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Financial Liberalization and Regional Impacts on Entrepreneurial Behavior in Turkey

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Abstract: Financial liberalization in various forms affects economic growth and activity. While cross country and time series observations underline the benefits of financial liberalization on growth, recent regional studies try to deepen the observation by distinguishing economic growth and economic activity. Firm formation and thus entrepreneurship is one of the major tools to understand the behavior of economic activity. While numerous factors may be labeled to understand the determinants of entrepreneurial behavior, a new debate widens to describe a special role for financial liberalization as to explain motivations of entrepreneurship. Originating from this core debate the study aims to discuss the post 1980 liberalization in Turkey with special emphasis on the regional interaction between financial markets and business environment. Result underline that bank loans continue to dominate the financing of business start ups, while deposit volume's effect seems to deviate from the expectations.

Keywords: entrepreneurship, financial liberalization, panel data, Turkey

1. Introduction

Financial liberalization in different forms is discussed heavily by economists. After the seminal contributions of Goldsmith (1969), McKinnon (1973) and Shaw (1973) the relation between financial development and economic growth is widened to describe one of major the mechanics of economic growth. While early studies concentrate on the direct effects of financial liberalization on economic growth, there are also other recent studies that aim to open up a debate regarding other possible channels. Following the Schumpeterian (1912) understanding, entrepreneurship theory tries to construct an atmosphere in which financial development can alter the opportunities in business environment, through supplying the desired fund to entrepreneurs, who by construction are assumed to be knowledge concentrated and more innovative but are not endowed with the required capital.

It was first the McKinnon-Shaw hypothesis (1973) that defines financial liberalization and why it is a must for economic growth. Later two distinct views evolve, one to deepen the roots of financial liberalization and other to discuss the reverse causality phenomenon. While Bencivenga, Smith (1991) and Bencivenga et al. (1996) follows the first approach and try to illustrate the possible financial mechanisms affecting economic growth, it was the followers of Robinson (1952) to propose an alternative approach. Overall both views try to connect financial liberalization with economic growth directly.

While the listed debate concentrates on the direct relationship between financial liberalization and economic growth, there is also a second view that gives a special role to financial liberalization during the evolution of new firms, thus entrepreneurship. It was Schumpeter (1912) to underline the necessity of entrepreneurs for economic growth, through their innovative and competitive behaviors. Actually firm formation and start ups are the indicators of economic activity in the Marshallian (1920) localization and Krugman's (1991) clustering contexts. In this framework entrepreneurship behavior is best observed by following the literature regarding the dynamics of firm formation. While models can be constructed at the national base, it is a reality that literature is dominated by regional studies; most of the instances are cross sectional studies. The specific role of new firm formation as an indication of increasing economic activity is discussed by following one way causal models. However contemporary discussion gives rise to the investigation of private business sector and entrepreneurial behavior.

Originating from the ongoing debate, the study aims to make a quantitative assessment of the effects of financial liberalization on entrepreneurial behavior in Turkey at the regional base for the period of 1997-2006. The unit of analysis will be the urban areas of Turkey (Nomenclature of Territorial Units for Statistics 3 - NUTS 3-). Different panel techniques will be listed and both the

outcomes of fixed effect, random effect type static models and also dynamic panel data models will be evaluated. Results are significant in the sense that, relationship between financial liberalization and entrepreneurial behavior at the regional base will shed light on the impacts of the post 1980 liberalization on private business in Turkey.

The paper will be constructed as follows; section two briefly discuss the effects of financial liberalization on economic growth and activity-entrepreneurship-, section three will briefly introduce the environment of Turkey, section four will be devoted to methodological debate and section five will clarify the empirical findings. Paper will end with a conclusion.

2. Financial Liberalization and Entrepreneurial Behavior

Traditional discussions regarding the place of financial development in economic growth debate is connected to McKinnon-Shaw (1973) hypothesis. Liberalization thus relaxation of the restrictions in financial markets are defined as prerequisites of economic growth. While remarks of the hypothesis is crucial it is later the endogenous growth economists to define the roots of financial development; Bencivenga, Smith (1991) defines the place of bank based financial development and Bencivenga et al. (1996) questions the place of equity markets in the deepening of financial environment. Following this growing theoretical discussions, findings of King, Levine (1993) regarding bank based and Levine, Zervos (1998) regarding stock market based financial development are crucial in the sense that they represent the strongest supports of the McKinnon-Shaw (1973) hypothesis. Note that models defined here skip the causality issue. However the post 1990 period also witnesses a growing literature regarding the causality debate in financial development and economic growth debate. Luintel, Khan (1999), Demetriades, Hussesin (1996), Arestis, Demetriades (1997) and Ghirmay (2004) studied different cases by using vector auto regressive (VAR) and vector error correction (VEC) models, underlining the possibility of a reverse mechanism running from economic growth to financial liberalization. . While the ongoing discussion up to this point concentrates on the national developments, a number of studies are also done at the regional level, trying to understand the effect of financial liberalization on economic growth. To understand the effect of financial liberalization on economic growth within economies, Jayaratne, Strahan (1996) and Clarke (2004) for US, Valverde et al. (2003) for Spain and Ardic, Damar (2006) for Turkey observes the effects of financial liberalization on regional economic growth. While results for US supports the McKinnon-Shaw hypothesis (1973); for Turkey and Spain evidences are against the traditional positive and significant effect.

As a different approach in the economic growth framework the place of entrepreneurs is also widely discussed. Acs, Audretsch, Braunerhjelm and Carlsson (2003) by concentrating on the link between new economic geographers and new growth theorists, describe a model in which one can account for the new growth models to work by accounting for the effect of knowledge transformation. Their central research originates from the disparities between high R&D expanding economies. While economies like Japan and Sweden are realizing lower growth rates, others such as Denmark and Ireland stand as growth miracles. If the propositions of new growth theorists are common and applicable to those economies, there should be a missing mechanism in their approach. The discussion is that; knowledge and economic knowledge are different things. Knowledge will spillover as the Romerain Type of Growth models predict, however the question is that; "*Can we interpret such a mechanism as an automatic one?*" Audretsch and Keilbach (2004) remarks that knowledge enters the production function after it is exploited and transformed into an economic one. Both Acs et al. (2003) and Audretsch, Keilbach (2004) underline that knowledge while represents an opportunity which may lead to economic growth, the prerequisite of the mechanism to work is the existence of a party to discover and exploit the knowledge. Debate regarding the missing gap in the knowledge spillover process influences theorists to find a place for entrepreneurial activities as to transform knowledge into a commercialized one. Audretsch and Keilbach (2004) try to search for the relation between entrepreneurship and regional growth. Their hypothesis is that; regions with high start up rates (accounting for entrepreneurship) will have higher diversity which in turn will cause the regional employment figures to increase (accounting for regional economic development). Their findings for Germany underline that; three types of entrepreneurial activity (General Start Up Rate, High Technology Based Firm Start Up Rate and ICT Based Firm Start Up Rate) affect the labor productivity of regions of Germany positively. Finally Acs and Varga (2005) discuss the relation between

entrepreneurship & technological change and agglomeration & technological change separately. Following Acs et al. (2003), Acs and Varga (2005) underline that technological change while represents an opportunity for economic growth, such and opportunity will face with a danger to vanish in the absence of new agents in the form of entrepreneurs. Moreover the expected positive effect of agglomeration is mentioned with a special emphasis on geographic concentration of R&D activities empirically. Overall they try to model knowledge as a function of technology level, R&D expenditure, entrepreneurship and agglomeration. Findings compare the effect of R&D in the absence of entrepreneurship and agglomeration, with the existence of entrepreneurship and agglomeration. Results are definitely not the same, signaling the positive effects of entrepreneurship and agglomeration through knowledge spillover process.

If financial liberalization, as described by the theory, is a necessity for economic growth and if the entrepreneurs are knowledge exploiters affecting economic growth, then possible links between these to distinct views must be evaluated. Actually the roots of this debate rely on the history of economic theory. As described and discussed by Schumpeter (1912) entrepreneurs are by construction assumed to be the innovator actors of the economy. However coming from their nature, they are not endowed with the required capital, thus call for financing. Schumpeter argues that it is the capitalist to provide fund and bear the risk. However remarks of Schumpeter deviate from Knight (1921), who demonstrates that entrepreneurs can both be innovative and also be endowed with the required funds; bearing the whole risk. It is later Evans, Jovanovic (1989) to compare and discuss the ideas of these two influential discussions. By constructing a model defining the behavior of entrepreneur under liquidity constraints, findings underline that liquidity matters and in fact binding. One can not directly separate entrepreneurs from capitalist. In the scope of this study this is where the place of capital markets (or what we define financial development) emerge to supply the desired funds to business start up activities. Meanwhile Emran, Stiglitz (2007) motivated by the McKinnon-Shaw (1973) try to investigate the financial reform paradigm. By doing so, policy recommendations are tried to be reached for the well being of a financing mechanism that supports the long run knowledge based and growth oriented projects of entrepreneurs. Concerns of the study is related with the outcome of the entrepreneurs discovery, which are assumed/expected to be giving long lasting returns spread over a time line. However the evolution of a competitive banking sector will prevent banks to approach those entrepreneurs, in turn by behaving short termismly, retarding the entrepreneurial learning. The reason is that, projects with strong learning effects and consecutively higher productivity gains may not yield adequate returns in the short run. Banks will not be willing to finance such projects due to the poaching effects realized in the competitive banking environment. The model based on occupational choice with moral hazard information problem underlines that a competitive banking environment with liberalized financial system in which interest rates are determined by the market seems to be the major constraint for the development of an entrepreneurial based industrial development mainly in the early stages of development. One of the background reasons of short termism can be avoided by the usage of entry restraints, which awards banks, working with entrepreneurs and their long lasting projects, with limited duration of monopoly right. Another policy recommendation is the deposit interest reduction which may form a new approach for banks towards business society that may foster supporting of the discovery of entrepreneurial talents.

An augmented understanding regarding the finance-business environment relationship is the perspective of finance and geographical distribution of production that is studied in a developmentalist view. While O'Brien (1991) underlines that economic geography of finance does not matter for localities; Tickell (2003) and Best (1990) underline that finance especially in the form of a local bank based development, has many remarks about industrial development. Tickell (2003) remarks that other than the direct effect of finance on localities, through creation of financial jobs, financial development represents a more vital indirect function which sustains a more efficient and competitive environment for well working of the credit channels. Alessandrini, Zazzaro (1999) mentions that a local -regional- bank based system will decrease the informational asymmetries that will reduce the direct and indirect costs of entering the credit channel for small and medium enterprises. Here a related notation belongs to Bowles (1998); comparing a regionally developed banking system and a centralized banking system; points out the efficiency gains realized by forming regional banking systems which have higher accumulated knowledge regarding the local properties of production and employment.

The discussed theoretical debate enters the realm of empirical studies working on the general determinants of firm formation. Other than a number of social and economical variables, financial development indicators are tried to be illustrated. Reynolds (1994) in the framework of cross sectional variation of firm formation underlines that financial capital availability in the form of owners equity is an important determinant of the process. Actually the common understanding of the studies clustered around 1990s is the capital availability that depends on internal sources. Similar to these understandings of cross sectional studies of the early 1990s, Kangasharju (2000) also discusses the financial capital availability by trying to compute the general local wealth levels by using the average dwelling price levels, without finding any significant effect. Another crucial study follows to relate the manufacturing firm formation and regional deposit volumes for the case of Turkey (Kaygısız, Köksal, 2003). Findings underline the negligible insignificant effect of increasing deposit volume for the case of Turkey. While Kaygısız, Köksal (2003) is vital for asking a similar question in Turkey, the ongoing study differs from the mentioned work by using a larger set of firm formation including all economic activities and also by using more recent panel data techniques.

3. Financial Liberalization and Its Regional Dispersion in Turkey -Post 1980 era-

Post 1980 era represents the liberalization and relaxation of various measures in Turkey. After the 1980 transformation in goods market, it is the liberalization of capital account in 1989 that represents the peak of the post 1980 transformation. Within this framework deregulation of interest rates and declining reserve requirements represent the preliminary developments in financial markets towards a more liberalized system. Note that the deregulation of interest rates is not a one shot development of the period; actually it took a period of time to realize the deregulation of the interest rates. Other than these developments, a number of significant legislative and institutional developments also occur in the post 1980 era, aiming to support the liberalization of the financial market by forming the institutional prerequisites as well as introducing new instruments. In 1981 Capital Market Law (CML) is formed with a first implementation to establish Capital Market Board (CMB) in 1982. These background operations prepare the way for the opening of Istanbul Stock Exchanges (ISE) in 1985, which starts its operations in 1987. Developments of the post 1980 era underlines that Turkey undergoes a serious transformation process in its financial markets. The prerequisites for financial liberalization of neo liberal policies are present for the case of Turkey (McKinnon, Shaw, 1973). Deepening financial markets and increasing diversity are both expected to stimulate the growth and activity potential of the economy. Following this discussion as the study will be searching for the relationship at the regional level, the central concern of the paper will be the bank based financial development rather than stock market based one. The deepening of financial markets with direct emphasis on the developments in credit channels and deposit volumes will be tried to be connected with the business formation capacities of urban areas in Turkey. Note that period under concern witness a vital financial crisis in Turkey. Although observing the dynamics of the crisis may be informative; to stick with the central idea of the study, the debate regarding the developments of the crisis will not be evaluated here.¹

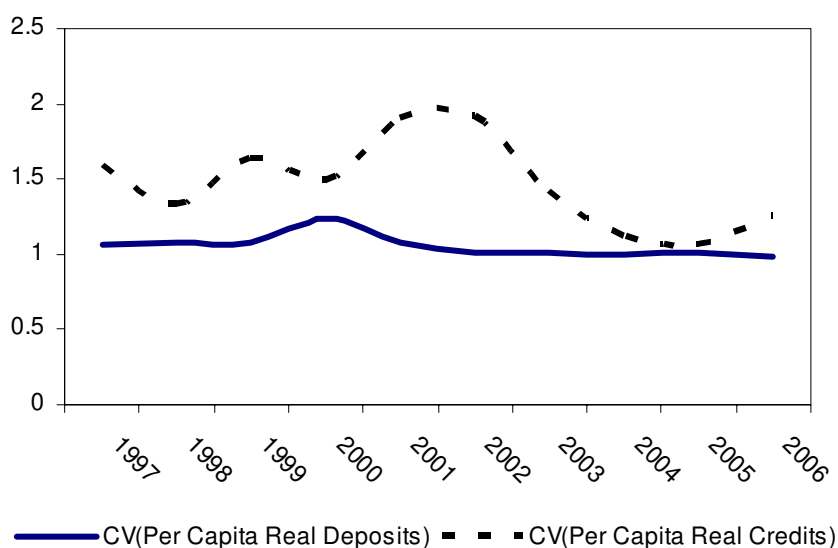
After having a quick look at the financial markets for the post 1980 era, for a closer observation, bank based financial development in Turkey is observed at NUTS 3 level. Within the framework that concentrated on the regional inequalities of Turkey the preliminary observations tries to shed some light on the dispersion of financial development within the urban areas of Turkey². Coefficient of variation, which computes the cross sectional deviation at a particular time, is a commonly used measure to understand the dispersion as represented by $CV_t = \sigma_t / \mu_t$ where t represents time. It seems to be an important preliminary analysis to observe the dispersion of financial development before proceeding to the estimations.

For Turkey, two bank based financial development indicators of per capital real deposit and credit volume are observed for the analysis period of 1997-2006. Note that as will be discussed in the data

¹ For a brief discussion of 2001 crisis and the pre crisis environment see Alper (2001), Alper, Öniş (2003) and Yeldan (2004).

² While the central idea of the study is not only the regional differences, one can review Doğruel, Doğruel (2003) and Filiztekin (1998) for a detailed representation of the regional income inequality in Turkey.

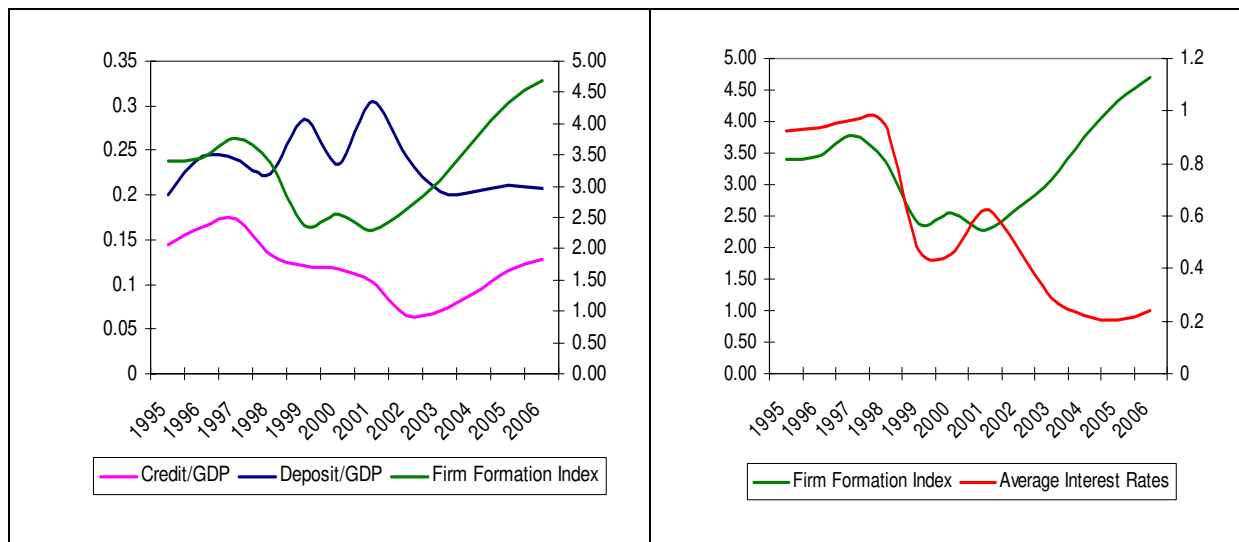
selection part, commonly preferred measures of deposit volume to GDP and credit volume to GDP can not be computed in Turkey at the regional level, due to the fact that regional GDP data is available only to the year 2001, whereas the time span of the study ends in 2006. Findings are interesting. Per capital real deposit volume seems to realize a period of stable dispersion through out the sample period. While the crisis period of 2000-2001 witnesses a limited worsening, the post 2001 period is a clear sign of stability for dispersion. On the other hand the per capita real credit volume gives us contradictory results. First of all the pre crisis period of 2000-2001 realizes a volatile period in the dispersion. Note that this period also coincides with the post 1994 crisis in Turkey. The striking picture is regarding the behavior of the credit distribution for the post 2001 period that represents the so called recovery of Turkey. Here we approach the preliminary findings with some caution. It is a reality that, the distribution of credit volumes mainly worsens in the developed regions of Turkey. In short the illustration towards convergence can be a sign of a backward movement in the developed regions instead of an increase in the lagging regions of Turkey. Ankara, İstanbul, İzmit and İzmir with the leading credit usage potentials realize substantial declines after the 2001 crises, meanwhile Muş, Şırnak, Ağrı, Hakkari, the lagging regions, do not undergo significant movements in their credit usage volumes.



Source: TBA

Figure 1 Dispersion of Financial Development in Turkey (NUTS 3 Level)

While previous figure give us information regarding the equal or unequal distribution of regional financial development, a more general illustration can be complementary. To have an extensive understanding regarding the relationship between financial development and entrepreneurship in Turkey, entrepreneurial behavior and financial deepening is evaluated at the national level. As the study will discuss in the following sections, new firm start ups, representing the formation of registered firms, is the major measure for entrepreneurship in Turkey. Instead of using gross firm formation numbers, a standardization process is preferred by dividing the firm formation numbers with the total population. The combined figures are crucial as represented in figure 2. There seems to be a parallel movement in the firm formation rate and the credit volume in Turkey. On the other hand, deposit volume and firm formation rate seems to be inversely related for the period under concern. Note that these preliminary finding are supported by the right hand side of the illustration, observing the average interest rates in Turkey. While pre crisis period witness a parallel movement, especially for the post crisis (post 2000-2001 era) the inverse relationship is obvious.



Source: TURKSTAT

Figure 2 Financial Developments and Entrepreneurial Behavior in Turkey

4. Methodology

The effect of financial liberalization on entrepreneurial behavior will be discussed by using different panel data techniques. For 80 urban areas of Turkey annual data will be used to construct a panel model for the period of 1997-2006.³ All variables are constructed at the Nomenclature of Territorial Units for Statistics (NUTS) 3 level. New firm formation numbers are obtained from Turkish Institute of Statistics (TURKSTAT) and covers only the registered firm start ups representing all economic activities. In line with the remarks of Evans, Jovanovic (1989) a standardization process is followed by using the population levels of the urban areas. Actually originally two different standardization techniques are advised. First one is the labor market approach; standardization is done by using the labor force of the area. Second one is the ecological approach which chooses to use the local firm numbers for standardization. However as both indicators are not available for the period under concern at NUTS 3 level, a third approach is advised through out the study. Each local new firm formation number is standardized by dividing by the urban areas population level. On the other side of the relationship to account for financial development of urban areas, per capita real deposit and credit numbers are computed by using the urban area financial data of Turkish Banking Association (TBA)⁴. One may argue that using the traditional measures of the financial data relative to the local income level may be more informative. However as discussed before, urban area income level is available only to the year of 2001.

Moreover to control for other possible effects, a number social and economic indicators are chosen; primary and secondary education graduate volumes in local population and lecturer number per student in higher education are used to control for human capital base. It is actually the Labor Market Pooling (LMP) hypothesis of Marshall (1920) and augmentations of Krugman (1991) that specify a place for human capital base for firm start up. Secondly population growth is included as to account for the development level of urban areas. Additionally to understand the demand potential of areas, following Krugman (1991), income levels is tried to be injected in to the model. However, as indicated above, per capita income is only available up to 2001 at NUTS 3 level in Turkey. Instead a proxy is introduced; collected per capita real tax volumes of urban areas. All social and economic indicators are obtained from TURKSTAT and Ministry of Finance of Turkey (MOF)⁵.

³ Düzce due to data availability is removed from the sample.

⁴ Real values are computed by using 1994 years prices

⁵ Both growth models and also firm formation models account for numerous regional indicators, however as social and economic indicators are limited at the province level in Turkey only a limited number of variables are preferred.

In this framework panel data model is applicable to combine the cross section and time dimensions of the discussed question. Actually panel data is just the pooling of observations on a group of cross sections (Baltagi, 2005). While the cross sections under concern can be firm, household; they can also be countries or regions. There are numerous benefits of using panel data with respect to individual time series or cross sectional studies. As discussed by Hsiao (2005) and Baltagi (2005), the major power of using panel data is the fact that, panel data models allow for individual heterogeneity.

Originating from the discussion a panel data model can be built in the following form, where subscripts i and t denotes cross section and time respectively. Equation 4.1 contains the 'y' as the standardized regional firm formation and 'X' is a set of explanatory variables for each cross section 'i' for each time period 't'.

$$(1) y_{i,t} = \alpha + \beta X_{i,t} + u_{i,t}$$

The one way error component can be decomposed as follows; $u_{i,t} = \mu_i + v_{i,t}$ where μ denotes the unobserved individual effects, v denotes the remaining errors. The enduring discussion is regarding the unobserved individual effects; whether these effects are fixed or random. In the case of fixed effect models μ_i is assumed to be a fixed parameter and by construction is correlated with explanatory variables unlike the random effect model. Meanwhile $v_{i,t}$ is the IID $(0, \sigma_v^2)$ stochastic disturbance. $X_{i,t}$ can not be correlated with $v_{i,t}$. The background of the fixed effect model estimation is to eliminate the unobserved effect. Baltagi (2005) emphasizes that such an elimination calls for different transformation techniques. The within transformation, which can also be labeled as the fixed effects transformation, is the accurate process.

In the case of random effect models the unobserved effect is assumed to be random. Baltagi (2005) emphasized that if one is drawing a pre determined number of individuals from a large population, usage of a random effect models seems to be appropriate.⁶ The most common example is the household surveys. Green (2008) also argued that if the expected individual effects are uncorrelated with the regressors, unlike the fixed effect models, then modeling the individual specific constant terms by randomly distributing across cross section units will be more appropriate. Unlike the fixed effect model; which eliminates the unobserved effect during the estimation procedure, random effect model contains the unobserved effect which is assumed to be non-correlated with the explanatory variables. The efficiency is that random effect model accounts for the implied serial correlation in the composite error component by using a Generalized Least Squares (GLS) analysis (Green, 2008).

While discussed models give solutions in the static sense, panel data is also suitable for asking the similar questions in dynamic manner. The dynamic panel data model can be represented with the inclusion of the lagged dependent variable as a regressor. Equation 4.2 follows a one way error component, where both components are IID $(0, \sigma)$, independent of each other and among themselves.

$$(2) y_{i,t} = \alpha + \beta X_{i,t} + \delta y_{i,t-1} + u_{i,t}$$

Actually it is the Arellano, Bond (1991) that emphasized a solution to the estimation process of the equation 4.2. To eliminate the unobserved effect the first difference of the equation is computed and equation 4.3 is obtained

$$(3) \Delta y_{i,t} = \beta \Delta X_{i,t} + \delta \Delta y_{i,t-1} + \Delta v_{i,t}$$

Estimation of equation 4.3 by Generalized Measure of Moments (GMM) requires the following moment conditions to compute the difference estimator;

⁶ Baltagi (2005) underlines that fixed effect model contains too many parameters and has the problem of loss of degrees of freedom.

$$(4) E[y_{i,t-s} \Delta v_{i,t}] = 0 \text{ for } s \geq 2, t=3, \dots, T$$

$$(5) E[X_{i,t-s} \Delta v_{i,t}] = 0 \text{ for } s \geq 2, t=3, \dots, T$$

While the early panel data model relies heavily on the usage of the Arellano, Bond (1991) in the dynamic difference estimation context, the process is later heavily criticized due to conceptual and statistical problems of using difference estimator (Arellano, Bover, 1995). Remarks underline that instead of using the difference equation in equation 4.3, one can combine equations 4.2 and 4.3 and form a structure to use system GMM. In such a case, instruments for equation in differences will be unchanged -lagged values of the explanatory variables - whereas for the equation in levels, lagged differences of the explanatory variables will be used. Such system GMM estimation can be valid under the following moment conditions;

$$(6) E[\Delta y_{i,t-1} (\mu_i + v_{i,t})] = 0$$

$$(7) E[\Delta X_{i,t-1} (\mu_i + v_{i,t})] = 0$$

Overall the system GMM with the moment conditions described in equations 4.4,4.5, 4.6 and 4.7 yield consistent and efficient GMM estimator. However as discussed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998), during the estimation procedure the choice of right instruments is vital. Sargan and Hansen tests actually evaluates the validity of the instruments used in the estimation procedure with the null hypothesis that instruments used are not correlated with the residuals (Sargan, 1958 and Hansen, 1982). Moreover testing the presence of second order auto correlation in errors is also a necessity to test the applicability of the dynamic model.

5. Empirical Findings

In the context described, the starting point of analysis is to construct two panel data models with the assumptions of fixed effect (FE) and random effect (RE) in the unobserved effect. Table 5.1 gives the results of the estimations, which uses all variables other than population growth in logarithmic form. While choice between the models highly depends on the assumptions regarding the sampling behavior, Hausman specification test is also a commonly preferred test to compare the results of fixed effect and random effect models (Hausman, 1978). Test statistic can be computed as illustrated in equation 5.1. The null hypothesis of the test is the consistency of random and fixed effect estimators but the inefficiency of the fixed effect estimator. Alternative hypothesis is the consistency and efficiency of fixed effect estimator and the inconsistent random effect estimator. From these discussions, findings represented in table 5.1 indicate that fixed effect models usage is more informative. Actually this is also parallel with the remarks of Baltagi (2005), underlining the need for using fixed effect models in which the sample is not randomly selected.

$$(\hat{\beta}^{FE} - \hat{\beta}^{RE})' \left[\text{Var}(\hat{\beta}^{FE}) - \text{Var}(\hat{\beta}^{RE}) \right]^{-1} (\hat{\beta}^{FE} - \hat{\beta}^{RE}) \quad (8)$$

Table 1 Fixed and Random Effect Panel Data Model Findings

	Fixed Effect	Random Effect
Per Capita Deposit Volume	-1.100*** (-9.95)	- 0.3593*** (-5.32)
Per Capita Credit Volume	0.38286*** (11.81)	0.3289*** (11.04)
Population Growth	- 2.9001*** (-4.02)	- 2.1146*** (-3.42)
Primary Education (% of population)	-0.01156 (-0.19)	-0.06179 (1.01)
Secondary Education (% of population)	- 0.0963*** (-3.41)	- 0.13889*** (-4.79)
Lecturer per Student (higher education)	0.15377*** (3.25)	0.19896*** (5.18)
Per Capita Tax Revenues	0.39347*** (3.45)	0.4063*** (6.09)
R-square	0.40	0.46
F/Wald Stats	73.85***	522.81***
Hausman Test Stat (P-value)		
69.20 (0.000)		

t-stats in parenthesis for coefficients

, **, * represents significance at 10%, 5% and 1% respectively*

Finally Arrelona Bond (1991) type dynamic panel model is estimated following the remarks of Arellano, Bover (1995). System GMM estimators are evaluated in table 5.2. Before evaluating these results Hansen test for the validity of the instruments is implemented for panel model dealing with both panel specific heteroskedasticity and autocorrelation. Results significantly underline the validity of the chosen instruments. Moreover A-B type AR (2) test underline the absence of autocorrelation.

Table 2 Dynamic Panel Data Model Findings

	GMM-System Equations
Firm Formation (-1)	0.3832*** (11.14)
Per Capita Deposit Volume	-0.4415*** (-4.79)
Per Capita Credit Volume	0.3417*** (10.18)
Population Growth	-0.8877** (-2.25)
Primary Education (% of population)	0.105 (1.16)
Secondary Education (% of population)	0.0062 (0.08)
Lecturer per Student (higher education)	0.0979** (2.48)
Per Capita Tax Revenues	0.3525*** (3.26)
Hansen Test	
79.64 (p value 0.62)	
Arrellano-Bond AR(2) test	
-0.54 (p value 0.59)	
F-Test	
193.48 (p value 0.00)	

t-stats in parenthesis for coefficients

, **, * represents significance at 10%, 5% and 1% respectively*

Overall from the discussions one can comment on the findings of the fixed effect model represented in table 5.1 and the dynamic panel model in table 5.2. Two bank based financial development indicators are highly significant in the described models. However unlike the expectations of the theory, results underline contradictory findings. While real per capita credit volume is positively affecting the total firm formation of the regions, real per capita deposit measure's effect is negative. The reasoning is straightforward for the case of Turkey. The new firm start ups are affected heavily on debt finance, thus the parallel movement observed in figure 3.2 is informative. On the other hand while deposit volume represents a deepening of the financial capital availability theoretically, for the case of Turkey, increasing deposit volume can be explained by declining consumption and demand potential of regions. As underlined by Krugman (1991) regional demand is one of the most important dynamics behind firm formation; thus increasing deposit volume may be sign of depressed consumption and decreasing demand potential which in turn affects firm formation negatively. One may argue that the demand effect outperforms supply side effect for the deposit volume; in favor of the localization hypothesis of Krugman (1991).

When we observe the control variables of the model, including the lagged firm formation value, we observe that other than the primary and secondary education measure, the determinants are significant and correctly signed in line with the expectations. However, the primary education indicator is insignificant and the secondary is negatively related with the firm formation capacities just in the fixed effect model. On the dynamic model results remarks the insignificance of the both measures. Findings observed here contradict with the LMP hypothesis of Marshall (1920) and the remarks of Krugman (1991). Here the central argument for Turkey can be related with the mobility of graduates at the education levels prior to higher education. While such a comment needs deeper observation, the remark here can be related with the stronger effect of university education's quality over the mass volume of secondary education graduates. However as remarked, such an observation needs a closer look to understand the applicability of LMP hypothesis, which is outside the scope of this study but a planned future work.

6. Conclusion

The finance-economic growth relationship and its variants is a growing area of study. Another rising area is the place of entrepreneurial activity in the framework of economic growth. The need for financial capital both for entrepreneurial activity and also for economic growth and the rising relationship between economic growth an entrepreneurial behavior causes the formation of an understanding that tries to relate the financial development and entrepreneurial behavior. Within this framework, the so called regional inequality of Turkey is also another dimension of the study. At the end it is the interaction of these two facts that constructs the central discussion of the study.

Defining entrepreneurial behavior as the registered new firm-start ups, the model focuses on two bank based financial development indicators of the literature; per capital real deposit and per capita real credit volumes for 80 urban areas of Turkey. Controlling for a number of social and economic indicators, models underline that the unique relationship between financial development and entrepreneurial behavior can not be constructed for Turkey. Rather the results underline that credit volume follows the expectations of the McKinnon-Shaw (1973) hypothesis and also the entrepreneurial knowledge based models. However, deposit volume deviates from the expectations in the sense that the period under investigation represents high and volatile interest rate levels, causing the rise of the view in favor of the Krugman's (1991) demand based motivation of entrepreneurial behavior. Krugman (1991) following the Marshalian (1920) view, demonstrates the demand based clustering of business activities. The rising deposit volumes can be associated with the movement of the interest rates; in any case resulting behavior of the local consumers will be suppressing the demand which directly affects the perceptions of the local potential firm start ups.

Findings of the study are vital in two senses. First the liberalization of financial markets while causing a supply side effect which can be positively affecting economic activity, on the other side a demand based effect can be altered which can be connected inversely with financial liberalization. Meaning that, the deepening financial environment may affect demand potential negatively, by collecting the potential funds of the society. In this framework, local developments and regional

policies gain importance. Policy recommendations as alternatives to limitless financial liberalization can be constructed. Secondly the dependence of new business start ups heavily on debt finance mechanism makes the environment vulnerable to macroeconomic instabilities and financial turmoil. As the discussed environment plays crucial role in economic growth context, alternative financing strategies and also public based developments and supports of business start ups can be a tool to sustain a more healthy business environment for new businesses in the developing countries.

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