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Introduction

Small and medium-sized enterprises (SMEs)¹ make up the most important sector of a nation's economy. They provide employment opportunities for millions of individuals; their work is strongly customer-oriented; they are a source of innovation and entrepreneurial spirit; they serve as sub-contractors for large corporations, and they create competition and are the seed for enterprises of the future.

For large companies, the SMEs represent the world from which they came and wherefrom their future competition will emerge. For individuals, SMEs often represent the first employment opportunity, the first step in their career development. They are also a first step to the world of entrepreneurs. Thus, for the economy as a whole, the SMEs are launchers of new ideas and assemblage of new processes accelerating the increase welfare based on a more effective use of resources.

An important evidence of the importance and impact of SMEs is the fact that their contribution to development and growth is not limited to the sector of SMEs of the economy, but is extended spillover effects with significant influences on other economic sectors. Based on the study of vast literature, the report of the observer "Small and Medium Enterprises in Europe 2008" claims that SMEs serve as engine of economic growth. The world-wide contribution of SMEs to economic development is significant. In the EU, for example, 66.3% of all enterprises, measured by share of employment, are SMEs, the corresponding in Philippines represents 50%, and in the Greece this number is 86.7%.

In the case of OECD² member countries, the SMEs, in terms numbers, represent more than 95% of the enterprises in most countries and they hire more than half of employees in the private sector. In the New Zealand, for instance, nine out of ten companies hire less than ten people. This is utterly important considering the number of employees in this area, which is more than the double compared to the year 1997. Most OECD governments promote the entrepreneurship and consider the development of SMEs by countless policies and programs. In U.K. this aims at fighting the difficulties of SMEs, regarding the financing, technology and innovation, electronic commerce, management and internationalization. In South Korea, for example, the measures include taxation concessions and loans with low interest for establishment of new companies in the rural areas. In U.S., small companies received about 2 billion dollars in the financial year 2008, and about 20% of all the subventions authorized for all the domains (Savlovski and Robu, 2011).

Although the SMEs make up majority of the companies in the world, the percentage of the workforce that they hire is lower and it varies from one country to another. Regarding the Asia, it is acknowledged the fact that, some of the most high performance economies of the world (Taiwan and Hong Kong), strongly count on small enterprises. About 81% of all employees in Japan are concerned in the SMEs, where an enterprise hires on average 9 employees compared to 4 in the EU. In South Africa, the number of employees in SMEs is higher, recently estimated at 60%, while this sector contributes about 40% of the total production.

Various countries, because of basic differences like area surface, population, per capita income, industrial development level, etc., have employed various strategies directed to SMEs development. For example, Malaysia and Bangladesh have used SMEs for reducing regional inequality, countries like Thailand, Korea and specially Hong-Kong either due to lack of raw materials or because of following free trade and without control, have supported SMEs in direct of national and international markets competitions. On the other hand, some countries

¹ In this article the abbreviation SMEs is used as abbreviation for small manufacturing enterprises of which most of firms are micro, small and medium enterprises.

² Organization for Economic Cooperative Development



like Indonesia and Philippine due to high population and unemployment rates, have directed SMEs development to solving unemployment problem. Among these countries, some of them prefer mixed strategy. India with large human potential and employment especially in the less developed regions, has followed SMEs development to reach both employment opportunities creation and reducing lack of regional inequality objectives. Another main goal of India's government is industrial decentralizing. Since SMEs are capable to better and easier to distribute the gained welfare, in recent decades successful attempts have been made in order to develop industrial establishment in the rural and less developed regions in India.

One of the main fundamental discussions among decentralizing advocates is SMEs. They support these enterprises especially in industrial and economic sectors in order to distribute economic and industrial activities in different regions, especially in deprived regions to prevent high-density of major cities and megalopolises. According to this viewpoint, SMEs solve many issues and problems that been gripped such cities in third world countries. So, some of these countries supply the context of protecting and attracting people to rural and deprived regions by establishing economic and industrial activities in these regions. These regions, on the one hand suffer from lack of necessary infrastructure facilities in order to growth and development and on the other hand haven't access to human potentials for specialist and complex industrial activities too. So, SMEs due to less need to infrastructure facilities and simplicity of activities are the most important tools in order to activate potentials of rural and less developed regions.

On the contrary, some believe that SMEs never been able to survive in the deprived regions. So, these enterprises and especially modern SMEs cannot separately divide to different pieces and be transferred to outside of dense industrial regions. This group of theorists believes that industrial activities decentralizing must be done by transferring and establishing major industries in the medium urban regions to connect SMEs with these industries.

This research aims to shed lights on the role that SMEs play in the process of industrial and economic development. This research, conduct a comprehensive literature review to gain experience from the national and international literature to identify the state-of-art research and important theories, methods and empirical results to shape the structure of this research definitions. Based on the findings from the empirical result and those in the literature provides appropriate policy recommendations to improve the conditions of SMEs in the regional level. Moreover, to devise a policy conducive to boosting the formation of province and hence contributing to overall industrial and economic development, there is a need to study the impacts of SMEs on the regional development. Policies cannot be effective without understanding the socio-economic effects of these enterprises on the development. Therefore this research will provide an original focus on SMEs and their influences in the context of industrial and economic development and suggest suitable policy measures to enhance development infrastructures.

Review

The creation of SMEs is considered, by many governments and donor agencies, as the key to economic and social development in countries regardless of level of development. This recognition is based on the belief that small enterprises can potentially play a crucial role in enhancing entrepreneurship, creating more job opportunities relative to the capital invested, mobilizing local resources, catering for basic needs of the population and contributing to a more equitable distribution of wealth and income. Furthermore, review of the literature show evidence that SMEs are understood as a source of technology development. At the same time



they are vulnerable to a number of restrictions such as access to finances, skilled labor, public support and suffer from survival rate problems.

This review lay out a brief overview of SMEs definitions and characteristic and regional development models, then investigate their impacts on industrial structure (and, how can these enterprises exploit changes in industrial structure to develop the regional economy).

1. SME definitions and concepts

The level at which the enterprise is deemed small is a subject of a long debate and depends on the purpose of study. Defining the sector at the outset is important in order to outline the group of enterprises targeted. Small is relative and varies from one country to another. As a result, the World Bank accepted, in principle, the definitions used by the individual member countries (Levitsky, 1989).

Often quantitative and qualitative measurements, or a combination of the two, are used in practice. Given the lack and the low quality of data, these measurements may be a subject of considerable inaccuracy. Quantitative measures are clear and easy to apply while qualitative measures are relatively more satisfactory but difficult to use and operate.

The quantitative definition has a local flavor, because they have different estimations from one country to another according to the socio-economic conditions in the society as the population size, the manufacturing growth level, the economic system and also the pattern of socio-cultural values. So, "small" is relative and varies from one country to another and from the stage to another in the same country, thus, what is small in one country is not in another. Therefore, the majority of countries use one or more quantitative measures, such as the number of employees, value of capital, sales turnover, and added value. The most commonly used measure is that of employment, due to its simplicity and the ease of collection of data (Elleithy, 1994).

(Ayyangari et al, 2003) based on employment provided the SME definition. **SME250** is the share of the SME sector in the total official labor force when 250 employees are taken as the cut-off for the definition of an SME. In their database there are 54 countries in the SME250 sample, 13 of which are low income countries, 24 are middle income and 17 are high income countries.

According to definition of Ministry of Industries and Mines³ in Iran SMEs involve enterprises less than 50 employment. Statistical Center of Iran divides enterprises into four kinds as follows: enterprises with 1-9 employees, 10-49 employees, 50-99 employees and more than 100 employees (Malekinejad, 2007). Although there are some similarities with this definition and EU definitions, but Statistical Center of Iran involve only less than 10 employees enterprises as SME. Central Bank of Iran defines enterprises with less than 100 employees as SMEs.

2. Firm Characteristics

(Harvie et al, 2010) introduce three factors for SME sector in a production network involving barriers and capabilities as follows:

1. Resource factors: skill and resources;
2. Psychological factors: attitude and perceptions;
3. External factors.

They emphasize the importance of factors bearing upon the capability and capacity of an SME, and its ability to overcome barriers arising from its small size. The first is directly related to the small size and limited resources of SMEs. These resource factors relate to

³ - Ministry of Industries and Mines changed to Ministry of Industry, Mine and Trade in 2011.





access to: markets, technology, skilled labor, finance, market information, network embeddedness, knowledge and innovation.

In line with Harvie et al. (2010) in this research we focus on the resource factors and weakness and strengthen of these factors. Also, we review firm characteristics of SMEs participation in production and manufacturing field as follows.

2-1. Size and Age

This paragraph explores the relationship between size and growth, taking as the law of proportional effect condensed as Gibrat's law. According to this law growth rates of firms are independent of size. This leads to an equation suitable for estimating growth effects which expresses size this year as a linear function of size last year, where the size variables are expressed in natural logarithms. Size may be measured by any of the several economic variables such as sales, employment or assets. The coefficient of the lagged natural logarithm of the size variable (call it β) plays a special role. If $\beta=1$, growth is independent of size; if $\beta>1$ larger small firms grow faster than smaller small firms; and if $\beta<1$ smaller small firms grow faster than larger small firms. $\beta<1$ implies a stability in the growth process, and indeed suggests a type of optimal or equilibrium size for the small firm.

Theoretical explanations that older firms have accumulated more experience that younger firms can be derived from Jovanovic (1982). Jovanovic postulates that, over time, firms can learn and improve their efficiency.

Story of Jovanovic makes appeal to an element of "human capital" theory. Partly the success of a small firm is attributable to the experience of its owner-manager. His experience is accumulated by the practice of running a firm, and even the entrepreneur may initially be ignorant of his ability. Over time, his ability is revealed, at the same time as his skill is being cultivated. This introduces a time-dependence into the growth relationship: the age of the small firm is also a determinant of its growth rate, as well as its size.

Heshmati (2001) has rejected independence between firm size and growth of Gibrat's law using Swedish firm level panel data. He used three definitions of growth rates in terms of the number of employees, sales and assets. This dependence of growth on age and size can be assumed to take a quite complex non-linear form. Heshmati (2001) simplified to facilitate economic estimation by being re-expresses in a log-linear form, which also incorporates quadratic age and size effects. Thus younger and smaller small firms grow faster than older and larger small firms. There is a life-cycle effect, and the rapidly learning owner-manager running a young small firm which is close to financial inception is able to grow on his firm more successfully than the owner-manager of an older small firm in which the benefits of learning have been exhausted.

Also, Heshmati (2001) found a negative relationship between the age and growth of firms predicted by Jovanovic to hold in employment model, while it is positive in assets and sales growth models.

2-2. Ownership

Here we elaborate with literature survey over studies dealing with effects of privatization and ownership on economic performance, mainly productivity, profitability, revenue, employment and other economic indicators.

(Boycko et al, 1996) investigated two types of control over firms: politicians and managers. Managers were not distinguished from outside shareholders. They found that managers in reality are positioned in between politicians and outside shareholders, since, managers have some concern of empire building/employment whereas outsiders have none.



(Ghosh, 2009) investigated the role of ownership in shaping firm growth. More specifically, the results indicated that the extent of partial privatization is significantly and non-linearly related to firm growth, so that partial privatization beyond a defined threshold actually lowers growth. Besides, the analysis proffered evidence that there is perceptible decline in employment growth after privatization. This was apparent in simple univariate comparisons as well as in multivariate regressions.

(Djankov and Murrell, 2002) explored enterprise restructuring in transition economies. Also, their survey provided study of effects on privatization, the importance of different types of ownerships, the effects of foreign and domestic competition, the consequence of soft budgets, and the role of managerial incentives and managerial human capital on enterprise restructuring.

(Frydman et al, 1999) examine outsiders, insiders, and the state in one analysis, and foreigners, domestic financial firms, domestic non-financial firms, domestic individuals, the state (in a privatized firm), the state (in a non-privatized firm), managers, and workers in another analysis. The ownership variables in Frydman et al. are defined as dummies capturing whether the given owner is the largest shareholder, a common approach, e.g., Jones and (Mygind, 2000). Measurement of ownership in this way reflects a somewhat unusual feature of the (Frydman et al, 1999) data, namely the highly concentrated ownership in all privatized firms.

2-3. Productivity

A substantial part of growth in value-added in developing economies is due to rapid increase in input use and little is attributed to improvements in factor productivity. In fact, the average contribution of inputs to output growth in developing nations has been estimated to be close to 70 percent (Chenery et al, 1986).

Firm-level productivity was hypothesized by (shah, 2002) to improve the chance of SMEs performance. As much as 40 percent of value-added and 50 percent of employment in the SMEs were reported to be concentrated in the low productive segments and activities. Such as one of our objectives in this research is SMEs primarily providing jobs to low-skill employees with low standards, under such conditions, researchers have argued that the sustainability of SMEs depend crucially on getting out of the "cheap labor" syndrome and improve labor productivity followed by improving labor conditions (Shah, 2001).

They have also stressed on technological improvement, promotion of links between SMEs and organized sector, smoothening credit disbursements to SMEs (Mukherjee and Mathur, 2002) as means to improve industrial productivity.

(Majumder, 2004) showed that SMEs productivity depend more on innovation and adaptation, rather than on significant changes in capital-labor ratio. Effectiveness of labor for these enterprises depend more on training, experience, and familiarity of the workers, rather than on the range of tools that complement them. As a result, technology diffusion plays a more prominent role in their productivity rise and output growth. Also, he discovered that policies for the productivity rise and growth of the SMEs should give stress on these issues rather than trying to change the basic technology applied therein. Innovation and Adaptation process should be encouraged through knowledge sharing and fine-tuning of the production process. Moreover, any effort to improve the technology involve capital induction. Due to nature of the SMEs, this is costly. Thus as a policy choice, efficiency upgrading appears more viable, effective and lucrative compared to technological upgrading.

A number of empirical papers have analyzed the links between firm's innovation, output and productivity growth using a production function approach. (Lee and Kang, 2007), and (Rochina-Barrachina et al, 2008), considering direct measures of innovation output (such as



patents, products or process innovations), find that process innovations have a positive impact on firms productivity. However, despite the acknowledgement of this positive relationship, our knowledge is little about the direction of causality between firm's process innovations and its productivity.

2-4. Financial Characteristics

Some of financial features are: net profit, access to outside equity, the use of debt, having been awarded a grant at launch and the debt/equity ratio at startups.

It is generally accepted that the availability of finance is one of the main factors affecting the ability of firms to grow. (Fazzari et al, 1988) has sought to ascertain whether there is a positive relationship between a firm's investment expenditures and its cash flow. According to this approach, great sensitivity of a firm's investment to inside finance indicates that there are financial constraints to the firm's growth.

This approach has been strongly questioned by the empirical research beginning with that of (Kaplan and Zingales, 1997). According to this analysis, the relationship between investment and cash flow does not necessarily prove that financial constraints are binding. On the contrary, capital expenditure will be systematically sensitive to cash flow because the user cost of external finance is always higher. Therefore, sensitivity to cash flow will be higher for financially non-constrained firms than for the financially constrained because the former hold larger internal resources. The matter of the linearity of the investment cash flow relationship is largely unresolved. Nevertheless there are many reasons suggesting that small firms face higher financial constraints because the opacity of the relationship of the firm with the financial markets raises difficulties to access outside resources. Many empirical studies have confirmed this thesis, showing that the growth of small firms is more sensitive to internal sourced finance compared to larger firms (See for example, Audresh and Elston, 2002; Cress and Olofsson, 1997).

The establishment, nurturing and growth of SMEs have become a policy imperative, but to achieve their full potential access to finance is required. Although cross country studies have questioned a causal link between SMEs and economic development, there is considerable evidence to suggest that this may be due to the fact that small firms face more growth constraints and less access to formal sources of external finance (Demircuc-Kunt, 2006). Many SMEs encounter considerable difficulty relative to large firms in obtaining finance from banks, capital markets and other suppliers of credit, with this being particularly problematic in emerging or developing economies where such sources are underdeveloped as well as credit information sharing. Other potential sources of SMEs finance, are also less developed in emerging countries (IFC, 2010).

On the other hand SME "financing gaps" are likely to be most endemic in developing and newly emerging market economies (IFC, 2010) where widespread shortage of financing occurs for all categories of SMEs and not just innovative high tech SMEs. (Torre et al, 2010) attribute hindrances of SMEs access to finance to "opaqueness", making it difficult to ascertain if firms have the capacity to pay (by investing in viable projects), and/or the willingness to pay (due to moral hazard). This opaqueness particularly undermines credit access from institutions that engage in more impersonal or arms-length financing that requires hard, objective, and transparent information.

(Nofsinger and Wang, 2011) studied the determinants of external financing in initial firm start-ups in 27 countries. They suggested that information asymmetry and moral hazard problems complicate access to start-up capital. They found that entrepreneurial experience is helpful in obtaining financing from institutional investors, and that the legal environment is important for access to external financing. The amount and diversity of sources of external



financing were associated with high levels of property rights, contract enforcement, and corruption protection.

2-5. Innovation

(Popadiuk and Choo, 2006) presented a thorough review of the literature on innovation types; and from them we learn that product and process innovations are subsets of technological innovation which can further be resolved into radical or incremental, depending on the degree of innovation novelty.

Three broad categories of the literature on innovation in SMEs can be identified. A previously similar identification and a relatively systematic and thorough review had been made by (Oke et al, 2004). The first category of research studies investigates the characteristics and entrepreneurial behavior of owner-managers and how these relate to decisions concerning innovative activities in their organizations (Adegbite et al., 2007). Central to this body of studies is the finding that the entrepreneur/innovator is critical to the success of innovation efforts in the SMEs.

Studies like (Henderson, 2002) make up the second stream of the related literature that investigate the importance of innovation in SMEs, their role as drivers of economic growth and policy issues relating to SMEs in national economies. These studies argued that SMEs create jobs; increase wealth and incomes within their host domains; and promote industrial and economic development through the utilization of local resources.

The third literature stream dwells on how small firms actually manage the innovation or the process of developing new products and services (e.g. Sikka, 1991). A key trend in this body of literature is that both the way of managing innovation and the available supporting structure are important to innovation. Specifically, the availability of innovation subsidies, linkages with knowledge centers, firm-level investments in research and development (R&D) and the firm's internal processes of capability building are identified as crucial for successful innovation.

Some studies have shown that, despite the fact that a very small fraction of total business R&D in the developed economies is accounted for by SMEs, they contribute greatly to the innovation system by introducing new products and adapting existing products to the needs of their customers (OECD, 2000). Small firms account for a disproportionate share of new product innovation despite their low R&D expenditures (Acs and Audretsch, 2000). In addition, they have also been innovative in terms of improved designs and product processes and in the adoption of new technologies. Investment in innovative activities is on the rise in SMEs and is increasing at a faster rate than that for large firms. (Scherer, 2001) has suggested that SMEs possess a number of advantages relative to large firms when it comes to innovative activity. First, they are less bureaucratic than highly structured organizations. Second, many advances in technology accumulate on a myriad of detailed inventions involving individual components, materials and fabrication techniques. The sales possibilities for making such narrow, detailed advances are often too small to interest large firms. Third, it is easier to sustain high interest in innovation in small organizations where the links between challenges, staff and potential rewards are tight. Firms in the developed high-cost economies can no longer compete in labor-intensive areas of production where they have lost their comparative advantage, but rather must shift into knowledge-based economic activities where comparative advantage is compatible with both high wages and high levels of employment. This emerging comparative advantage is driven by innovative activity.





2-6. Location

The dynamism of small firms organized in the form of industrial districts has been noted by various observers, beginning with (Alfred Marshall, 1920) and extending to more recent studies of industrial clusters and networks in various parts of the world. Marshall suggested that industrial districts provided useful external economies that facilitated the division of labor among the participants. He identifies three conditions for setting an industrial cluster: the existence of a pool of adequate labor, the existence of specialized suppliers and the possibility of external spill-overs. (Israd, 1960) expanded this concept using the export-oriented industries and its linkages are indicating the existence of an industrial cluster.

More recently, studies have highlighted the dynamism of industrial districts in Italy, producing shoes, furniture, musical instruments, processed foods and other products, associated with clusters of firms in specific sectors and locations (Piore and Sabel, 2004).

United Nations Industrial Development Organization (UNIDO) defines clusters as "a sectoral and geographical concentration of enterprises that produce and sell a range of related or complementary products and thus face common challenges and opportunities". These opportunities include, for example, access to specialized human resources and suppliers, pressure for higher performance in head-to-head competition and learnings from the close interaction with specialized customers and suppliers.

Since the 1990s, Michael Porter's work about clusters has increasingly established the standard in the field, and accordingly Porter's cluster model has been proposed in significant parts of the world as a tool for promoting national, regional, and local competitiveness, innovation and growth. In fact, very quickly clusters called the attention of many leaders in many regions, and consequently the cluster related concepts were extended promptly. Subsequently, Porter popularized the concept of industrial clusters in his book *The Competitive Advantages of Nations* (1990).

The concept of clustering has a significant importance in the new international economy. Globalization, economic restructuring and new production technologies have led to massive outsourcing of production and services and to a growing network of suppliers and distributors. This made possible the creation of new industry clusters. "Clusters are a striking feature of every national, regional, state and even metropolitan economy, especially in more economically advanced nations" (Porter, 1998).

(Markusen, 1996) identified four distinct types of industrial agglomerations that differ by industry dynamic, corporate priorities, government involvement, financing, and employment structure: a) Marshallian-Italianate industrial district; b) Hub- and spoke district; c) Satellite platform district and d) State-anchored industrial district.

Regional Policy has to be built on the study of industrial districts cases, because it is an exercise of appreciation of differences, which Porter places at the base of every competitive advantage. The opportunity of establish them, therefore, is important because it defines the limits of the industrial regional policy, which can't fill a gap at other levels. The regional level needs a reference point at the national level for example for the policies concerning the construction of infrastructures, and the relevant sectors for the national and regional prosperity (Mazzuato, 2013).

This section has briefly reviewed the strategic importance of SMEs to industrial and economic growth and development, key issues relating to their characteristics and building of their capacity to grow, and key issues relating to their export success and strategies for development. In the process a number of key issues for policymakers were also identified.

**SMEs capacity building**

SMEs (generally those enterprises with less than 50 employees) are important to economic growth, and are especially important to creating new employment opportunities. In developing economies the jobs tend to be created more by start-ups, but in the developed economies jobs seem to be created more by high-growth SMEs. It is important for policymakers to understand and to foster the way this entrepreneurial engine works and evolves.

Despite of that SMEs face a number of barriers in their development, their small size means that they have limited resources and access to finance, lack economies of scale, have high relative costs in accessing and utilizing information technology (IT), have skill deficiencies in the utilization of IT, have entrepreneurial, managerial, accounting and marketing skill deficiencies, lack information on market opportunities, have high transaction costs arising from gaining access to transport infrastructure and the cost of transportation, and from achieving quality accreditation, lack skills in dealing with customers both in domestic and in the export market, have limited knowledge about language and culture as well as the legal and bureaucratic issues involved in exporting, may experience a lack of business infrastructure support and in some countries may be discriminated against relative to large firms. Building capacity, improving governance, reduction of transaction cost, promoting further market liberalization, addressing non-tariff barriers, increasing internet access, and facilitating trade and investment are all directly relevant to improving the capacity of small businesses to exploit export market opportunities and for their regional growth (Harvie and Lee, 2005).

Regarding above barriers and potentials, Harvie and Lee according to Ottawa meeting of APEC in September 2007 (APEC, 2008) introduce five key areas of importance to the capacity building of SMEs. These key issues are: access to markets, technology, human resources, financing and information.

Governments have an important role to play in the capacity building of SMEs. First, the establishment of a level playing field. The fundamental key to a successful SMEs development strategy is the establishment of an environment that helps SMEs to compete on a more equal basis. Governments need to re-evaluate the costs and benefits of regulations that place a disproportionate burden on SMEs, implement regulations with the flexibility needed by SMEs, and place greater emphasis on competition and procurement policies to open SMEs access to markets. Second, to target public expenditure carefully in order to use scarce public resources effectively. Governments need to design a clear, coordinated strategy for SMEs development that carefully separates equity and efficiency objectives. Public expenditure should be confined to those services and target groups that are underserved by the market and for which there is a clear justification based on public goods or equity considerations. Government assistance can also play an important role in exporting success of SMEs through access to finance, infrastructure, training programs and reducing bureaucracy. Support at the regional level through investment in infrastructure that assists directly the business efficiency of SMEs is important. Policymakers also need to focus on removing barriers affecting trade. Because SMEs lack the economies of scale and the internal expertise of larger ones, therefore they need more practical external support.

Summary and Policy Recommendations

This research conducted a review to gain experience from the national and international literature to identify the state-of-art research and important theories, methods and empirical results.



In discussing about SMEs at the global level, concepts like startups, performance, survival, growth, finances, skilled labor, public support, and competition are frequently investigated. According to the World Bank report, that investigated the economic situation of countries at the global level, the Iranian economy is in the transition phase from production to enhanced productivity. Under such circumstance, it seems abnormal that, there is not data for measurement and evaluation of the above mentioned concepts. Especially, in SMEs sector, due to changing regulations in an uncertain manner and uncertain time intervals, complexity of accessibility to data is reduplicated. For instance, after the Islamic revolution, Small Industries Organization was dissolved. Ten years ago, this organization with combination of a new institution as Iran Small Industries and Industrial Parks Organization (ISIPO) was reestablished. (Mardoukhi, 2013)⁴. Another example is that, there is a law in the SMEs sector that indicates SMEs must be created in the industrial parks⁵. Until several years ago, SMEs were considered as a part of informal economics (Azimi, 2013). In addition, the reliable information about sales, profits, costs, value-added and technology level was not accessible.

(Rahimpour et al, 2016) investigated status of industrial infrastructure and distribution of SMEs by important characteristics like capacity, resource access, education, credit access, employment and capital assets. They found mentioned variables (labelled there as infrastructure variables) from public policy perspective important to be investigated. Since the study was comprehensive, we refer their results, summarily. In addition their focus was on the Kurdistan province, so it is worth to mention their findings in order to enhance performance and policymaking in the field of SMEs in the regional and provincial level. In the study industrial infrastructures were categorized into six main dimensions: capacity component, resource component, education component, credit component, employment component and assets component. It was argued that ranking provinces based on these dimensions (a) showed position of each province with regard to industrial infrastructure and (b) pinpointed the sources of success and failure in developing industrial infrastructure. Also a composite DII for provinces with available ranks in mentioned components were calculated to show the overall position of each province. The six development infrastructure sub-indexes were separately calculated using the non-parametric PCA approach and aggregated to form the composite DII index.

"The Kurdistan province as an underdeveloped province, but with the potential to develop, and it should be provided the opportunity to industrialize as fast as possible. It should adopt an industrial strategy. In order to industrialize in a short run, government must draw up a series of economic plans and mobilize productive resources. Initially, government should use of current capacity of institutions, mobilize resources, protect infant industries, allocate sufficient credits, provide administrative guidance and publish forecasts to gain country average. Creation of alternant industries is an important action that government should pay attention to in its industrial policy."

In a short-term development program it is necessary that the Kurdistan province considering industrial infrastructure gains to at least the average of the country. In summary, according to (Rahimpour et al., 2016) at the aggregate level, the Kurdistan province despite its access to natural resources, measured in industrial infrastructure the province was far below

⁴ Mardoukhi (2013) one of the critics of industrial policy in the SMEs field believe that creation of industrial parks was a simple work and didn't have any relationship with the industrial development. The main activity was finding a large land, and creation of some installations and some industrial constructions. Also, Mardoukhi believe that, this industrial policy such as other policies didn't continue and was done in an irregular manner, and there isn't explicit evaluation in this sector.

⁵ Mardoukhi (2013) suspects that, ISIPO has not created a system to help the development of SMEs. For instance, this enforcing law, take a part of investor motivation.



of the average of the country (0.994 for Kurdistan versus 1.361 for DII). In a more detailed form, for the sub-indexes of capacity with 0.255, resource with 0.094, education with value of 0.087, credit with 0.253 and employment with 0.151, the Kurdistan province was far below of the average level with 0.258, 0.276, 0.201, 0.307 and 0.181, respectively. By taking into account correlations of the abovementioned components with DII, It seems logical to invest in capacity, employment, resource, education, credit and assets, respectively for gaining at least the average level of the country. Variation in the resources for the Kurdistan province compared with the national average is not very high. So, this component cannot help the province effectively promoting achievement of the desirable level of DII. Due to high variation among resource components for the Kurdistan and average of the country and high correlation with DII, investment in the resource component is the first priority in industrial infrastructure. The next component for investment is education. For this aim readers refer to (Rahimpour et al, 2016 [2]). Credit component is another item that government should pay special attention to. In this group, prioritizing of wastewater refineries credits, infrastructure credits and construction credits was obtained. Nevertheless the Kurdistan province has not a desirable rank condition. This sub-index is the next most important component that should be considered.

Although the mentioned policy recommendations were proposed for the Kurdistan province, but they can be customized for other provinces that want to prioritize their development plans based on above SMEs criterions.

As mentioned, the proposed recommendations are for development of infrastructure. For the mid-term development program the following recommendations are made. SMEs are important to economic growth, and are especially important to creating employment opportunities. It is important for policymakers to understand and to foster the way this entrepreneurial engine works and evolves. Governments have an important role to play in the capacity building of SMEs. First, establishment of level of public intervention and environment action. The fundamental key to a successful SMEs development strategy is the establishment of an environment that helps SMEs to compete on a more equal basis. Governments need to re-evaluate the costs and benefits of regulations that place a disproportionate burden on SMEs, implement regulations with the flexibility needed by SMEs, and place greater emphasis on competition and procurement policies to open SMEs access to markets. Second, to target public expenditure carefully in order to use scarce public resources more effectively, governments need to design a clear and well-coordinated strategy for SMEs development that carefully separates equity and efficiency objectives. Public expenditure should be confined to those services and target groups that are underserved by the market and for which there is a clear justification based on public goods or equity considerations. Government assistance can also play an important role in exporting success of SMEs through access to finance, infrastructure, training programs and reducing bureaucracy red type. Support at the regional level through investment in infrastructure that assists directly the business efficiency of SMEs is important. Policymakers also need to focus on removing barriers affecting trade relations. Because SMEs lack the economies of scale and the internal expertise of larger ones, therefore they need more practical external support.

Future research themes

One of the important and interested research works after investigating industrial infrastructure, is clustering among SMEs. In addition, due to paying much more attention by government and private sector to this topic, it is expected to have related data in detailed forms in the near future. It is suggested to investigate and find potentials and failures of clustering among SMEs in the national and provincial level.



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