Regional Determinants of New Firm Formation in a Transition Economy: The Case of Uzbekistan

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1. Introduction

During the socialist period, under the centrally planned economic system, the role of small and medium-sized enterprises (SMEs) was largely neglected by policy makers in the Soviet Union due to the importance attached to the economy of scale. Almost all SMEs were integrated into gigantic former socialist state-owned enterprises (FSEs) comprising the so-called Soviet industrial complexes. The entry and location of these firms, their production capacities, buyer-supplier linkages, product variety, channels of distribution, and all other production activities were centrally determined by the State Planning Committee.

However, after the collapse of the Soviet Union these monopolistic FSEs faced numerous problems such as X-inefficiency caused by extensive state intervention, severe decline in production capacity, abolition of state subsidies, freezes in capital investment, massive layoff of employees, and so on. Unable to resolve these serious problems, most FSEs turned out to be highly inefficient and incapable of playing the role of "locomotive of the economy" under the drastic socio-economic changes during transition.

Therefore, as a first attempt to facilitate the transition toward a market economy, economists and policy makers have emphasized the crucial role that newly created firms can play in rapid economic recovery and revitalization, due to the dynamism and flexibility they possess (Smallbone, 1997; McIntyre, 2001; Baumol, 2002; etc.). New entry[1] during the transition significantly contributes to employment creation, technological innovation, X-inefficiency improvement and efficient redistribution of economic resources through promotion of competition (UN, 1995; Gibb, 1995; etc.). Moreover, emerging *de novo* private firms not only reduce consumer goods shortages, structural imbalance and distortion of price systems, they also contribute to the successful privatization of FSEs (for example, see Smallbone and Welter, 2001; McMillan, 1995; Svejnar, 1991; etc.).

Previous research on SME development during the transition period has mainly focused on either the vital role that SMEs play in transition economies, or on the specific problems faced by SMEs such as administrative barriers, heavy tax burden, low quality institutional infrastructure, etc (Van Stel et al, 2007; Aidis et al, 2009; etc.). However, previous research offers little help in understanding which factors promote new firm formation (NFF), especially

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[1] Within the prior literature, the term "entry" signifies new participants in local market for goods and services. These can be either diversification by firms operating in other geographical or product markets, or entry by *de novo* firms (Roberts and Thompson, 2003). In this study, I use the terms "entry" and "new firm formation" interchangeably.

NFF rates at the regional level. The lack of availability of consistent data about NFF for transition economies is likely one major reason for this. Moreover, it is difficult to find any research examining the mechanisms of the process of resource reallocation from the shrinking state sector to the emerging private sector.

Therefore, the purpose of this study is to examine the determinants of NFF rate, with emphasis on the extent to which the ongoing restructuring of FSEs influences NFF rates at the regional level in a transition economy. The particular case of Uzbekistan has been chosen for the analysis, as it provides an opportunity to examine the abovementioned link in the conditions of a natural laboratory due to certain specifics of transition reform as adopted by the Uzbek government.

Due to the gradualist approach in transition reforms, Uzbekistan's state-owned sector has continued to maintain a huge share of the economy. As a result, its significant lags in economic liberalization, privatization, and marketization, as well as its problems of inefficiency, have continued to worsen due to massive state intervention into national economic activity and the reluctance of government to undertake reform. These have drawn severe criticism from international organizations and scholars (WB, 2008; ICG, 2003; IFC, 2002).

However, despite consistently near-lowest international rankings for the business environment[2] in Uzbekistan, recent trends have shown high growth of SME share in the GDP of this transition country after 2000[3]. From 1999 to 2006, SME share in GDP increased from 29.1% to 42.1%, whilst SME share in total employment increased from 47% to 69.3% and SME share in total number of firms increased from 66.8% to 96.5%[4]. Moreover, both the total number of SMEs and the number of SME employees have increased twofold during the same period, indicating sustained and rapid growth of the SME sector in Uzbekistan (Table 1). Furthermore, the density of SMEs increased twofold in this 6-year period, reaching 13 SMEs per thousand people by 2006.

However, at the same time, there are huge differences in NFF rates among the different regions and industrial sectors in Uzbekistan (Tables 2). More than 60% of the SMEs were concentrated in agriculture and trade; the SME share in agriculture in particular has expanded remarkably. Furthermore, regional entry rates show remarkable discrepancies, ranging between a minimum of 0.02% and maximum of 4%.

Thus, Uzbekistan is of particular interest for researchers trying to shed light on the process of effective resource reallocation during the transition from a socialist central planned

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[2] World Bank Group, *Doing Business Reports*; BEEPS, *At-a-Glance Country Profiles*.
[3] International Monetary Fund (IMF), Public Information Notice (PIN) No. 2001-2007.
[4] The definition of SME was well established in the early 1990s, but after undergoing several wide-ranging revisions, it is difficult to make comparisons with the current situation. Hence, only data from 1998 or later have been included in the time-series data presented in this paper.

economy to a market economy, as well as the possibilities of massive redistribution of economic resources into the private sector occurring due to the restructuring of FSEs. However, the previous literature offers little help in understanding which factors determined the rapid increase in NFF rates and what caused the remarkable differences among regions and industrial sectors in Uzbekistan, as well as how the deepening of transition reforms after 2000 and rapid shifts in the industrial structure inherited as a legacy have influenced regional NFF.

Therefore, panel data[5] obtained under special permission from the database of the State Statistic Committee of the Republic of Uzbekistan from 2004 to 2007 was utilized to assess the determinants of NFF rate at the most disaggregated level available in Uzbekistan: i.e. at the level of sub-regional administrative units (188 units per year), paying special attention to whether any regional mechanism of resource redistribution exists whereby the restructuring of FSEs in particular regions serves to facilitate NFF within the same regions. The random effect panel data regression model was adopted to test the impact of SOE restructuring on NFF rate in the region, while controlling for various regional environmental factors.

The structure of this paper is as follows. The next section outlines the economic background of Uzbekistan during transition and explores the process of restructuring and privatization of FSEs accompanying the deepening of transition reforms. In the third section, after reviewing previous literature, I undertake a theoretical consideration of the link between the mechanism for regional redistribution of resources and the NFF process. Subsequently, I construct some hypotheses concerning the causal relationship between FSE restructuring and new firm entry during transition reforms. The definition of the variables, the data used, and the regression model selected are outlined in the fourth section. Section five summarizes some final conclusions and raises some policy implications.

2.   Transition reforms and SME development in Uzbekistan

During the Soviet era Uzbekistan was one part of the huge industrial production complex created as a result of Soviet policies of industrial allocation emphasizing economies of scale: i.e., a "complex socio-economic system driving the formation and development of all the production factors and production capacities within a given region mutually constraining over the long term" (Iwasaki, 2006). In particular, close and highly interdependent industrial relations were constructed between the Soviet republics, such that the industrial structures of specific regions became heavily inclined towards specific sectors of the economy. From this socialist distribution of industry, Uzbekistan inherited a high specialization in the cultivation and processing of cotton, as well as in supplying mostly primary and semi-finished products and raw materials.

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[5] This paper uses a research database of data collected by the State Statistics Committee of the Republic of Uzbekistan, made available specifically for the analysis of this study.

When the centrally planned economic system was abolished, the post-Soviet states experienced widespread distortion of their industrial structures at the national level, as well as a series of serious problems with FSEs unable to handle the demands of the new market economies (Tyson et al., 1994). In particular, these monopolistic FSEs faced numerous problems such as X-inefficiency caused by extensive state intervention, severe decline in production capacity, abolition of state subsidies, freezes in capital investment, massive layoff of employees, and so on. One reason for this was the obligation to follow the detailed production plan for all aspects of an enterprise's activities as formulated by Gosplan (the State Planning Committee). The other was the fact that buyer-supplier linkages and trade indicators were also determined by Gosplan; i.e., FSEs relied on particular either a single or a handful of suppliers for raw materials and intermediate goods, and either on a particular single buyer or a small number of purchasers of produced goods, based on compulsory contracts[6]. However, in the course of transition to a market economy, adherence to these forced contractual obligations was no longer enforceable due to the dissolution of Gosplan and the administrative-command system. Consequently, both the state-planned manufacturing chains established among FSEs and their relationships with the consumer market were severed. Facing this situation, the post-Soviet countries launched transitional reforms working toward economic liberalization, privatization, and democratization.

However, unlike many other post-Soviet countries that chose a "shock therapy" approach, Uzbekistan pursued a gradualist approach as a strategy for achieving transition reform. Thus, while the so-called "small privatization" of small and medium-sized SOEs in the food and beverage industry and the construction was almost completed during 1992 and 1998, the privatization of large-sized FSEs representing the backbone of the industrial system in such essential economic sectors as mining, manufacturing, and communications did not start until 2000 (Table 4). As a result, the speed of economic reform was relatively slow, with Uzbekistan lagging considerably behind other transition countries in marketization, privatization, and liberalization, and failing to establish an adequate market infrastructure (Pomfret, 2000). Moreover, in order to implement the import substitution policy, the country established inefficient direct administrative regulations, such as currency rationing, support of import substituting sectors through soft credits and tax benefits, administrative distribution of raw materials and credits, and restrictions on cash circulation, etc. (Sirajiddinov, 2004).

Furthermore, Uzbekistan continued to maintain an extensive state sector burdened by internal inefficiencies. Large FSEs have remained mostly free from restructuring, with continuing direct and indirect subsidization from the state budget and vast interference into their economic activity by the government, notwithstanding huge X-inefficiencies. For

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[6] See Kornai (1992) for more details of the socialist system and the initial transition reforms.

example, from 1996 to 2003, an average of 34% of total investments was made in industry (or an annual average of 11% of GDP), at least half of which was directly subsidized by the state. However, the nominal average annual growth of the industry remained at around 5% over the same period, contributing only 0.15% to GDP growth in 2000 (ADB, 2005). Thus, the direct subsidy system maintained the comprehensive state intervention in economic activities crowding out private capital investments and economic resources, actually resulting in shrinkage of the manufacturing industry's contribution to GDP contrary to the intent of Uzbekistan's leadership, due to lagging administrative reform of FSEs burdened with outdated production equipment and technology.

Consequently, after all the state capital influxes turned out to be less efficient than expected, and faced with harsh criticism from international bodies and scholars calling for abolition of these systems restricting competition, the government decided to commence the restructuring and privatization of large FSEs, liquidating those especially severely depleted and highly inefficient enterprises among them[7].

Drastic shifts in privatization of large FSEs commenced following Resolution No.477 of the Cabinet of Ministers on "Measures for Stimulating the Attraction of Foreign Capital During Privatization of State Property," dated November 18th 1998. In this resolution, 258 FSEs were listed as for sale by tender to foreign investors. Of these, 30 large FSEs were targeted for "case-by-case" privatization, with foreign minority shares of 25~50%[8]; 69 medium and large-sized FSEs were targeted for 100% transfer to foreign ownership; and 159 medium and large-sized FSEs to be sold 25~75% to foreign investors. However, due to the high prices of enterprises and requirements that investors not change the specialization of these FSEs, investor interest was less than expected.

Subsequently, in order to improve the productivity of large FSEs and actively promote the modernization of production technologies and equipment, the acceleration of FSE privatization and restructuring began in 2000 after implementation of the "Annual Programs for the Denationalization and Privatization of Enterprises." Large FSEs were converted into shareholding entities, and smaller enterprises mostly transformed into joint-stock companies and private individual enterprises, with some other ownership types. Most of the latter were formed through the privatization of small production and service units (typically in trade, catering, transport, and other services), previously affiliated to large FSEs. Also, in order to facilitate the exit process of loss-making enterprises and/or to rehabilitate insolvent but economically or socially strategic enterprises, the restructuring and liquidation of insolvent enterprises after privatization was facilitated by the Presidential Decree of 27th July 1999 on

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[7] See annual country reports by World Bank, IMF, ICG, IFC for more details.
[8] Only 3 companies were exceptional in that they transferred majority ownership to foreign investors: Tashkent Local Telecom 55%, Tashkent International Telecom 55%, and Andijan Cable 51% of shares.

"Improvement of the mechanism of enterprise bankruptcy and rehabilitation".

Furthermore, following the Decree of the President dated 2nd August 2000 (amended 30th April 2005) on "Organizing the State Committee of the Republic of Uzbekistan on Demonopolization and Developing Competition" the State Committee of the Republic of Uzbekistan on Demonopolization, Support of Competition and Entrepreneurship (CDCE) was established, main functions of which was to demonopolize the national economy and support competition, to protect consumer rights, to regulate natural monopolies and advertising activities, support the development of entrepreneurship, and to reorganize economically insufficient and unprofitable enterprises.

As shown on Table 5, on average 1600 enterprises were privatized annually[9] during 2001 and 2004. Specifically, state-owned low-profit and unprofitable enterprises and low-liquidity facilities were transferred to investors either through Dutch auction procedures with step-by-step reduction of starting prices, or at a zero redemption value on a competitive basis, on the condition that the investors improve sharply the financial performance of these enterprises in a fairly short period (2-3 years)[10]. Furthermore, a resolution of the Cabinet of Ministers dated 19th April 2003 on "Measures for the Improvement of Corporate Management of Privatized Enterprises" was implemented to facilitate improvement of corporate governance and management by reducing state intervention and state shareholding in privatized firms.

Moreover, the strengthening of the financial standing of enterprises was promoted by the restructuring of unprofitable and economically insolvent enterprises, or by their dissolution and liquidation. As a result, the number of active large FSEs dropped from 20,878 in 2001 to 12,715 in 2006 (Table 7), leading to massive freeing-up of underutilized economic resources of 8,163 large enterprises over this 6-year period. This brought about numerous lay-offs and a drop in FSE capacity utilization rate.

Thus, the process of accelerated privatization and restructuring of state sector after 2000, resulting in massive freeing-up of economic resources from a dormant state within large FSEs enabled huge opportunities for new firm entries and triggered the development of the SME sector in Uzbekistan. In the next section, I undertake a theoretical consideration of the possible causal relationship lying behind this process.

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[9] It is important to remember that by Uzbekistan's definition, a privatized company does not necessarily mean a purely private-sector company. For example, many cases can be seen where holding companies or industry organizations of which 51% or more of shares are state-controlled purchase 25% or more of shares of a privatized company (ADB, 2005).
[10] Resolution of the Cabinet of Ministers "On Additional Measures for the Acceleration of the Privatization of State-Owned Low-Profit, Unprofitable, and Economically Unsound Enterprises and Facilities," August 26, 2003.

3. Restructuring of FSEs and New Entry: Theoretical Discussion and Hypotheses

In this section I try to analyze the possible impacts of radical shifts in the patterns of industrial allocation inherited from Soviet era, caused by the privatization and restructuring of state sector, and resulted in massive redistribution of economic resources, on the entry patterns for new private firms. Due to the specifics outlined above, the transition economy of Uzbekistan provides a unique natural laboratory for investigation of this link between the resource reallocation mechanism and the regional NFF process. This is because the massive freeing-up of regional economic resources is able to facilitate the emergence of new opportunities for potential entrants, resulting in more efficient resource reallocation, especially given the post-Soviet legacies of a hugely distorted spatial industrial structure, vast existing niches in local markets, and greater freedom in economic activity for new entrants gained with the massive deregulation after 2000.

In particular, the accelerated privatization and restructuring of inefficient state sectors generated a great number of displaced workers, while rates of capacity utilization of surviving FSEs declined significantly. Furthermore, through liquidation and downsizing of insolvent and unprofitable FSEs, leading to a dramatic decrease in its number, previously state-managed economic resources (infrastructure, raw materials, facilities, land, production equipment, human and financial capital, etc.) were freed up. However, during the same period, statistical data shows that the unemployment rates remained unchanged in most regions of Uzbekistan. Moreover, the SME sector maintained a high level of growth.

This could imply the redeployment of human capital and a massive outflow of other economic resources from the rapidly declining state sector to the expanding private sector. At the regional level, this could create new opportunities for local entrepreneurs eager to access and mobilize recently released economic resources in pursue of broadened business opportunities, thus enabling the creation of new firms.

The other important mechanism underlying the causal relationship between the NFF process and the state sector restructuring is triggered by the Soviet-type industrial structure inherited from the socialist era. In particular, during the Soviet era the location choices made by newly created firms and exit of the incumbents were either specifically planned or indirectly controlled. Business decisions were strictly determined solely by planners seeking benefits from increasing returns to scale (Brown and Earle, 2004). Thus, the market mechanisms and usual factors that might be supposed to influence resource reallocation in the regions were largely absent[11]. Under this system, allocation of plant facilities might be substantially different from the allocations that individual entrepreneurs would have chosen if they had decided themselves selecting through rational choices.

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[11] See Kornai (1992) for a comprehensive overview of the socialist system and early reforms.

However, after abolition of the centrally planned economy, new entrants acquired the right to determine their own business strategies. Accordingly, it is assumed that unlike the privatized FSEs handed down from the Soviet era, these newly entering firms were able to make valid and effective decisions regarding the location and type of their business services (EBRD, 1997). Moreover, entrants were able to use existing opportunities to correct the inefficient spatial distribution of economic resources and existing industrial imbalances through recombining and reallocating available resources as a result of their profit maximization. From a theoretical point of view, given the inherited Soviet system of industrial allocation, the process of resource redistribution during transition could be considered as a shift from a non-equilibrium state to an equilibrium state[12].

Furthermore, since the process of radical privatization and state sector restructuring in Uzbekistan did not start simultaneously as in other transition countries but rather after the initial chaos of transition had faded and general economic stabilization had been achieved, and since the geographical structure of industry was changing dramatically within a short period, this massive resource reallocation process was revealed more clearly in Uzbekistan than in developed countries where it was occurring much slower.

Thus, this process of resource redistribution can have a major effect on the NFF process, in particular, by facilitating the entry of private firms at the regional level during transition. However, little if any attention has been paid to the link between the FSEs restructuring process and enhanced entry levels in the same locations during the transition. Though the body of research on NFF and SME development in transition countries is large, these have mostly investigated the critical importance of NFF in generating economic growth in post-socialist economies, as well as the institutional aspects, SME promotion policies, and various administrative barriers of SME development. The strand of literature examining the link between privatization and private sector development in transition economies has focused on labor productivity growth through the privatization and restructuring of FSEs, or on the comparative analysis of higher levels of productivity for newly entering private firms than for incumbents, as well as enhanced performance of privatized and new entrants when comparing to the FSEs remained under the state control (Djankov and Murrel, 2002; Megginson and Netter, 2001)[13].

Also, previous studies have examined how incumbent firms generate incentives raising entry barriers and how collusion with regional government tends to reduce entry levels to the

[12] Cheviakhova and Rytchkov (2004) examined the process of regional reallocation of industrial employment in Russia in 1985-1999, defining the state of distribution of resources as an equilibrium state after industrial restructuring was complete.

[13] Most privatized companies enjoyed higher productivity than SOEs (EBRD, 1997; Earle and Estrin, 1998; Roberts et. al, 1998). Also, *de novo* firms displayed superior economic performance compared to both SOEs and privatized firms (Konings et al., 1996; Earle, Estrin and Leshchenko, 1996); these have also been indicated as one engine of growth for transition economies (Shleifer and Vishny, 1994; Boycko et al., 1995; EBRD, 1997; Traistaru, 2001).

same location through lobbying activities (Vlasenko, 2004), as well as how during privatization incentives are strengthened for local politicians and bureaucrats to act in collusion with insiders of FSEs targeted for privatization in order to maintain their economic power and rents by obstructing the activities of entrants (Kornai, 1990; 2000; Berkowitz and DeJong, 2005).

Thus, this research takes a very different perspective, emphasizing instead that it is the regional mechanism of resource reallocation from the state sector, shrinking due to privatization and restructuring of FSEs, that might act as a powerful determinant of the rapid development of SMEs, increasing business opportunities and thus fueling regional new firm formation rates during the transition. As far as the author is aware, there has been almost no systematic research on this causal relationship[14]. Consequently, in this paper, from this perspective I attempt to propose hypotheses regarding the regional determinants of SME entry during transition and the association between FSE restructuring and NFF.

More specifically, the three following major mechanisms of resource reallocation were observed during the transition: (1) the separation of sub-organizational units of FSEs as independent startups; (2) the birth of scavenging entrepreneurs exploiting opportunities by utilizing abandoned and underutilized facilities of FSEs; and (3) the movement of displaced workers to self-employment.

The first pattern can be observed where downsizing and the splitting-up of large industrial complexes during the privatization and restructuring of FSEs results in huge number of smaller spin-off firms[15] previously belonging to these larger complexes subsequently entering the regional market as an independent business entities. Under the centrally planned economy, large FSEs played a broad range of social roles. In addition to social welfare services such as education (kindergartens, crèches) and healthcare (clinics and hospitals) which benefited families of employees of these large enterprises, this also included provision of countless other services such as logistics, transportation services for workers, cafes, many small-sized repair and maintenance services, accommodations, leisure facilities, etc. During FSE restructuring, these welfare and daily service units, which were not necessarily economically efficient, spun-off and entered local markets as leasing, subcontracting, or independent firms, broadening their economic activities to wider regional markets.

For example, Chkalov Tashkent Aircraft Production Corporation (ГАО "ТАПОиЧ")

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[14] The studies by Berkowitz and Holland (2001) and Berkowitz and DeJong (2005) were rare attempts to investigate the link between "small privatization"/"big privatization" and SME development in 69-70 regions of Russia. However, the underlying hypothesis for the link was the association of privatization indicators with insider self-dealing and corruption of local bureaucrats. Moreover, analyses used data of existing SMEs rather than newly entering firms, and the main focus of studies was on the transition reforms and economic growth. The latter study was unable to discover any statistically meaningful relationship between privatization and SME development.

[15] For a more detailed discussion of spin-offs and FSE restructuring see D. Ellerman, (1996), "Spin-offs as a Restructuring Strategy for Post-Socialist Enterprises," in Sedaitis, J. B. ed. *Commercializing High Technology: East and West*. CISAC, Stanford University Press.

employed 50,000 employees and was the only factory manufacturing large-sized aircraft during the Soviet era. As a result of restructuring after 2000, the loss-making and insolvent small- and medium-sized units of Chkalov, - i.e. 43 kindergartens and sports facilities, several dormitories and healthcare services - were split-up and spun-off as individual businesses[16] entering the regional market anew. Many such cases have been observed in Uzbekistan. For instance, according to the annual report of the State Committee on Demonopolization, Support of Competition and Entrepreneurship, 119 joint ventures and spin-off firms entered regional markets during 2006, using unutilized productive equipment and facilities of downsized and liquidated FSEs to create employment for 12,576 persons (of which 7,284 were due to re-entering subsidiaries)[17].

The second pattern represents new entry by so-called "scavenging entrepreneurs"[18]. This entry pattern is characterized by the re-utilization of production equipment and facilities either underutilized or freed up due to restructuring and downsizing of large FSEs ("brownfield" entry). Scavenging entrepreneurs negotiate directly with managers of loss-making or downsizing FSEs in order to lease underutilized production resources - production equipment, land, building facilities, infrastructure, transportation, etc. – in order to facilitate their new entry into local markets. One characteristic advantage of this type of entry is that faced with scarce economic resources and high levels of uncertainly specific to transition period, scavenging entrepreneurs seek to reduce entry costs by inexpensively leasing, renting, or otherwise utilizing a wide range of manufacturing capital and existing infrastructure (Table 6).

Established in 1931, and from 1955 producing more than 130 types of machinery, the Tashkent Agricultural Machinery Factory (ОАО "Ташсельмаш") is one such example[19]. Downsizing and the severing of its manufacturing chain resulted in a dramatic decline of operating rates during the transition period. This factory was confronting bankruptcy, but the managerial staff elected to lease its unused factory facilities and equipment to newly entering

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[16] 17.10.2002 msk, Сафаргалиева, И., Информационное агентство «Фергана.ру», Ташкент, available in Russian at http://www.ferghana.ru/article.php?id=976.

[17] Apart from this, the State Committee on Demonopolization, Support of Competition and Entrepreneurship monitored the restructuring and liquidation processes of 451 firms in 2005 and 631 firms in 2006. According to the Committee's 2006 report, in the period up to 1st January 2007, 464 firms improved their financial indicators, 336 firms increased their monthly average production output and sales by at least 20%, 111 firms shifted from deficit to surplus, and 10 firms were in the process of reconstruction (CDCE, 2005 and 2006 annual reports).

[18] Starr and MacMillan (1990): "A scavenging entrepreneur extracts usage from goods that others eschew or do not intend to use".

[19] Further examples of FSEs include Russia's Станкозавод им. Серго Орджоникидзе (Малые предприятия под крылом гигантов, "Круглый стол" РАРМП и редакции "Бизнеса для всех". Номер 16/308, 26.07.2000), ОАО Машиностроительный завод "Арсенал", ОАО "Звезда", ОАО "Кировский завод", ОАО "Компрессорный комплекс", ОАО "Невский завод" (Газета Деловой Петербург, 21.02.2008, http://www.stockmap.ru/news/0212715621/).

SMEs[20]. Thus, it can be assumed that new entrants and incumbent FSEs in other geographical regions could take advantage of similar business opportunities to utilize economic resources of FSEs, freed up during the restructuring and downsizing process[21].

The third pattern represents employees (laid off in great number during the restructuring and downsizing process of FSEs) commencing entrepreneurial activities in order to meet their living expenses (the "push" hypothesis). Employees of FSEs and public service facilities became exposed to the pressure of layoffs during transition reforms. Since they had limited options for re-employment in state sector, their only choices were to continue to work at FSEs, administrative bodies, or public facilities under the growing pressure of layoffs with reduced benefits and often overdue wages, to become a part-time multiple-job holder[22], or to engage in their own entrepreneurial activity (Smallbone and Welter, 2001).

The practice of enforced "administrative leave" was widespread during the state sector restructuring in transition countries. This refers to situations when despite the contractual provisions of employment remaining unchanged, employees *de facto* no longer work for the firm and remain with salary unpaid. The possibility of obtaining pension benefits as well as ongoing access to the social services provided by FSEs for worker's families often meant workers were inclined to keep their positions even when not paid salaries (McIntyre, 2001). Thus, the practice of combining this "administrative leave" with multiple part-time job holding and private entrepreneurship has come to be adopted as a survival strategy during the transition period[23].

Former employees tended to possess knowledge concerning the economic resources underutilized or released from their FSEs, which broadened their business opportunities. We can assume that they are able to use this knowledge to gain comparative advantage among nascent entrepreneurs to establish new businesses.

Moreover, the establishment of a legal basis following the deepening of structural reforms is also believed to facilitate the mechanisms outlined above. Examples of legal framework developments concerning rental and leasing include: the adoption of the Law on Leasing in

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[20] Информационное агентство «Фергана.ру», 09.04.2008, 13:06 msk, Соб. инф., Ташкент. (http://www.ferghana.ru/article.php?id=5662)

[21] These patterns can be widely observed in other transition countries as well. For example, in Russia's Penza Oblast, 454 new SMEs have been established as of 2010, which employ 1.08 million persons and utilize the factory sites, buildings, and equipment of 66 former SOEs. These are engaged in different types of business activities, such as selling bread, furniture, and much more (*Пошли по цехам: Малый бизнес осваивает неиспользуемые площади крупных предприятий*, Российская газета (Экономика Поволжья), N5162, 20 апреля 2010 г.

[22] Entering the unemployed class might also be considered an alternative option here.

[23] In general, we can differentiate between opportunity entrepreneurship, i.e. the active pursuit of business opportunities, and necessity entrepreneurship wherein individuals are forced to establish their own companies since no better jobs exist. The entrepreneurial activities described above fall into the latter category. However, as Smallbone and Welter (2005) indicate, opportunity entrepreneurship and necessity entrepreneurship are not necessarily mutually exclusive in transition economies.

1999; the 2002 Presidential Decree on measures for further stimulus of development of leasing; the 2003 amendments to the Economic Procedural Law of Uzbekistan on the issue of leased asset repossession; the 2004 resolution by the Cabinet of Ministers on accelerated depreciation during the leasing; and the establishment of the Uzbekistan Lessors Association in 2005. Additionally, the adoption of the following tax allowances and preferences sharply increased the opportunities for leasing and rental applications: exemption from VAT and customs duties for technological equipment imported for leasing; exemption from property tax for objects to be leased; exclusion from VAT for lease payments; taxable income of Lessees reduced for the amount of interest on lease; opportunities for use of accelerated depreciation; and exemption from profit tax for leasing services up to April 01, 2009. Also, a simplified system for registration and taxation of leasing companies was adopted, with leasing activity not subject to licensing.

Furthermore, if we consider the spatial aspects of the aforementioned patterns of regional resource redistribution, we can assume that entrants to local markets would select the location for their firms in close geographical proximity to the FSE and its freed-up economic resources they intend to mobilize. This is because most of these economic resources (facilities, infrastructure, land, etc.) are those with low mobility. Many studies have also indicated that founders of new firms tend to locate their businesses in close geographical proximity to their homes or previous workplaces in order to best utilize their knowledge of the business environment and preferences of local consumers, to mobilize local social networks and social capital, and to reduce uncertainty and search/transaction costs (Shane and Stuart, 2002; Pe'er and Vertinsky, 2008).

Thus, if the three aforementioned mechanisms driving resource redistribution in regional economies during transition periods are functioning, regions with greater number of large restructuring FSEs can be assumed to attract higher levels of new entry to the same locations by SMEs seeking to pursue broadened business opportunities. In other words, I assume that there is a positive relationship between the density of FSEs and the NFF rates in a given region. Therefore, I propose the following hypotheses.

Hypothesis 1: All other things being equal, regions with higher density of former socialist state-owned enterprises (FSEs) are assumed to have higher new firm formation (NFF) rates.

Moreover, up to now we considered only a static model with emphasis on cross-sectional regional distribution of NFF rates, claiming that the actual observable dynamics could be explained by the difference between the initial allocations of FSEs among corresponding

regions at a simultaneous period. However, the number of FSEs has declined significantly over the period due to liquidation of insolvent enterprises and restructuring of loss-making large enterprises as mentioned in the previous section (Table 7). As a result, vast economic resources were freed up at the initial stages of restructuring, and it is assumed that more and more economic resources would have been released over the period analyzed, exposing the growth in opportunities for new venture creation. Thus, it is reasonable to construct a dynamic version of the model describing the intertemporal process of resource reallocation. Therefore, I will extend the static model to a dynamic model wherein the impact of the extent of the decrease in FSE density over the certain period would be taken into consideration. That is, the greater extent of the decrease in FSE density over time is expected to have a greater impact on the NFF rates in the same region. Namely;

> **Hypothesis 2:** All other things being equal, regions with greater decreases in the density of FSEs are assumed to have higher levels of NFF rates.

4. Empirical methodology

In this section, I outline the data used to test the hypotheses raised above, followed by an explanation of variables used in the empirical analysis and a description of the model selected for the verification of causality between the shrinking state sector and the new firm creation process.

4.1 Data

The panel data collected by the State Statistic Committee of the Republic of Uzbekistan (Goskomstat) and obtained by the author under special permission from the Goskomstat was utilized to assess the determinants of NFF rate at the most disaggregated level available in Uzbekistan. The observation period includes 8 years from 2000 to 2007. Uzbekistan contains 12 states and the Autonomous Republic of Karakalpakstan, each of which consists of smaller sub-regional administrative areas. The unit of analysis in this study corresponds to these 188 administrative areas: i.e. 188 units per year (159 districts and 29 cities).

However, since the government definition of the SME category was modified and since there were several mergers of administrative regions between 2000 and 2004, in the static model I use the panel data for the three years 2004 to 2006. Eleven districts under the jurisdiction of Tashkent, the capital city, seem to be outliers in comparison to other geographical areas, and were thus excluded from the sample. In addition, for part of the control variables mentioned later, regional level data were used (Table 9), due to the unavailability of data at the sub-regional level. These were sourced from annual *Statistical*

Yearbooks of Uzbekistan Regions published by Goskomstat.

The panel data concerning the number of startups used for the definition of the dependent variable covers all newly created ventures: i.e. firms that underwent the state registration procedure during this period, excluding entries by individual entrepreneurs. An event where a legal entity becomes active after a period of being inactive is not classified as a new entry.

However, in order to test the hypotheses proposed above, in addition to the entry by completely new *de novo* firms, those spin-offs and subsidiaries having split from FSEs and re-registered as new independent firms are also included in the analysis. In this paper, both these types will be termed "newly entering firms"[24]. However, entry (re-registering) by enterprises with more than 100 employees which were likely to be the results of split-ups and FSE downsizing were excluded from the sample.

In addition, new entries in the agricultural sector were also excluded from data used for the dependent variable. The reason for this is that new entries in the agricultural sector are likely to be the direct result of the split-ups and downsizing of large-sized state-owned agricultural enterprises, which were implemented in compliance with government decisions during the agricultural reforms, and thus re-registered and re-entered the local market due to external shock with no correspondence to market forces. Specifically, following the government decision on "Measures on the Reorganization of Agricultural Enterprises," agrarian reform was launched from 2000, aimed at improving management by transforming inefficient and insolvent large-sized state-owned agricultural enterprises (Shirkats, former Sovkhozes, and Kolkhozes) into smaller individual and farming enterprises through downsizing. The main purposes of the reform were improvement of the contractual relations between producers and buyers of agricultural products, introduction of economic tools for the rational use and management of water and land, infrastructure development in rural areas, and development of wholesale markets of agricultural products in regions outside Tashkent. The agricultural reform of FSEs was completed by 2007, resulting in dramatic increase in entry levels in the agricultural sector, which accounted for around 63% of total annual SME entries. In particular, the number of SMEs in agriculture soared from 54,308 in 2000 to 244,386 firms in 2006, of which about 189,000 were farming firms (Table 8). Though these numerous individual and farming SMEs didn't obtain the land in private ownership, they were allowed to make 3-year leasing contracts with the state (10-50 years for farms).

As a result of agricultural restructuring, the number of SMEs in agriculture increased, resulting in the growth of its share in the total number of SMEs. Because the efficiency of new

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[24] As discussed by Bruno et al. (2008), the change of ownership due to the spin-offs or split-ups might represent a new way of recombining firm's resources or new strategies. While this does not constitute a *de novo* entry as such, it still often signifies entry of a new player or a new approach to the market.

individual and farming firms was higher than that of agricultural FSEs, data showed the significant increase in the contribution of SMEs to GDP as well (Table 1) [25].

4.2 Definition of Variables

Dependent variable

The dependent variable in this study is the new firm formation (NFF) rate. In order to measure NFF rates and to compare them across the units of observation of different sizes, the absolute number of newly entered firms was standardized by taking both the "labor market approach" and the "ecological approach". That is, according to the "labor market approach," the NFF rate is defined as the number of new firms standardized with respect to the size of the workforce, which captures local entrepreneurial potential. Conversely, the NFF rate measured according to the "ecological approach" is standardized by the regional number of incumbent firms, thus emphasizing the potential of self-adjustment of a local population of firms within a region through the entry and exit of companies given the changing business environment (Audretsch and Fritsch, 1994).

Taking into account the proposed hypotheses of this study, I use the "ecological approach" as the measurement method for the dependent variable in order to examine the process of potential formation of new local businesses in relation to the extent of the presence of incumbent FSEs. In other words, I measure NFF rate (**NFF_Rate**) as the total number of new entrants during a year t divided by the total number of enterprises that existed in the region on January 1st of the same year t (Table 9). However, the empirical results for the "labor market approach" definition of NFF rate (**NFF_Labo**) are also estimated.

Main explanatory variable

FSE Density -- I determined the main independent variable to be the proportion of FSEs in the beginning of year t among the total population (or local entrepreneurial potential) at the sub-regional level in Uzbekistan (**FSE_Density**), in order to effectively capture the structure of industrial allocation inherited from the centrally planned economic system, as well as the extent of resources being released from the restructuring FSEs (Table 9).

Accordingly, as an explanatory variable within a dynamic model, the decline in FSE_Density during the prior three years (**FSE_Dens_Drop**) would represent the depth of state sector reforms achieved and the extent of resources freed up due to the liquidation and restructuring of FSEs across different regions over time.

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[25] However, the share in GDP and in total employment announced by Goskomstat including agricultural individual and farming firms drops to 23.5% and 17.6% in 2006 when agriculture is excluded.

Other control variables

Uzbekistan has showed very slow progress in transition reforms when compared to other transition countries. However, it is certainly important to investigate the extent to which market mechanisms have been introduced and have started to function so far at the regional level in this country, especially given the scarcity of studies on the determinants of NFF rates in transition economies.

In particular, the body of research on the regional NFF rate determinants in developed countries, especially those of United States and Germany, has expanded very fast since the early 1990s [26] (Reynolds, 1994; Daviddson et al., 1994; Audretsch and Fritsch, 1994; Armington and Acs, 2002; Fritsch et al., 2006; etc.). In general, we are able to classify the regional NFF determinants by demand factors, cost factors, industrial structures and agglomeration factors, human capital and financing, and other factors, based on the previous literature findings (Okamuro, 2005).

Moreover, since the pioneering research by De Soto (1990) suggested that regulation of entry represents a further entry barrier in emerging markets imposed by policy makers in order to pursue their own rents, more attention has been given to the impact of institutional factors in developing economies (eg. Djankov et al., 2002, etc).

However, in regard to economies in transition, frequent changes of the definition of the SME category (often coinciding with the reforming of the National Statistics Agency itself and its methods of data collection and processing) have led to difficulties in obtaining a time-consistent regional-level datasets concerning new firm entries. The only empirical studies the author could find so far on the regional determinants of entry rates are the studies by Traistaru (2001) analyzing NFF rates of 40 regions in Romania from 1990 to 1997 and by Bruno, Bytchkova and Estrin (2008) [27] focusing on data from 87 regions of Russia for two years after 2000.

Therefore, for the panel data regression model in this study, I use the series of explanatory variables outlined below, which have been proved by previous studies to have a significant impact on regional NFF rates in matured market economies.

Population Growth – A region's per capita personal income or population size often represents the level of regional demand for goods and services, whereas annual change in the

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[26] Additionally, a great many studies examine the impact on NFF of personal attributes of the entrepreneurs such as gender, education level, employment history, ethnic characteristics, etc.; of the social context of entrepreneurship such as entrepreneur networks or degree of interaction with local communities, etc.; and of industrial level determinants such as capital intensity, R&D, industrial growth, and so on.

[27] Bruno et al. (2008) is a pioneering study that examined the impact of institutional and economic factors on entry rates in Russia, using data for the years 2000-2002 for 58 industries in 87 regions. The results show the effects of structural barriers as well as institutional determinants, indicating that weak institutions may deter entry and enhance the market power of incumbent firms, with harmful implications for welfare.

region's population and growth in personal income or in GRP are often used to represent the expected growth of regional demand (Reynolds, 1994, etc). In this study, regional population growth rate variable (**PopGrw**) is used; this is assumed to have a positive effect on local NFF rate (Table 9), since it is expected that the growth of demand for goods or services in the region will attract potential entrepreneurs to enter the local market to make the most of business opportunities (Sutaria and Hicks, 2004, etc).

Unemployment Rate – There is still ongoing dispute concerning the way in which unemployment affects entry rates within particular regions. While some studies show that higher levels of regional unemployment lead to increase in NFF rate (a push effect), other studies reported statistically negative effect of this variable on regional entry rates (a pull effect) (Storey , 1994; Reynolds et al., 1994) [28]. A push effect for unemployment means that the higher the unemployment level within a region, the easier it is to procure human resources. Because unemployed people have low opportunity costs when starting their own businesses, higher unemployment rate can be expected to have a positive effect on NFF rate. However, a pull effect is reported where high levels of unemployment lead to decreased disposable personal income, which reduces both local demand for goods and services and the incentives of potential entrepreneurs to locate their businesses in such distressed areas, given the lower chance of success. In this study, the share of total unemployed persons in the region's labor force is used as the unemployment rate variable (**Unempl**), assuming the probability of revealing both push and pull effects in place. The reason for this is that the higher number of workers displaced in the region during the reforms of FSEs would lead to higher number of people engaged in entrepreneurial activities or absorbed by the newly established firms. On the other hand, the highly uncertain business environment during transition tends to lower new firm entry into the areas troubled by high unemployment (Traistaru, 2001).

Human Capital – Highly educated people are more likely to engage in entrepreneurial activity due to their greater ability to recognize business opportunities (Bates, 1990); thus, entry rates and human capital are assumed to have a positive relationship. Additionally, it is easier to find more skilled labor in regions rich with human capital, and the greater availability of external knowledge-intensive services in such regions provide a more desirable environment for entrepreneurship. Particularly in unstable transition environments, regions richer in human capital are assumed to have greater positive effect on entry rates, given the fact that higher levels of education help founders to explore a wider range of opportunities and more accurately assess high risks. In this study, the number of a region's vocational colleges per thousand of inhabitants (**ExpertR**), and the proportion of graduates from higher

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[28] The results may differ when data across disaggregated industries are employed, due to industry-specific characteristics. Audretsch and Fritsch (1999) have shown that the impact of each geographic specific variable on startup activity varies considerably across industries as well.

educational institutions (**Educ**) are used as the variables of human capital. However, because of the high correlation between these two variables, they are used in the analysis interchangeably.

Wages – Santarelli and Piergiovanni (1995) argue that since higher regional wages lead to higher start-up costs, wages negatively affect regional NFF rates. In contrast, Fritsch (1992) claims, that regions with higher personal income levels are more likely to have greater available human capital, resulting in a positive relationship between the level of personal income and NFF rates. In addition, in the case of transition economies, Traistaru (2001) claims that given the low wage level of state-owned enterprises, one can expect that this serves as a push factor for the development of the private sector. Therefore, in this study, wages are measured as the monthly average wage of SME employees (**Log_Wage**), and this is assumed to have a positive effect on regional NFF rates.

Finance -- Access to financing has often been pointed out as one of the most serious barriers to entry faced by SMEs in countries with transition economies where financial institutions are often underdeveloped. Evans and Jovanovic (1989) have argued that due to existing liquidity constraints faced by potential entrants, wealthier people are more likely to become entrepreneurs than poorer ones. In this study, as a proxy for the variable capturing the local bank's lending capacity (**Finance**), I use the total amount of local bank deposits weighted by the number of local businesses. It is assumed that the greater the ability of local banks to lend money to businesses, the higher the opportunity for entrants to borrow money needed for start-ups, leading to positive effects on regional NFF rates.

Infrastructure -- Higher development of regional physical infrastructure is expected to facilitate NFF, because it is more attractive and advantageous for entrants seeking to lower the acquisition costs for production inputs and speed up the delivery of goods and services to customers. For the infrastructure variable (**Infra**), the density of telephone landlines per 100 inhabitants and the density of public roads are used interchangeably. These variables are expected to have a positive relationship with regional NFF rates.

Agglomeration –In order to minimize transportation costs, to get better access to intermediate inputs and specialized services needed for production, better access to larger differentiated labor markets, easier access to research institutions and large numbers of customers, as well as to other firms that may facilitate knowledge spillovers, firms tend to locate their businesses in regions with a higher geographic concentration of economic activity, in order to benefit from agglomeration economies (Audretsch and Feldman, 1996; Porter, 1998). On the other hand, spatial proximity of firms in the same area also leads to disadvantages and negative effects of agglomeration due to increased market competition and higher costs, such as increased wages and rising land and rent prices. Moreover, Tybout (1997)

and Bhaumik et al. (2006) note that, in developing countries with scarce resources and where existing resources are often controlled by incumbent firms, entry rates might be negatively associated with the number of incumbent firms. Roberts and Thompson (2003) also reported a highly significant negative impact of industrial concentration on entry rates in Poland. Therefore, the total number of incumbent firms per thousand residents in the region (**Dens**) is used as a variable representing agglomeration, which is assumed to exert rather negative effects on NFF rates, especially given high concentration of economic activities in huge industrial production complexes created as a result of Soviet policies of industrial allocation emphasizing economies of scale.

All independent variables defined above may be endogenous; therefore, I use the one-year lagged values for all of these.

4.3 Estimation method

Based on the theoretical considerations presented in Section 3, the panel data regression analysis in this study tests the model below using NFF_Rate as the main dependent variable, FSE_Density as the main explanatory variable, and controlling for all other independent variables that might affect the NFF rate at the regional level in Uzbekistan,.

$$\text{NFF\_Rate}_{i,\,t} = \alpha_i + \beta_0\,\text{FSE\_Density}_{i,\,t\text{-}1} + \beta\,(\text{control variables}_{i,\,t\text{-}1}) + \varepsilon_{i,\,t} \qquad (1)$$

where α and β_0 are the parameters to be estimated, β is the parameter for control variables, and ε is the error term. Moreover, i represents the sub-regional unit of the analysis and t refers to year. The list of control variables included is as follows:

$$[\beta_1\text{PopGrw}_{i,\,t\text{-}1} + \beta_2\text{Log\_Wage}_{i,\,t\text{-}1} + \beta_3\text{Unemp}_{i,\,t\text{-}1} + \beta_4\text{Expert}_{i,\,t\text{-}1}\ (\text{or Educ}_{i,\,t\text{-}1}) + \beta_5\text{Dens}_{i,\,t\text{-}1} +$$
$$+ \beta_6\text{Finance}_{i,\,t\text{-}1} + \beta_7\text{Infra}_{i,\,t\text{-}1} + \beta_8\text{year}_t] \qquad (2)$$

For dynamic extension of the model, the decline in FSE_Density during the prior three years (FSE_Dens_Drop) will be used as the main independent variable:

$$\text{NFF\_Rate}_{i,\,t} = \alpha_i + \beta_0\,\text{FSE\_Dens\_Drop} + \beta\,(\text{control variables}_{i,\,t\text{-}1}) + \varepsilon_{i,\,t} \qquad (3)$$

Typically, the models shown above can be estimated by three methods: the fixed effects model, the random effects model, or the pooled OLS model. We generally run the F test or the Hausman test in order to choose between the pooled OLS and fixed effect models, or between the random effect and fixed effect models. However, in most previous studies analyzing the

determinants of NFF rates across regions, the pooled OLS model has been selected due to time-invariant features of the regions, for which a fixed effect estimator might be inadequate, and because estimation of the differences across regional groups is set as a primary objective in such analyses. Moreover, because the panel data used in this study has a rather short period of observation (T=3), the fixed effects model may be also undesirable due to inconsistency of the α_i parameter caused by an inadequate number of periods analyzed [29].

Therefore, the results of the pooled OLS were adopted in this study to test the impact of FSE restructuring on NFF rate in the region, with year dummies included. However, the results of Between Estimator model and GLS estimator of the random effect model are also reported to check the robustness of the analysis.

In addition, since the regional labor and product markets might include a geographical area much wider than the unit of observation used in this analysis (which is disaggregated to the smallest level available), some spatial autocorrelation problems among variables of neighboring units might exist. Spatial autocorrelation of the NFF rates is controlled by including into the model the average NFF rate of all adjacent areas as an independent measure (**Spat** and **Spat_Grw**).

5. Results

The descriptive statistics of the variables used in this study are summarized in Table 9. Here we can see that NFF rates range widely from 0.43 to 0.01 across different regions, with a mean value of 0.06. The value of the main explanatory variable **FSE_Density** has a large variance as well, from its minimum at 0.1 to a maximum at 1.94. A correlation matrix of the variables employed shows the correlation coefficient between **NFF_Rate** and **FSE_Density** as 0.454, significant at 1% level (Figure 1). These results are consistent with the discussion outlined in Section 1 from Table 2 and 3, that while the decline in the number of FSEs was dramatic (Table 7), the annual increase in the number of newly established SMEs in Uzbekistan has been very rapid at the same time, and its inter-regional disparities and variance over time have become more significant in certain regions. Moreover, from the correlation matrix of variables, we can see that the correlation coefficient between **ExpertR** (**Educ**) and **FSE_Density** takes value higher than 0.6. Thus, the Variance-Inflation Factor (VIF) test was conducted in order to check the presence of multicollinearity. The result showed that VIF is less than 3, indicating that multicollinearity among these variables is not a concern and their simultaneous estimation would not be a problem.

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[29] 田中勝人著（1998）「計量経済学」岩波書店; Cameron, A. C. and Trivedi, P. K., *Microeconometrics using Stata*, Stata Press, 2008.

The main results of the panel data regression estimation are reported in Table 10. The results of the pooled OLS estimation are shown in models (1) through (5), and (8) through (10). To check robustness, the results of Between Estimation (BE) and random effects (GLS) are also reported in models (6), (7) and (11). Moreover, the results in models (8) through (11) are those employing the **NFF_Labo** as the main dependent variable.

The estimation results of the panel data regression analysis support the predictions of Hypothesis 1: that the difference in density of former socialist state-owned enterprises (**FSE_Density**) undergoing restructuring across the regions in Uzbekistan explains the variance in entry rates (**NFF_Rate**) at the 1% level of significance. Strong positive impact of **FSE_Density** on **NFF_Rate** at the 1% significance level was found in all model specifications, and this is robust concerning the choice of estimation method applied. Moreover, the adjusted R-squared statistics in the pooled OLS and that in the Between Estimator models are 0.4 or higher, and the F value in the random effects model exceeded 427 at 1% significance level, demonstrating that explanatory power of the models used in this study is sufficiently high.

The estimation results of the dynamic model (4), (5), (7) and (10) revealed strong support for Hypothesis 2, which was designed to examine the extent to which the liquidation of insolvent and loss-making FSEs (**FSE_Dens_Drop**) due to transition reforms influenced the new firm creation process (**NFF_Grw**) at the regional level. The estimated impact of **FSE_Dens_Drop** on **NFF_Rate** is positive and statistically significant at the 1% level.

Moreover, by including the newly created variables (**FSE_Density**) in the baseline models (1) and (8), which is using only regional determinants proved in previous studies to exert statistically significant effects on NFF rate, the adjusted R-squared statistics increased significantly from 0.38 to 0.52, and from 0,31 to 0.61, as shown in models (2) and (9). Thus, these results indicate that at the regional level in Uzbekistan during transition, the deepening and accelerating of the restructuring and privatization of the state sector, and the liquidation of insolvent and loss-making FSEs, apart from other regional NFF determinants, have a significant explanatory power for the scale and dynamics of the newly emerging private sector, suggesting the existence of a specific regional resource re-allocation mechanism facilitating new entry during transition.

It is worth noting that other regional determinants such as **Log_Wage**, **Expert** and **Finance** exert a positive effect on NFF rate at 1% significance level. The impact of **Dens** is also statistically significant at 1% level, but this is a negative effect. The strong effects of these explanatory variables remain stable under the other estimation methods. This suggests that at the regional level in Uzbekistan, higher average wage of SMEs and regions with rich human capital and good access to financial resources tend to attract new entries (push factor); and that the negative impact of regional agglomeration economies exceeds their positive

benefits, probably due to the high levels of industrial concentration inherited from the Soviet era, which does not necessarily match location choices rational at the individual level. Also, the results show strongly significant but negative impact of **Unempl**, indicating that the pull effect exceeds the impact of push effect on regional NFF Rate. But the evidence is weaker regarding the effects of **PopGrw**, which coefficients are positive and statistically significant at 10% and lower level, and not in all model specifications.

In general, the significance of the estimated coefficients of regional NFF determinants shows that most of the market mechanisms that work in matured economies came into effect and started to play an important role in the transition economy of Uzbekistan as well. As for the effects of **Infra**, the underdeveloped physical infrastructure seems to be the most likely explanation for the low entry rates in certain regions. And the regressions provide little evidence that spatial autocorrelation among adjacent areas (**Spat** or **Spat_Grw**) exists and positively influences the NFF rates in Uzbekistan.

In order to differentiate between the three entry patterns outlined in section 3, we also used the interaction term **UnemplxFSE_Density** ,and **UnemplxFSE_Dens_Drop** for a dynamic model. The results of the models including the interaction terms are shown in columns (3), (5) and (9) trough (11), and these results indicate that it is significant at the 5% and 10% level with positive impact on **NFF_Rate**, supporting the assumption that regions with high FSE density will show higher levels of entry, probably by laid-off employees (the "push" hypothesis). However, we cannot separately test the magnitudes of the first and second entry patterns, since panel data at the firm level would be necessary for this purpose. Furthermore, most results of the models regressed by industry breakdown showed similar effects for the main explanatory variables, except for spatial entry patterns of agricultural start-ups and the effects of agricultural FSEs on non-agricultural entrants.

6. Conclusion

The analysis contained in this study is the first attempt to shed light on the regional determinants of new firm formation (NFF) rates at the most disaggregated level available in the transition economy of Uzbekistan: a field which has received scant attention so far. Emphasizing the peculiar economic background during transition, including the large-scale privatization and restructuring of a highly inefficient state sector and the massive liquidation of insolvent former socialist large-sized enterprises (FSEs), these findings lend empirical support to the view that regions with higher density of restructuring FSEs had a higher NFF rate. Also, in regions with a substantial decrease in FSE density, there was a significant increase in NFF rate when the dynamic model of this process was considered.

Thus, these results indicate that at the regional level in Uzbekistan during transition, the deepening and accelerating of the restructuring in the state sector, apart from other regional NFF determinants, have a significant explanatory power for the scale and dynamics of the newly emerging private sector. Significantly, these results contribute in an important way to our understanding of the resource re-allocation mechanism, triggered by a transition-specific regional mechanism in which the spatial distribution of industries determined by the socialist economic system affects the entry of new firms at the regional level in Uzbekistan.

Furthermore, the results also confirm the effects of many regional variables such as cost and demand factors, human capital, financial infrastructure, levels of agglomeration, and demographic structures. This is consistent with the findings of previous studies on regional variation in NFF rate in both developed and developing countries. This seems to imply that emerging market mechanisms have become vital in promoting new firm entry in this transition economy as well.

Finally, the results of this study help policymakers to better understand the process of economic resource redistribution and regional renewal. Although the effect of FSE restructuring and liquidation, peculiar to the transition period, may disappear as transition reform continues, the results of the analysis provide strong evidence that policymakers seeking to promote private sector development in transition economies should be encouraged to accelerate the speed of reforms in the inefficient state sector and FSEs. This significantly promotes new firm creation, which in turn facilitates the effective reallocation and employment of idle economic resources at the regional level, triggering economic growth that might otherwise be lost if government support was provided to unprofitable FSEs through subsidies and tax concessions.

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Figure 1. Correlation between NFF Rate and FSE Density
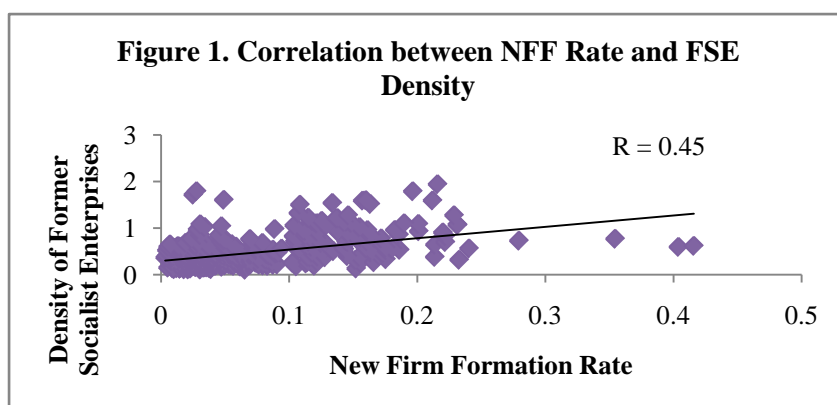
Source: Composed by author based on panel data obtained from Goskomstat.

Table 1. Dynamics of SME Sector Development in Uzbekistan 1999-2006

	1999	2000	2001	2002	2003	2004	2005	2006
Share in GDP (%):	29.1	31.0	33.6	34.6	35.0	35.6	38.2	42.1
SMEs	12.6	13.1	14.8	15.7	16.5	18.6	21.5	23.5
individual entrepreneurs	16.5	17.9	18.8	18.9	18.5	17.0	16.7	18.6
Share in total employment (%)	47.0	49.7	53.0	54.5	56.7	60.3	65.5	69.3
Number of employed (1000 ppl.):	-	4,462.7	4,842.5	5,086.4	5,436.7	5,974.9	6,602.5	7,258.6
in SMEs	647.7	745.3	801.8	900.3	1,045.1	1,349.0	1,386.9	1,848.0
Number of SMEs (1000 entities):	159.7	182.9	201.9	239.5	243.4	277.4	308.7	384.1
operating SMEs:	125.6	149.25	177.68	215.71	210.14	237.50	268.64	346.06
share in SMEs (%)	(66.8)	(88.3)	(89.5)	(91.3)	(92.2)	(93.5)	(94.8)	(96.5)
Number of SMEs per 1000 ppl.	-	6.0	7.1	8.6	8.3	9.2	10.3	13.2
GDP growth in Uzbekistan (%)	4.3	3.8	4.2	4.0	4.2	7.4	7.0	7.3

Source: Composed by author based on statistical reports of Goskomstat and CEEP (1999-2007).

Table 2. Number of Newly Entering Firms by Industry (entities)

	2000	2001	2002	2003	2004	2005	2006
Industry	2429	2724	4099	4473	3728	3507	3839
Construction	1409	1420	1843	1649	2252	2512	2550
Retail Trade	7697	6889	6592	6454	8658	7161	7664
Public Catering	228	446	511	2084	1061	963	1053
Transport and Communication	303	369	473	466	577	789	1357
Services	3039	3334	2451	1342	1628	1675	2185
Other	695	919	901	1139	1274	1756	1989
Agriculture	18809	18093	30369	24329	32550	40106	71889
Total	34609	34194	47239	41936	51728	58469	92526

Source: Composed by author based on panel data obtained from Goskomstat.

Table 3. Number of Newly Entering Firms by Regions (entities)

	2000	2001	2002	2003	2004	2005	2006
Uzbekistan	34609	34194	47239	41936	51728	58469	92526
Karakalpakstan	1951	1789	2669	2595	2343	2961	2680
Andijan	2058	3515	3127	2594	1763	3082	10118
Bukhara	4017	2720	3132	4122	4259	4505	6342
Jizzah	2318	1582	2233	5828	2407	1818	1632
Kashkadarya	7409	3383	3034	7876	16125	14666	12485
Navoi	1661	1910	2258	2113	1663	1645	2140
Namangan	1897	1727	2057	2378	2050	2541	7010
Samarkand	2232	4031	3125	2737	2608	2306	10441
Surkhandarya	2088	1664	1579	1809	2456	2721	6354
Sirdarya	2587	1678	1137	1910	2001	2202	1914
Tashkent	2971	2034	2189	2925	3183	2629	11427
Fergana	3471	2508	3446	4727	3379	5979	9807
Khorezm	2718	2493	1784	2256	3155	7028	5141
Tashkent city	3914	3413	3304	3295	4336	4386	5035

Source: Composed by author based on panel data obtained from Goskomstat.

Table 4. Changes in Ownership 1995-1999 / Number of Entities

	Total	Including	
		Privatized	Converted into Joint Stock Companies
1995	..	7511	1026
1996	1915	658	1257
1997	1231	443	788
1998	451	103	110
1999	448	156	141

Source: State Property Committee (GKI), Ministry of Macroeconomics and Statistics.

Table 5. Breakdown by Ownership 2000-2006 / Number of Entities

	2000	2001	2002	2003	2004	2005	2006
Privatized Firms	374	1449	1912	1519	1228	980	673
Joint Stock Co.	152	227	223	75	28	3	19
Limited Liability Co.	103	827	1252	981	162	75	55
Other Private Firms	119	395	437	463	1038	902	599

Source: State Property Committee (GKI), Ministry of Macroeconomics and Statistics.

Table 6. Leasing indicators in Uzbekistan

	2002	2003	2004	2005	2006
Number of Leasing Firms	14	21	23	28	33
Annual Number of Leasing Contracts	2,621	2,817	2,810	4,078	5,630
Annual Value of Leased Assets (mil. US dollars)	41.1	37.9	43.4	81.2	107.6

Source: Leasing in Uzbekistan, IFC 2006.

Table 7. Number of FSEs by Sectors (entities)

	2000	2001	2002	2003	2004	2005	2006
Total	19697	20878	20684	17899	16512	14598	12715
Industry	1113	1073	1005	1102	968	873	799
Construction	1389	1387	1219	1006	833	626	521
Agriculture	3823	3865	3868	2860	2591	2258	1520
Retail Trade	1567	1511	1417	1139	900	763	631
Public Catering	355	331	300	221	198	168	130
Transport and Communication	1127	1084	1038	1004	937	838	761
Services	9707	11053	11304	10289	9924	8953	8246
Other	616	574	533	278	161	119	107

Source: Composed by author based on panel data obtained from Goskomstat.

Table 8. Number of SMEs by sectors of the economy (entities)

	2000	2001	2002	2003	2004	2005	2006
Industry	14798	16803	19755	20720	20067	19488	20778
Construction	8906	9916	11053	10570	10940	11698	12874
Agriculture	54308	72244	101773	120087	146247	176867	244386
Retail Trade	40486	44336	45472	37604	37252	36007	38892
Public Catering	1874	2216	2630	4263	4655	4949	5508
Transport and Communication	1206	1462	1903	1991	2266	2684	3766
Services	23011	25273	27151	8588	9589	9742	11480
Other	4668	5428	5973	6312	6486	7201	8378
Total	149257	177678	215710	210135	237502	268636	346062

Note: This excludes individual entrepreneurs.

Source: Composed by author based on panel data obtained from Goskomstat.

Table 9. A: Descriptive statistics

		Mean	S.D.	Min	Max	Deffinition
1	NFF_Rate	0.06	0.06	0	0.43	Number of New Firms i, (t+1) / Total Enterprises i, t
2	NFF_Labo	0.7	0.57	0.09	4.08	Number of New Firms i, (t+1) / Population i, t
3	FSE_Density	0.44	0.28	0.1	1.94	Nubmer of FSEs i, t / Population i, t
4	FSE_Dens_Drop	0.29	0.28	-0.6	1.78	FSE I, (t-3) / Population i, (t-3) - FSE i, (t) / Population i, (t)
5	UnemplxFSE_Density	0.17	0.25	0.01	3	Intraction term between Unempl and FSE_Density
6	UnemplxFSE_Dens_Drop	0.17	0.2	0.03	0.88	Intraction term between Unempl and FSE_Dens_Drop
7	PopGrw	7.64	2.4	3.21	12.2	[Population i,t – Population i, (t-3)] / Population i, (t-3)
8	Log_Wage	3.09	0.25	2.58	3.67	Log (SME's monthly average Wage) / 1000
9	Unempl	0.36	0.36	0.07	1.55	(Number of Unemployed) / (Labor Force)
10	ExpertR	0.04	0.02	0.01	0.13	(Number of Colleges) / (Population)
11	Educ	10.08	13.89	0.38	131.42	(University & Colleges Graduates) / (Population)
12	Dens	1.32	0.7	0.31	4.57	(Total Enterprises) / (Population)
13	Infra	0.28	0.22	0.11	0.88	(Telephone Landlines) / (Population)
14	Finance	0	0	0	0	(Volume of Banks Deposits) / (Total Enterprises)

Table 9. B: Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12
1	NFF_Rate	1											
2	NFF_Labo	0.796	1										
3	FSE_Density	0.454	0.696	1									
4	FSE_Dens_Drop	0.253	0.36	0.471	1								
5	UnemplxFSE_Density	0.204	0.312	0.544	0.054	1							
6	UnemplxFSE_Dens_Drop	-0.046	-0.024	0.173	-0.101	0.781	1						
7	PopGrw	-0.186	-0.144	-0.035	0.132	-0.105	-0.136	1					
8	Log_Wage	0.124	0.19	-0.004	-0.1	-0.02	-0.018	-0.549	1				
9	Unempl	-0.052	-0.042	0.133	-0.128	0.771	0.987	-0.149	-0.022	1			
10	ExpertR	0.382	0.497	0.603	0.354	0.383	0.214	-0.142	0.02	0.213	1		
11	Educ	0.476	0.539	0.609	0.398	0.342	0.099	-0.056	-0.003	0.101	0.657	1	
12	Dens	-0.369	0.085	0.191	0.05	0.044	0.012	0.124	0.19	-0.017	0.084	-0.074	1
13	Infra	0.088	0.191	0.178	-0.052	0.327	0.429	-0.6	0.421	0.379	0.224	0.078	0.12
14	Finance	0.088	0.108	0.041	0.073	-0.213	-0.278	-0.07	-0.131	-0.311	-0.026	-0.057	0.054

		13	14
14	Finance	0.025	1

Table 10. Regional Determinants of New Firm Formation Rate in Uzbekistan

	NFF_Rate							NFF_Labo			
	Pooling OLS					Between Estimator		Pooling OLS			RE
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FSE_Density		0.101***	0.090***			0.109***			1.314***		0.958***
		(0.011)	(0.015)			(0.013)			(0.170)		(0.108)
FSE_Dens_Drop				0.047***	0.046***		0.078***			0.711***	
				(0.009)	(0.009)		(0.018)			(0.139)	
PopGrw	0.002**	0.002*	0.002	0.002	0.001	0.002	0.002	0.026**	0.014	0.009	0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.012)	(0.009)	(0.013)	(0.013)
Log_Wage	0.068***	0.055***	0.055***	0.069***	0.064***	0.060***	0.078***	0.495***	0.310***	0.467***	0.194
	(0.012)	(0.011)	(0.011)	(0.012)	(0.012)	(0.018)	(0.021)	(0.134)	(0.097)	(0.126)	(0.120)
Unempl	-0.013**	-0.013***	-0.026***	-0.002	-0.088**	-0.013	0.006	-0.180**	-0.320***	-0.709*	-0.230**
	(0.006)	(0.004)	(0.008)	(0.006)	(0.038)	(0.009)	(0.012)	(0.082)	(0.082)	(0.387)	(0.102)
ExpertR	1.286***	0.404***	0.429***	0.992***	1.000***	0.359**	0.835***	14.885***	2.610**	10.477***	3.244**
	(0.118)	(0.145)	(0.151)	(0.132)	(0.132)	(0.181)	(0.195)	(1.622)	(1.313)	(1.747)	(1.268)
Dens	-0.040***	-0.047***	-0.046***	-0.042***	-0.042***	-0.050***	-0.046***	-0.044	-0.133***	-0.074**	-0.081***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.033)	(0.029)	(0.035)	(0.028)
Infra	0.003	-0.001	-0.001	0.000	-0.013	0.001	-0.002	0.246	0.196*	0.100	0.183
	(0.013)	(0.010)	(0.011)	(0.013)	(0.015)	(0.018)	(0.020)	(0.176)	(0.117)	(0.177)	(0.155)
Finance	15.441***	14.854***	14.795***	17.421***	16.408***	17.220***	20.821***	145.000***	136.019***	166.910***	99.687**
	(5.531)	(4.907)	(4.937)	(5.509)	(5.743)	(5.649)	(6.431)	(55.863)	(44.742)	(55.612)	(40.184)
year_2004	-0.001	-0.019***	-0.019***	-0.013**	-0.017***	(dropped)	(dropped)	-0.100*	-0.346***	-0.305***	-0.315***
	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)			(0.057)	(0.052)	(0.057)	(0.043)
year_2005	-0.011**	-0.019***	-0.019***	-0.025***	-0.027***	(dropped)	(dropped)	-0.152***	-0.262***	-0.380***	-0.235***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)			(0.056)	(0.043)	(0.053)	(0.025)
UnemplxFSE_Density			0.026*							0.285*	0.302**
			(0.014)							(0.168)	(0.150)
UnemplxFSE_Dens_Drop					0.160**					1.295*	
					(0.069)					(0.700)	
Constant	-0.173***	-0.119***	-0.116***	-0.169***	-0.135***	-0.154**	-0.216***	-1.631***	-0.835**	-1.302***	-0.348
	(0.046)	(0.038)	(0.039)	(0.045)	(0.048)	(0.066)	(0.074)	(0.492)	(0.350)	(0.481)	(0.439)
Number of observations	564	564	564	564	564	564	564	564	564	564	564
Chi2											427.001
Adjusted R2	0.380	0.526	0.528	0.411	0.415	0.579	0.465	0.318	0.610	0.392	

note:

1. Robust standard errors are in parentheses.

2. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

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