standard deviation in normal character

Table 11: Institutional constraints

Variables	**Growing**		**Unchanged**		**Declining**	
LogNumber	0.04	[0.0649]	0.06	[0.0796]	-0.113	[0.1178]
Income	0.007	[0.0360]	0.046	[0.0397]	0.033	[0.0562]
Registered	0.096	[0.0693]	0.053	[0.0958]	0.115	[0.1268]
Credit access	0.038	[0.0960]	-0.094	[0.1221]	0.125	[0.1340]
Rural	-0.097	[0.0607]	0.016	[0.0723]	-0.05	[0.1084]
Single nganh	-0.072	[0.0844]	0.084	[0.0958]	-0.149	[0.1542]
Full-time	-0.089	[0.0740]	-0.027	[0.0799]	-0.119	[0.1311]
Firm-age: firms created before 1980 are omitted						
Firmage 1981-1985	0.297*	[0.1725]	0.313*	[0.1609]	0.291	[0.2478]
Firmage 1986-1990	0.224	[0.1576]	0.119	[0.1619]	0.212	[0.2455]
Firmage 1991 -1995	0.148	[0.1478]	0.208	[0.1385]	0.012	[0.2055]
Firmage 1996-1999	0.225	[0.1477]	0.238*	[0.1351]	-0.112	[0.2123]
Firmage 2000-2002	0.201	[0.1480]	0.342**	[0.1398]	-0.064	[0.2303]
Economic region: The River Red Delta is omitted						
Northeast	0.174*	[0.1031]	0.091	[0.1192]	-0.199	[0.1926]
Northwest	0.253*	[0.1331]	-0.314	[0.2204]	-0.179	[0.2374]
North Central Coast	0.176*	[0.1028]	-0.116	[0.1018]	0.407**	[0.1998]
South Central Coast	-0.041	[0.0915]	-0.167	[0.1147]	-0.064	[0.1650]
Central High Land	0.158	[0.1000]	-0.022	[0.1334]	-0.378	[0.2724]
Southeast	-0.062	[0.0995]	-0.082	[0.1041]	-0.207	[0.1487]
Mekong River Delta	-0.024	[0.0864]	-0.063	[0.0996]	-0.267*	[0.1554]
Economic sector: The industrial sector is omitted						
Whole sale and retail	-0.101	[0.0779]	0.008	[0.0732]	-0.127	[0.1198]
Service	-0.275***	[0.0930]	-0.142	[0.0941]	-0.168	[0.1606]
Constant	0.072	[0.3668]	-0.720*	[0.3889]	0.193	[0.5831]
R-squared	0.016		0.003		0.029	
N	958		702		280	
Omitted variable test						

* p<0.1, ** p<0.05, *** p<0.01

Table 12: FIN-TAX-License constraints

Variables	**Growing**		**Unchanged**		**Declining**	
LogNumber	0.193***	[0.0641]	-0.168	[0.1555]	0.302***	[0.1136]
Income	0.000	[0.0357]	0.032	[0.0324]	0.038	[0.0619]
Registered	0.286***	[0.0648]	0.424***	[0.0748]	0.325**	[0.1329]
Credit access	0.105	[0.0929]	0.017	[0.1218]	-0.054	[0.1863]
Rural	-0.077	[0.0559]	-0.033	[0.0628]	-0.007	[0.1056]
Single h	-0.018	[0.0744]	-0.035	[0.0812]	-0.046	[0.1319]
Full-time	-0.051	[0.0705]	0.046	[0.0655]	-0.014	[0.1271]
Firm-age: firms created before 1980 are omitted						
Firmage 1981-1985	0.255	[0.1723]	0.02	[0.1242]	0.036	[0.2732]
Firmage 1986-1990	0.239	[0.1647]	0.042	[0.1379]	0.167	[0.2329]
Firmage 1991 -1995	0.218	[0.1560]	0.065	[0.1133]	0.29	[0.2395]
Firmage 1996-1999	0.317**	[0.1570]	0.005	[0.1122]	0.219	[0.2524]
Firmage 2000-2002	0.313*	[0.1610]	0.104	[0.1136]	0.416*	[0.2466]
Economic region: The River Red Delta is omitted						
Northeast	-0.114	[0.0987]	-0.031	[0.0925]	-0.005	[0.1331]
Northwest	-0.332**	[0.1362]	-0.600***	[0.2206]	0.537**	[0.2665]
North Central Coast	-0.147*	[0.0885]	-0.067	[0.0880]	0.122	[0.1678]
South Central Coast	-0.189*	[0.0968]	-0.019	[0.0915]	0.019	[0.1388]
Central High Land	0.011	[0.1146]	-0.119	[0.1077]	0.415	[0.3686]
Southeast	-0.125	[0.0886]	0.039	[0.0954]	-0.043	[0.1491]
Mekong River Delta	0.001	[0.0816]	-0.021	[0.0851]	0.022	[0.1734]
Economic sector: The industrial sector is omitted						
Whole sale & retail	0.054	[0.0714]	0.049	[0.0639]	0.229*	[0.1243]
Service	0.024	[0.0834]	0.019	[0.0813]	0.055	[0.1329]
LogNumber2			0.228*	[0.1214]		
Constant	-0.177	[0.3600]	-0.48	[0.3263]	-0.869	[0.6398]
R-squared	0.062		0.106		0.088	
N	958		702		280	
Omitted variable test						

* p<0.1, ** p<0.05, *** p<0.01

Table 13: Social instability constraints

Variables	**Growing**		**Unchanged**		**Declining**	
LogNumber	-0.023	[0.0563]	-0.027	[0.0701]	-0.219*	[0.1208]
Income	0.051	[0.0354]	-0.067	[0.2680]	0.117*	[0.0634]
Registered	0.099	[0.0656]	0.112	[0.0875]	0.162	[0.1223]
Credit access	0.185*	[0.1002]	-0.138	[0.1101]	0.004	[0.1417]
Rural	0.021	[0.0582]	-0.015	[0.0660]	-0.121	[0.1084]
Single	-0.033	[0.0743]	-0.085	[0.0900]	-0.063	[0.1439]
Full-time	-0.067	[0.0693]	-0.157*	[0.0808]	-0.006	[0.1008]
Firm-age: firms created before 1980 are omitted						
Firmage 1981-1985	0.090	[0.2007]	-0.016	[0.1311]	-0.531**	[0.2406]
Firmage 1986-1990	0.055	[0.1535]	0.143	[0.1478]	-0.529***	[0.1980]
Firmage 1991 -1995	-0.067	[0.1415]	0.147	[0.1102]	-0.607***	[0.1829]
Firmage 1996-1999	-0.038	[0.1415]	0.062	[0.1040]	-0.522***	[0.1807]
Firmage 2000-2002	0.034	[0.1464]	0.030	[0.1125]	-0.443**	[0.1937]
Economic region: The River Red Delta is omitted						
Northeast	-0.269***	[0.0872]	-0.012	[0.1153]	-0.021	[0.1920]
Northwest	-0.314**	[0.1287]	0.297	[0.2710]	-0.789***	[0.1919]
North Central Coast	-0.221**	[0.0955]	-0.198*	[0.1034]	0.173	[0.1850]
South Central Coast	-0.273***	[0.0982]	-0.381***	[0.0958]	-0.114	[0.1415]
Central High Land	-0.239**	[0.1008]	-0.138	[0.1315]	0.174	[0.2235]
Southeast	-0.297***	[0.0913]	-0.373***	[0.0906]	-0.339**	[0.1399]
Mekong River Delta	-0.243***	[0.0868]	-0.256***	[0.0881]	-0.101	[0.1485]
Economic sector: The industrial sector is omitted						
Whole sale & retail	0.201***	[0.0712]	0.210***	[0.0672]	0.027	[0.1262]
Service	0.035	[0.0800]	0.110	[0.0779]	-0.044	[0.1563]
Income2			0.012	[0.0165]		
Constant	-0.328	[0.3456]	-0.172	[1.0704]	-0.168	[0.6079]
R-squared	0.028		0.069		0.034	
N	958		702		280	
Omitted variable test						

* p<0.1, ** p<0.05, *** p<0.01

Table 14: Infrastructure constraints

Variables	**Growing**		**Unchanged**		**Declining**	
LogNumber	0.147***	[0.0519]	0.08	[0.0658]	0.083	[0.0859]
Income	0.053*	[0.0318]	0.088***	[0.0320]	0.081*	[0.0471]
Registered	0.000	[0.0598]	-0.072	[0.0724]	-0.172*	[0.0953]
Credit access	0.062	[0.0733]	0.125	[0.1190]	0.035	[0.0989]
Rural	0.050	[0.0501]	0.041	[0.0606]	0.211**	[0.0915]
Single	-0.099	[0.0707]	0.114*	[0.0689]	-0.250*	[0.1323]
Full-time	-0.148**	[0.0612]	-0.024	[0.0612]	0.066	[0.1066]
Firm-age: firms created before 1980 are omitted						
Firmage 1981-1985	0.399***	[0.1277]	0.252**	[0.1058]	-0.262	[0.2266]
Firmage 1986-1990	0.159	[0.1179]	0.078	[0.1283]	-0.253	[0.2124]
Firmage 1991 -1995	0.251**	[0.1038]	0.108	[0.0952]	0.007	[0.1944]
Firmage 1996-1999	0.272***	[0.1026]	0.12	[0.0941]	0.05	[0.2027]
Firmage 2000-2002	0.248**	[0.1033]	0.034	[0.0985]	-0.079	[0.2024]
Economic region: The River Red Delta is omitted						
Northeast	-0.084	[0.0820]	-0.049	[0.1074]	-0.089	[0.1458]
Northwest	0.239	[0.1799]	-0.258	[0.1680]	0.133	[0.2210]
North Central Coast	-0.038	[0.0812]	-0.111	[0.0801]	0.022	[0.1515]
South Central Coast	0.016	[0.0848]	-0.148*	[0.0867]	0.184	[0.1266]
Central High Land	0.011	[0.0759]	-0.186	[0.1158]	-0.115	[0.2437]
Southeast	-0.132*	[0.0783]	-0.177**	[0.0844]	-0.16	[0.1222]
Mekong River Delta	-0.083	[0.0722]	-0.111	[0.0737]	-0.093	[0.1285]
Economic sector: The industrial sector is omitted						
Whole sale & retail	-0.203***	[0.0645]	-0.129**	[0.0575]	-0.243**	[0.0967]
Service	-0.144*	[0.0743]	-0.149**	[0.0666]	-0.252**	[0.1190]
Constant	-0.468	[0.3177]	-0.889***	[0.3240]	-0.667	[0.4447]
R-squared	0.055		0.026		0.07	
N	958		702		280	
Omitted variable test						

* p<0.1, ** p<0.05, *** p<0.01