THE ROLE OF MICRO, SMALL AND MEDIUM SIZE ENTERPRISES (MSMEs) IN ECONOMIC GROWTH - DOES IT MATTER?

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Abstract:

This study investigates the impact of micro, small, and medium size enterprises (MSMEs) on economic growth in Jordan, using the number of employees of each size (micro, small, and medium) as a measure of the prevalence of MSMEs. The study is applied to nine economic sectors to examine if the productivity of these MSMEs contribute to Jordanian economic growth measured by the sectoral real GDP per capita growth over the period 1992 to 2015. Using pooled OLS, fixed effect, and random effect methods, the results show micro, small, and medium size enterprises have insignificant impact on the GDP per capita growth. The results are robust to using alternative measure of sectoral economic growth. The results suggest that some obstacles may impede MSMEs to have real impact on Jordanian economy.

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Introduction

The role of Micro, Small, and Medium size Enterprises (MSMEs) in economic growth has gained more attention. This interest has come as a result of the worldwide research and studies that have highlighted the key role this sector (MSMEs) plays in national economies development (Neague, 2016; Taiwo et al., 2012; Varum et- al., 2013).

The main aspects that give the incentive to pay attention to MSMEs are: (i) They are main sources for new jobs and the first place where employees gain their experiences, (ii) suitable environment for innovations, (iii) main element that prevent large firms to monopolize the markets, (iv) complementary sector for the large firm by supplying or buying goods and raw materials, (v) producing goods and services with high quality standards (Neague, 2016).

MSMEs contribute about 64% to the GDP, and about 62% to employment in high income countries, while this contribution is much less in low-income countries not more than 45% to employment and 33 % to GDP (IFC SME Banking Knowledge guide 2010; Beck, et al., 2003). MSMEs have strong effects on the economy especially when the economy suffers from the scarcity of natural resources, lack of investments, availability of human element and creative energies. A number of countries: Japan, Taiwan, Korea, and others have achieved significant economic growth and a cultural revolution through MSMEs (Savlovschi, et al., 2011).

The variation of MSMEs contribution in different economies gives incentives to the international community to support the low-income countries by aiding and subsidizing MSMEs enterprises in these countries to overcome potential obstacles that imped it to achieve the contribution percentage just like high and middle income countries, which the world bank group and other parties aided by granting them US $ 10 billion through the period 1998-2002 (Beck, et al., 2005).

In Jordan, one of the important studies on SMEs in Jordan was conducted by EBRD team in 2013. This team carried out a limited survey comparing between   Jordanian MSMEs role on the economy and European MSMEs role in the European economies. This survey shows that MSMEs in European countries produce 55% of the GDP while in Jordan MSMEs produce just 40% of the GDP. Regarding employment rates they show that European MSMEs are responsible for 67% of the existing jobs and 86% of new jobs in European countries while in Jordan the survey shows that Jordanian MSMEs create 70% of jobs opportunities. In this survey EBRD team focused on the MSMEs inability to access finance as the main obstacle that hinder MSMEs growth. They shed lights on the

role that the financial institutions should play to assist MSMEs overcome this obstacle (EBRD, 2013).

However, according to the researcher best of knowledge, on the country level, there is no studies investigate the impact of MSMEs -measured in sectoral basis- on the growth of GDP in relevant sectors, which is applied in our study on the Jordanian economy level.

Study Objectives and Importance:

The main objective of this study is to investigate the real role of MSMEs in Jordanian economy by using cross sectional - time series (panel data techniques) over 24 years (1992-2015) on nine economic sectors. According to the researcher best of knowledge, this approach and methodology make this study different and distinguished from other studies which were conducted to measure the impact of Jordanian MSMEs on Jordanian economy. The results of this research provide good evidences on the real role of MSMEs in the economy to economic decision makers in the country. In addition, it gives important information about which class (size) affects the GDP growth, whether it is the micro, small or medium size.

Theoretical frame work

MSMEs Definition.

MSMEs is an abbreviation for enterprises and projects that are considered micro, small or medium with regards to its size, that's to differentiate it from large enterprises. In fact, there is no standard unified definition of MSMEs, since every country or region follows the definition that matches the special conditions for their economies. Nevertheless, many definitions consider three dimensions to differentiate between each size which are: ((i) employee's numbers, (ii) total output (sales), (iii) total assets), the most used dimension among different countries and regions is the number of employees, (Khrystyna et al., 2010).

By referring to the published data on IFC website the MSME Country Indicators database, a difference across 132 economies can be observed. For example in USA as a developed country they define MSMEs based on the number of employees for Micro(up to 9 employees) , Small(10-99 employees), Medium (100-499 employees), large ((more than 500 employees), while in Jordan as a developing country it is based on Micro (up to 9 employees) , small(10-24) , medium (25-99) and Large(more than 100 employees). (http://www.ifc.org/msmecountryindicators). The Central Bank of Jordan

(CBJ) definitions consider three areas to differentiate   between each size as follows:

Firm Size	Employee	Turnover (Sales)	Total Assets
Micro size	< 5	< 100,000	< 100,000
Small size	< 20	< 1,000,000	< 1,000,000
Medium-sized	< 100	< 3,000,000	< 3,000,000

2.1.2 Economic growth

Economic growth is vital for the achievement of the socio-economic and political objectives of nations. It is considered one of the most important factors that determine country›s welfare. It has been a frequent topic of discussion ever since the notion of it surfaced to the world; since then, economists try all the time to explain the different levels of economic growth among both developing and developed countries, and how it poses as one of the most important sources of income that eases pressure on the country with regards to the balance of profits and helps to create more employment opportunities (Shihab, et al., 2014).

2.1.3 The role of MSMEs in economic growth

The variation of MSMEs contribution in different economies gives incentives to the international community to support the low-income countries by aiding and subsidizing MSMEs enterprises in these countries to overcome potential obstacles that imped it to achieve the contribution percentage just like high- and middle-income countries, which the world bank group and other parties aided by granting them U.S. $10 billion through the period 1998-2002 (Beck, et al., 2005).

Many researches has been conducted studies to address the impact of MSMEs enterprises on economics developments, Holátová and Monika (2013); Battash, (2014); Neagu, (2016), and other studies seem to share the same view about the main positive characteristics of MSMEs that make them important for economic developments. These characteristics are summarized as follows: First, MSMEs are the main source of employment specifically when taken into consideration the informal unregistered firms. Second, MSMEs create a competitive environment that will be reflected positively on the prices and quality of goods and services. Finally, MSMEs are more productive than the large size firms, if they are not more productive then the large firms will swallow them, so as a result of being more productive MSMEs are survive. These three characteristics are what the Pro-MSMEs policy is based on to subsidize them, (Beck et al., 2005). On the other hand, it is worth to mention that some earlier researches show some doubts about the efficiency of MSMEs, Beck et al. (2005) sighted some skeptical views against

MSMEs efficiency: Pagano and Scivardi, (2001), Pack and Weestphal (1986), argued that large firms can undertake the fixed cost of research and development which will affect it positively in its productivity, Rosenzweig (1988), Brown et al. (1990) argue that large firms have bigger impact than MSMEs on poverty alleviation since they provide more stable and higher quality jobs than MSMEs, Little et al. (1987) finds that MSMEs are not labor intensive and do not create new jobs like large firms, Kumar et al. (2001) viewed doubt considering the firm size as an exogenous determinant effecting economic growth, they argue that the natural resources, technology and polices are what determines the competition situation and also the firm size in each economy. Other skeptical view focus more on the business environment prevailing in each country which is to push the economy to grow and then enhance the economy competition situation, just like entry cost, exit cost, enforcing contract, property rights registration cost, the amount of tax, all these factors facing all firms small and large and may encourage the MSMEs to grow and develop, here the focus is on the business's environment not on the MSMEs. For the reasons mentioned above and other reasons; skeptics in the positive role of MSMEs argue that MSMEs advocate's policies could distort firm size and hurt the economic efficiency in general (Beck, et al., 2005).

2.1.4 Challenges Facing MSMEs Development Literatures

Wang, Y. (2016) investigated the biggest obstacles SMEs are confronting and the determinants that influence the obstacles as perceived by enterprise managers. The sample of the study consisted of around (20-25) interviewees from each of 199 developing countries during 2006-2014. The results showed that SMEs perceive access to finance as the most significant obstacle, which hinders their growth.

Most of MSMEs literature point to the fact that small and medium firms face higher challenges of accessing external financing than larger firms, which limits their improvement. Small and medium Size firms find it hard to get financing from commercial banks, particularly long-term credit, for several reasons, such as lack of guarantees, struggling in examining creditworthiness, weak cash flows, defective credit history, high-risk premiums, inadequacy of bank-borrower relationships and huge transaction costs. (Agwu and Emeti, 2014; Gichuki, et al., 2014).

Smirat (2013) conducted a study to explore the use of accounting Information by Small and Medium Enterprises in South District of Jordan. Survey methodology was used. The sample consisted of 136 SMEs operating retail shops, manufacturing firms and suppliers of various services in the Southern districts of Jordan. The results revealed

that the level of awareness of the importance of financial management is still very low in small and medium firms. Furthermore, the SMEs facing problems of absence of accounting knowledge.

MSMEs in Jordan

The private sector in Jordan is composed of micro, small and medium sized companies 'MSMEs' which constitutes around 95% of the registered companies in Jordan. At the same time, the level of unemployment has remained at significant levels over the past five years. Therefore, as MSMEs are generally considered to be the main provider of jobs, employing up to 70% of the labor force in Jordan (Jordan Access to Finance Report, 2016). MSMEs contribute 40% of Jordanian GDP and account for 45% of total exports (European Invest Bank, 2016). Several Jordanian institutions, local and foreign such as Ministry of Industry and Trade, central bank of Jordan (CBJ) , Jordan enterprise development corporation (JEDCO), association of banks in Jordan, international finance corporation (IFC), European bank for reconstruction and Development (EBRD), have exerted a lot of effort in order to determine the challenges that face MSMEs sector and the ways to tackle these challenges by finding a convergence of views between MSMEs enterprises and the other parties like the financial institutions, technical consultants, government agencies etc.

Previous Studies

Ayandibu and Houghton (2017) analysed the role of small and medium scale enterprise in local economic development. The results showed that SMEs play a huge role in the local economy. Furthermore, there are many challenges that face the SMEs sectors within the internal and external environment that slow down the development and growth of the country.

Karadag (2016) conducted a comparative study on the main indicators of SMEs sector performance in major advanced and emerging economies. Results have shown that economic growth and development of the SME sector are closely linked in both developed and developing economies, while new venture creation, employment, and value-added contribution of the SME sector to the economy significantly differ across different contexts, within the post-crisis era.

Bloch and Bhattacharya (2016) analysed the promotion of innovation and job growth in small-and medium-sized enterprises in Australia. The results revealed that

there are many challenges that face SMEs in Australia, and enhancing innovation plays a great role in achieving growth in small-and medium-sized enterprises. Furthermore, results found that the training help in overcoming the failure rates in the SMEs.

Ofosuaa et al. (2015) investigated the general contributions of small and medium-scale enterprises, the perception of owners, managers, or entrepreneurs of SMEs and the long-term strategies that would sustain their existence in Ghana and make them formidable force and pillar to the nation's development. The sample consisted of (50) SMEs, which included manufacturing, industry and services businesses. The results showed that SMEs through their contributions such as employment generation, Gross Domestic Product growth and increase in tax revenue in Ghana makes their operations a major pivot of economic growth to Ghana.

Ilegbinosa and Jumbo (2015) investigated the impact of small and medium scale enterprises on the economic growth in Nigeria. The sample consisted of the 84 SMEs in Nigeria, during 1975-2012. The results showed that small and medium enterprises have a strong relationship with economic growth while interest rate and inflation rate had a negative and positive effect on economic growth respectively. Furthermore, small and medium scale enterprises play an important role in economic growth in Nigeria.

Bouazza (2015) examined the current developments of small and medium-sized enterprises in Algeria and investigated the contribution of those enterprises to economic development and employment creation. The population of the study consisted of (748,000) companies within the SME sector. The results showed that SMEs in Algeria are too fragile and do not contribute effectively to creating employment opportunities in which unemployment remains high, particularly among youth. The study recommended that the Algerian government should make further efforts to create a meaningful and comprehensive policy to improve the country's business environment, which is still not conducive to the private sector.

Akugri et al. (2015) studied whether the presence of SMEs in Ghana could be linked to rapid infrastructural development, whether the significant number of people is gainfully employed in the sector, and whether SMEs have attracted the needed financial institutions through increased credit facilities. The sample consisted of (160) SMEs respondents. Results have shown that SMEs do not play a significant role in employing youth in the district, though most SMEs rely on free family labour to minimise costs. The study recommends that entrepreneurs should be encouraged to form cooperatives to

enable them to access bank credits since most financial institutions hold the view that group lending minimises the risk of loan default.

Beck et al. (2005) conducted a study to analyze the relationship between small and medium enterprises and economic growth and lowering poverty in the country by adopting new database on the share of SME labor in the total manufacturing labor force.. The sample consisted of 45 countries. The results revealed that there is a strong relationship between SMEs and GDP per capita growth. Moreover, the results showed that there is no relationship between the SMEs and lowering poverty.

The Distinguished Aspects of this Study

From the previous review, it was clear that some studies have addressed the topic of SMEs, some of them studied the role of SMEs on the economic growth on country level, these studies use different statistical techniques to measure that role, like: Dixit and Pandey (2011) studied the role of SMEs in Indian economic growth through a time series data for 33 years' time period using the cointegration analysis technique. Johari (2012) used the Delphi survey technique to measure the role of SMEs on the Iranian economic growth, Benis (2014) studied the role of SMEs in economic growth in Iran too through the period 2004-2006 but by using another technique this time which is (Solo-swan neoclassic model), Subhan et al. (2013) studied the effect of innovation on SMEs on Pakistani economic growth by using two log linear regression equations for 32 years' time period, the share of SMEs in GDP was the dependent variable in the first regression, the GDP Growth rate was the dependent variable in the second regression, Sharafat et al. (2014) studied the impact of SMEs on poverty using time series data through 35 years' time period using an OLS method, Bouazza (2015) studied the role of SMEs on Algerian economic development and employment creation using statistical data about contribution of Algerian SMEs in employment, exports and GDP through the period 2001-2013. Other studies examined the role of SMEs in economic growth not just in a single country level but the scope of these studies was expanded to include across-countries level in order to observe the differences in economic growth rate between the countries with different level of SMEs. (Beck, et al., 2005; Beck, et al., 2008; Silivestru, 2012) are examples of these studies.

Even though this study is considered one of the studies that examine the role of SMEs in economic growth on a single country level, it is distinguished due to its technique by using a panel data for MSMEs share in nine Jordanian economic sectors through 24 years, then it examined their effects on the GDP growth for the same nine economic

sectors through the study period. According to the researcher best of knowledge, this is the first study that uses such a technique on the country level studies.

However, it is useful to note that this study lacks data for other variables that may affect the GDP for any country, that is because of the unavailability of these data on sectoral basis in Jordan, such as: (export, import, government consumption, education, inflation deflator), so the only control variable was used was the domestic credit for the private sector in a sectoral basis.

3. Hypotheses, Data and Methodology.

3.1 Hypotheses:

In light of literature review this study examines the following hypotheses:

- :Micro size firms have no impact on sectoral economic growth.

- :Small size firms have no impact on sectoral economic growth.

- :Medium size firms have no impact on sectoral economic growth.

- :Micro, small, and medium size firms have no impact on sectoral   economic growth.

3.2 Data.

In the data collection effort, our main goal is to determine the effect and the role of MSMEs on the Jordanian economic growth. To measure this role of MSMEs (micro, small, and medium enterprises) a set of data were collected and rearranged as follows:

3.2.1 Measure of MSMEs prevalence:

Following Beck et al., (2005); Beck el al., (2008) the used data set were available from Jordanian Department of Statistics (DOS) about the number of employees in each sector in the Jordanian economy. The definition used by DOS and CBJ (Central Bank of Jordan) was adopted to distinguish each category (micro, small, medium and large size).

CBJ definitions consider three areas to differentiate   between each size as follows:

Enterprise category / differentiate area	Employee	Turnover (Sales) JOD	Total Assets JOD
Micro size	0 < 5	1 < 100,000	1 < 100,000
Small size	6 < 20	100,001 < 1,000,000	100,001 < 1,000,000
Medium-sized	21 < 100	1,000,001 < 3,000,000	1,000,001 < 3,000,000

Since the data is limited for these three areas, the available data about the number of employees were used to differentiate between each size, because it is the only data available as a proxy to measure the MSMEs prevalence.   Herein is how CBJ and DOS define the MSMEs according to the number of employees:

Enterprise category	Micro	Small	Medium	Large
CBJ	15-	620-	21100-	>100
DOS	14-	519-	2099-	+100

The previous table shows that both CBJ and DOS seems to follow very close

definition for MSMEs according to the number of employees. But in this study, the DOS definition was considered. It is important here to mention that through the period from 1992 up to 2015 (the study period) DOS followed two distinctive categories for MSMEs. The two definitions of MSMES among the two periods were as follows:

Large	Medium	Small	Micro	Enterprise category
+100	2599-	1024-	59-	19921998-
+100	2099-	519-	14-	20002015-

To overcome this problem, the two different period definitions were considered as is.

The data about employees in 1999 were dropped since it was not available and considered as missing variable.

The data about the MSMEs employees was available for 13 economic sectors which were classified according to the International Standard Industrial Classification of all economic activities (ISIC Rev. 3.1) these sectors are:

1. Mining and Quarrying
2. Manufacturing
3. Electricity - Gas and Water Supply
4. Construction
5. Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods
6. Hotels and Restaurants
7. Transport, Storage and Communications
8. Financial Intermediation
9. Real Estate, Renting and Business Activities
10. Public Administration and Defense

11.   Education
12.   Health and Social Work
13.   Other Community, Social and Personal Service Activities

It is worth mentioning that the data of the employees in Manufacturing of agricultural and forestry machinery sector were not available, so this study did not consider this sector. In this aspect it is worth to mention that during the period from 1992-2015 (DOS) followed two approaches to divide the economic sectors complying with the International Standard Industrial Classification of All Economic Activities (ISIC). It divides the sectors during the period from 1992-2010 according to (ISIC3) calcification, but in 2011 the classification approach changed to follow a new version of (ISIC) which is (ISIC4). The difference between ISIC 3 and ISIC 4 classification started in 2011 as follows. (i) separating some activities under Electricity - Gas and Water Supply sector into two sectors , the first one is Electricity, Gas, Steam and air conditioning Supply , and the other one is Water Supply, Sewerage, Waste Management and Remediation Activities, (ii) separating some activities under Transport, Storage and Communications into two sectors the first is Transportation and Storage , and the other one is information and Communication, (iii) separating some activities under Real Estate, Renting and Business Activities into two sectors , the first is Real Estate Activities , and the other one is professional, Scientific and Technical Activities , (iv) separating some activities under Other Community, Social and Personal Service Activities into two sectors , the first one is Arts, Entertainment and Recreation, and the other one is Other Service Activities. We handled these differences in data by referring to the (head of economic statistic surveys department in (DOS)), according to him we rearranged the data according to ISIC 3 classification keeping the consistency of the time series. The data about the employees for these 13 sectors were available for both the private and public sectors, but only the MSMEs employees in the private sector were considered because the observations from the statistical data which were collected showed that MSMEs employees were more intensive in private sector than in public sector .The data showed that the average mean of MSMEs for all sectors through the period 1992-2015 was (10%) in public sector while it was 58% in the private sector.(in this regard, see Table (5) and table (6) in part 4.2).

Finally, the prevalence of micro, small, and medium size enterprises were measured as the share of employees for each size category (micro, small, and medium) in every sector (in the private sector) as a percentage from the total employees per year for that sector. Following Beck et al., (2005), who investigated the role of SMES in the

economic growth by calculating the share of SME250 in the manufacturing sector from the total manufacturing employees. Also following a team from "U.S agency for international development" in their published report (micro REPORT #135 2008). They investigated not just the SME250 but also their study explored the role of Micro, Small, and Medium size enterprises in the per capita income growth, their study determined the MSMEs prevalence by taking the share of employees in each size in manufacturing sector.

3.2.2 Measures of economic growth

Similar to Beck et al (2005), Beck et al (2008), Silivestru (2012), we used the year by year growth in real GDP per capita to measure growth rate in the economy. The difference in our study is that we take the GDP for each sector in the Jordanian economy. Then we calculated the GDP per capita for each sector. Some problems appeared when the department of economic statistics surveys in DOS provided us with GDP for each sector for only 11 sectors while we have 13 sectors for the MSMEs employees. Both departments (employee statistics and economic statistics) consider the same version of ISIC which is ISIC3. However, we were forced to exclude 4 sectors from the 13 sectors which are: (education and health since those two sectors were merged with other community and social sector, and we excluded social security sector because it is not included in the sector that contributed to the Jordanian GDP - this sector is not included in the private sector any way. After matching the data between the employee's statistics department and economic statistics department in (DOS) we were left with only Ten sectors.

3.2.3 Other potential determinants of economic growth

According to Beck et al (2005), Silivestru (2012), it is supposed that the effect of some variables which may affect the economic growth should be isolated, such as: (export, import, domestic credit, government consumption, education, inflation deflator). These variables should be calculated per sector. But again, since these variables were not available in sectoral basis, we could not use them as control variables to isolate their effects on sectoral GDP growth. The only control variable that was available was the domestic credit for the private sector for each sector in the economy. The data for this variable is published on CBJ website. CBJ has information about the credit granted for the private sector for each sector for the period 1993-2015 except the volume of credit granted to the real state sector that forced us to exclude this sector from our data which left us with only nine sectors.

The remaining nine sectors are:

1. Mining and Quarrying

2. Manufacturing

3. Electricity - Gas and Water Supply

4. Construction

5. Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods

6. Hotels and Restaurants

7. Transport, Storage and Communications

8. Financial Intermediation

9. Other Community, Social and Personal Service Activities

The excluded 4 sectors are:

10. Real Estate, Renting and Business Activities (totally removed).

11. Health and Social Work (merged with another sector).

12. Education (merged with another sector).

13. Public Administration and Defense (totally removed).

3.3. Methodologies.

3.3.1. The Model.

In order to examine the hypotheses, the study uses the following model, following Beck et al (2005, 2008) and Silivestru (2012) with some exceptions.

$$\Delta\ GDP_{it} = \alpha + \beta_1\ MIC_{it} + \beta_2\ SMl_{it} + \beta_3 MED_{it} + \beta_4 CRDT_{it} + e_{it}\ .$$

Equation (1)

· We re-estimate the model above by using another specification where total MSMEs replaced its components (micro, small, and medium).

· (i) represents the sectors and (t) represents the time.

· e_{it} Is the error term

The model was first estimated using pooled OLS, then Fixed Effect and Random Effect model. To determine the most appropriate method Housman's Test is used. T-

Statistics are calculated with White Heteroscedasticity robust standard errors.

Table ١: Variable Definitions.

Proxy	Symbol	Variable
Annual per capita gross domestic product growth in sector "i" year "t" in the logarithmic form.	∆GDP	Change in real GDP per capita
the natural logarithm of the variable measuring the prevalence of micro size enterprises in sector "i" year "t", where the prevalence is measured as the share of micro size firms employees in the total employees in the relevant sector.	MIC	Micro
the natural logarithm of the variable measuring the prevalence of small size enterprises in sector "i" year "t", where the prevalence is measured as the share of small size firms employees in the total employees in the relevant sector.	SML	Small
the natural logarithm of the variable measuring the prevalence of medium size enterprises in sector "i" year "t", where the prevalence is measured as the share of medium size firms employees in the total employees in the relevant sector.	MED	Medium
the natural logarithm of the variable measuring the prevalence of the total MSMEs enterprises in sector "i" year "t", where the prevalence is measured as the share of MSMEs firms employees in the total employees in the relevant sector.	MSME	MSMES
the natural logarithm of the variable measuring the domestic credit to private sector in sector "i" year "t" as share of the total credit for all sectors in year "t.	CRDT	Credit

The most important variables are MSMEs as a total and MSMEs components. To measure the role MSMEs play in the Jordanian economic sectors, four indicators will be used in order to assess the contribution of MSMEs in sectoral economic growth.

4. Empirical Results.

This chapter will present the empirical results for the study's model.

4.1. Descriptive Statistics:

Table ٢: Summary Statistics of the model Variables.

Variables	Mean	Median	Std. Dev.	Max	Min
GDP	0.021	0.011	0.092	0.312	-0.487
MIC	0.196	0.144	0.196	0.841	0.00
SML	0.169	0.179	0.099	0.450	0.00
MED	0.178	0.172	0.127	0.868	0.00
MSME	0.543	0.603	0.280	1.000	0.00
CRDT	0.108	0.066	0.091	0.360	0.004

ΔGDP is the annual per capita gross domestic product growth in sectoral bases.

MIC is the share of micro size firm's employees in the total employees in the relevant sector.

SML is the share of small size firm's employees in the total employees in the relevant sector.

MED is share of medium size firm's employees in the total employees in the relevant sector.

MSME is the share of MSMEs firm's employees in the total employees in the relevant sector.

CRDT is the domestic credit to private sector in sector as share of the total credit for all sectors

Table (2) shows that on average micro size firms have the highest average of employment compared to small and medium size firms. More than half of the employees in the private sector are employed by MSMEs.

Table 3: Detailed Summary Statistics (Share of employees for each sector during the period 1992-2015)

Sectors	MIC		SML		MED		MSMEs		Large		Δ GDP per sector		ΔGDP per capita		CRDT	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Construction	0.066	0.017	0.185	0.055	0.316	0.050	0.567	0.081	0.433	0.081	0.045	0.097	0.007	0.092	0.184	0.028
Electricity and water	0.005	0.013	0.010	0.018	0.003	0.010	0.018	0.037	0.982	0.037	0.059	0.052	0.022	0.050	0.071	0.029
Financial	0.017	0.007	0.041	0.022	0.096	0.029	0.154	0.045	0.846	0.045	0.099	0.105	0.060	0.103	0.033	0.011
Manufacturing	0.212	0.047	0.167	0.030	0.184	0.039	0.564	0.066	0.436	0.066	0.062	0.063	0.024	0.067	0.132	0.014
Mining	0.131	0.149	0.294	0.095	0.235	0.238	0.660	0.211	0.340	0.211	0.040	0.165	0.003	0.159	0.013	0.007
Other	0.250	0.085	0.189	0.025	0.217	0.047	0.656	0.066	0.344	0.066	0.077	.054	0.039	0.056	0.248	0.049
Restaurant and hotels	0.309	0.097	0.224	0.051	0.170	0.043	0.704	0.080	0.296	0.080	0.034	0.120	(0.003)	0.115	0.025	0.007
Transportation	0.160	0.054	0.234	0.059	0.268	0.058	0.662	0.103	0.338	0.103	0.054	0.041	0.017	0.048	0.034	0.013
Whole sales trade	0.610	0.151	0.177	0.053	0.115	0.071	0.902	0.055	0.098	0.055	0.056	0.084	0.019	0.082	0.230	0.026
AVG All sectors	0.196	0.069	0.169	0.045	0.178	0.065	0.543	0.083	0.457	0.083	0.059	0.087	0.021	0.086	0.108	0.020

ΔGDP is the annual per capita gross domestic product growth in sectoral bases, MIC is the share of micro size firm's employees in the total employees in the relevant sector, SML is the share of small   size firm's employees in the total employees in the relevant sector, MED is share of medium size firm's employees in the total employees in the relevant sector, MSME is the share of MSMEs firm's employees in the total employees in the relevant sector, CRDT is the domestic credit to private sector in sector as share of the total credit for all sectors

Table (3) show that depending on the number of employees in the private sector as proxy for measuring MSMEs enterprises prevalence. It is noticed that most sectors have higher share of MSMEs employees than in the large enterprise except for the financial sector, electricity and water sector. Most of these sectors employees (mor than 85%) are in the large size enterprises, while the other sectors vary in its share of MSMEs employees. MSMEs enterprises have employed mor than 90% in some sectors like wholesales trade sector and other community sector.

Table 4: Summary Statistics for the share of employees in each category size for all years in samples.

year	MIC		SML		MED		MSMEs		large		ΔGDP per capita		ΔGDP per sector		CRDT	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1992	0.162	0.124	0.173	0.110	0.182	0.110	0.517	0.285	0.483	0.285						
1993	0.150	0.117	0.155	0.105	0.182	0.104	0.487	0.283	0.513	0.283	0.024	0.108	0.081	0.114	0.108	0.111
1994	0.172	0.144	0.174	0.117	0.166	0.101	0.512	0.301	0.488	0.301	0.017	0.054	0.067	0.056	0.109	0.090
1995	0.179	0.146	0.148	0.092	0.186	0.120	0.513	0.293	0.487	0.293	0.074	0.106	0.117	0.110	0.109	0.094
1996	0.184	0.159	0.149	0.090	0.186	0.129	0.518	0.284	0.482	0.284	0.018)	0.050	0.013	0.052	0.109	0.092
1997	0.178	0.139	0.138	0.082	0.184	0.125	0.499	0.270	0.501	0.270	0.017	0.095	0.042	0.097	0.109	0.092
1998	0.176	0.138	0.140	0.088	0.180	0.103	0.495	0.268	0.505	0.268	0.001	0.118	0.021	0.120	0.108	0.089
2000	0.235	0.249	0.187	0.120	0.154	0.102	0.576	0.318	0.424	0.318	0.027	0.057	0.045	0.058	0.108	0.093
2001	0.239	0.245	0.165	0.094	0.188	0.122	0.593	0.324	0.407	0.324	0.031	0.116	0.049	0.118	0.109	0.097
2002	0.228	0.245	0.194	0.128	0.169	0.132	0.591	0.316	0.409	0.316	0.062	0.156	0.081	0.159	0.108	0.093
2003	0.254	0.270	0.176	0.117	0.170	0.116	0.600	0.317	0.400	0.317	0.006	0.030	0.027	0.031	0.109	0.096
2004	0.198	0.193	0.198	0.123	0.167	0.113	0.563	0.286	0.437	0.286	0.068	0.067	0.096	0.069	0.108	0.100
2005	0.201	0.219	0.177	0.094	0.159	0.107	0.536	0.302	0.464	0.302	0.053	0.097	0.087	0.100	0.106	0.110
2006	0.186	0.229	0.175	0.104	0.178	0.118	0.539	0.283	0.461	0.283	0.047	0.036	0.087	0.037	0.106	0.115
2007	0.194	0.220	0.195	0.129	0.183	0.111	0.572	0.286	0.428	0.286	0.073	0.052	0.119	0.054	0.106	0.103
2008	0.186	0.228	0.171	0.097	0.161	0.093	0.518	0.271	0.482	0.271	0.071	0.122	0.122	0.128	0.105	0.100
2009	0.184	0.217	0.173	0.095	0.205	0.178	0.562	0.314	0.438	0.314	0.047)	0.173	0.001	0.182	0.105	0.094
2010	0.183	0.221	0.157	0.094	0.215	0.180	0.555	0.316	0.445	0.316	(0.013)	0.070	0.039	0.074	0.106	0.093
2011	0.193	0.217	0.143	0.075	0.230	0.252	0.567	0.310	0.433	0.310	0.015)	0.057	0.039	0.060	0.107	0.092
2012	0.219	0.248	0.152	0.078	0.162	0.115	0.533	0.277	0.467	0.277	(0.028)	0.075	0.025	0.079	0.108	0.087
2013	0.197	0.211	0.170	0.108	0.130	0.074	0.497	0.258	0.503	0.258	(0.027)	0.053	0.025	0.056	0.108	0.088
2014	0.186	0.200	0.187	0.105	0.198	0.180	0.570	0.312	0.430	0.312	0.013	0.079	0.061	0.082	0.109	0.093
2015	0.219	0.226	0.190	0.096	0.169	0.140	0.577	0.277	0.423	0.277	(0.004)	0.047	0.035	0.049	0.109	0.096
AVG	0.196	0.200	0.169	0.102	0.178	0.127	0.543	0.294	0.457	0.294	0.020	0.083	0.058	0.086	0.108	0.096

ΔGDP is the annual per capita gross domestic product growth in sectoral bases, MIC is the share of micro size firm's employees in the total employees in the relevant sector, SML is the share of small size firm's employees in the total employees in the relevant sector, MED is share of medium size firm's employees in the total employees in the relevant sector, MSME is the share of MSMEs firm's employees in the total employees in the relevant sector, CRDT is the domestic credit to private sector in sector as share of the total credit for all sectors. Year 1999 was excluded because it was missing from the employment time series data from DOS.

Table (4) show there were slight changes in the shares of each category of MSMEs through the period 1992-2015. GDP per capita has been Declined in 2009 up to 2013.

4.2. Tests of equality of means:

Table 5: Descriptive statistics (MSMEs, Micro, Small, and Medium vs. Large) for the private sector. Mean difference test are T- test.

Method	d.f.	Value	Probability
Anova F-test	(4, 1375)	201.119500	0.00
Welch F-test*	(4, 658.302)	185.337200	0.00

Variable	Mean	Std. Dev.	Std. Err. of Mean
MIC	0.196	0.196	0.013
SML	0.169	0.099	0.006
MED	0.178	0.127	0.007
MSMEs	0.543	0.28	0.016
Large	0.457	0.271	0.016

MIC is the share of micro size firm's employees in the total employees in the relevant sector, SML is the share of small size firm's employees in the total employees in the relevant sector, MED is share of medium size firm's employees in the total employees in the relevant sector, MSME is the share of MSMEs firm's employees in the total employees in the relevant sector, Large is the share of large firm's employees in the total employees in the relevant sector

Table (5) shows that MSMEs enterprises have a higher share of employees than the large size enterprises in the private sector. Micro size enterprises have the highest percentage of employees than in small and medium size enterprises.

Table 6: Descriptive statistics (MSMEs, Micro, Small, and Medium vs. Large) for the public sectors. Mean difference test is T- test.

Method	d.f.	Value	Probability
Anova F-test	(4, 1465)	1211.208	0.00
Welch F-test*	(4, 710.407)	896.4319	0.00

Variable	Mean	Std. Dev.	Std. Err. of Mean
MIC/ public	0.01028	0.100664	0.005871
SML/ public	0.03601	0.18136	0.010577
MED/ public	0.053898	0.139147	0.008115
MSMEs/public	0.100188	0.238934	0.013935
Large/ public	0.899812	0.238934	0.013935

MIC is the share of micro size firm's employees in the total employees in the relevant sector, SML is the share of small size firm's employees in the total employees in the relevant sector, MED is share of medium size firm's employees in the total employees in the relevant sector, MSME is the share of MSMEs firm's employees in the

total employees in the relevant sector, Large is the share of large firm's employees in the total employees in the relevant sector

Table (5) and table (6) show that the employees in MSMEs enterprises are more intensive in the private sector, while in the public sector the large is more prevalent. In table (6) the variables MIC, SML, MED, MSMEs and large were measured   as the share of employees in every category (micro, small, and medium, large) from the total employees in the relative economic sector in public sector. It is clear that employees are intensive more in large firms in public sector with percentage level of 90% of the total employees, while in the private sector the percentage of employees in the large firms was 45%, less than the percentage of employees in MSMEs sector.

4.3. Correlations analysis:

Table 7: Correlations Matrix of Variables.

*, **, and*** indicates that significant at 10%, 5%, and 1% respectively. Probability Value are shown in parentheses.

Variables	ΔGDP Per capita	ΔGDP Per sector	MIC	SML	MED	MSME	Large	CRDT
ΔGDP Per capita								
ΔGDP Per sector	0.989***							
	(0.000)							
MIC	-0.057	-0.067						
	(0.426)	(0.349)						
SML	-0.088	-0.093	0.221***					
	(0.219)	(0.191)	(0.002)					
MED	-0.047	-0.042	-0.170**	0.530***				
	(0.510)	(0.556)	(0.017)	(0.000)				
MSME	-0.092	-0.099	0.707***	0.749***	0.522***			
	(0.195)	(0.164)	(0.000)	(0.000)	(0.000)			
Large	0.092	0.099	-0.707***	-0.749***	-0.522***	-1***		
	(0.195)	(0.164)	(0.000)	(0.000)	(0.000)	(0.000)		
CRDT	0.020	0.020	0.442***	-0.016	0.067	0.337***	-0.337***	
	(0.776)	(0.781)	(0.000)	(0.823)	(0.349)	(0.000)	(0.000)	

ΔGDP Per capita is the annual per capita gross domestic product growth in sectoral bases.

ΔGDP Per sector is the annual per sector gross domestic product growth in sectoral bases

MIC is the share of micro size firm's employees in the total employees in the relevant sector.

SML is the share of small size firm's employees in the total employees in the relevant sector.

MED is share of medium size firm's employees in the total employees in the relevant sector.

MSME is the share of MSMEs firm's employees in the total employees in the relevant sector.

Large the share of large firm's employees in the total employees in the relevant sector.

CRDT is the domestic credit to private sector in sector as share of the total credit for all sectors

The correlation matrix in Table (7) shows the relationship between MED and MIC is negative and significant at 5%. These results may be interpreted as any increase in medium size enterprises resulted from transferring some micro enterprises to the medium size level based on the natural cycle of firm's life. However, logically, this is not the case, because the next size to micro firms is small size, it cannot jump directly to the medium or large size. Therefore, this leads us to the other potential interpretation that some micro enterprises may have exited the market and the newly established micro businesses did not offset the exited firms in terms of volume and productivity. This could be due to weaknesses in government's policies and tools used to support micro enterprises and give them incentives to start new businesses.

4.4. Empirical results:

Table 8: The effect of MSMEs Component on the growth of real GDP Per Capita.

Variables	Pooled (OLS)	Fixed Effects	Random Effects
Constant	-3.323*** (0.00)	-1.098 (0.438)	-3.323*** (0.00)
MIC	-0.060 (0.742)	0.201 (0.575)	-0.060 (0.742)
SML	-0.123 (0.701)	-0.145 (0.761)	-0.123 (0.701)
MED	0.329 (0.233)	0.896** (0.021)	0.329 (0.233)
CRDT	-0.140 (0.311)	0.127 (0.795)	-0.140 (0.311)
Sector effect		Yes	Yes
Time effect		No	No
R^2	0.05	0.13	0.05

The dependent variable in all specifications is change in the real GDP per sector per capita in logarithmic form, all other variables are as defined earlier in Table (1). T- Statistics are calculated with White Heteroscedasticity robust standard errors. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. Probability Value are shown in parentheses.

To decide whether fixed effect technique or random effect technique performs better for the model Housman's test is used. To test if the repressors are correlated with the error term (Ui), that is (H0: E (Ui/xit) = 0) if it is the case the fixed effect estimator is consistent but the random effect estimator is inconsistent . This means if we reject the null hypothesis then the fixed effect is more appropriate, (Baltagi, 2005)

Hausman's Test:

Chi sq. statistic	Chi sq. d.f.	Prob.
5.170	4	0.270

Based on Hausman's Test, random effect technique is more appropriate than fixed effect. Pooled OLS and random effect reported in table (8) showed that none of the MSMEs size has an impact on the sectoral GDP growth.

According to the regression test results and based on random effect test it's obvious that, the micro size and small size enterprises have insignificant negative prelateship with the GDP, but the medium size enterprises have a positive relationship with the GDP growth but also this positive relationship is insignificant. Regardless of the sign of the relationship between MSMEs components and GDP per capita growth this relationship is still insignificant. MSMEs enterprises do not contribute to the GDP per capita growth even though they dominate the private sector for all Jordanian sectors.

Regarding to the impact of the domestic credit to private sector on GDP per capita growth, the test shows insignificant impact on GDP per capita growth.

Table 9: The effect of the total MSMEs enterprises on the GDP Per Capita growth.

Variables	Pooled (OLS)	Fixed effects	Random effects
Constant	-3.729*** (0.00)	-3.406*** (0.004)	-3.729*** (0.00)
MSMEs	-0.037 (0.674)	0.008 (0.979)	-0.037 (0.674)
CRDT	-0.203* (0.082)	-0.095 (0.844)	-0.202* (0.082)
Sector effect		Yes	Yes
Time effect		No	No
R^2	0.03	0.09	0.03

The dependent variable in all specifications is change in the real GDP per sector per capita in logarithmic form, all other variables are as defined earlier in Table (1). T-Statistics are calculated using White Heteroskedasticity robust standard errors. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. Probability Value are shown in parentheses

Hausman's Test:

Chi sq. statistic	Chi sq. def.	Prob.
0.091108	2	0.9555

Based on Hausman's Test, random effect technique is more appropriate than fixed effect technique.

Based on the result of the random effect regression the relationship was negative and insignificant supporting the result from the regression in Table (8) that MSMEs

enterprises do not affect the GDP per capita growth even though these enterprises dominate the private sector. That may be caused by their low labor productivity that characterize most of this size of firms, this low productivity resulting from many problems and obstacles impede their growth, Silivestru (2012).

Silivestru, (2012), investigate the impact of each size of MSMEs on the European countries economic growth. They found that even micro enterprises dominate the private sector of all European countries in terms of firm's numbers, this firm size (micro) does not affect the European economy to grow.

5. Robustness tests:

This section presents the results of estimating the model (Eq.1) where the growth in sectoral GDP (in the natural logarithm) used as an alternative measure of growth instead of the change in GDP per capita per sector (the natural logarithm form).

Table 10: the effect of MSMEs Component on the growth on real GDP per sector.

Variables	Pooled	Fixed Effects	Random Effects
Constant	-3.348*** (0.00)	-2.447*)0.072(	-3.348*** 0.00
MIC	-0.147)0.108(	0.117)0.647(	-0.148)0.108(
SML	-0.069)0.656(	-0.136)0.631(	-0.069)0.656(
MED	-0.022)0.899(	0.398)0.133(	-0.022)0.899(
CRDT	-0.023)0.786(	-0.120)0.702(	-0.023)0.786(
Sector effect		Yes	Yes
Time effect		No	No
R^2	0.049	0.122	0.049

The dependent variable in all specifications is change in the real GDP per Sector in logarithm form, all other variables are as defined earlier in Table (1). T- Statistics are calculated using White Heteroskedasticity robust standard errors. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. Probability Value are shown in parentheses

Hausman's Test:

Chi sq. statistic	Chi sq. d.f.	Prob.
8.1341	4	0.0868

Based on Hausman's Test, random effect technique is more appropriate than fixed effect techniques.

The results are robust to using an alternative measure of sectoral growth. Table (10) show each category of MSMEs has insignificant effect on the sectoral GDP growth and the sign is negative except for the medium size enterprises.

Table 11: the effect of the total MSMEs enterprises on the growth on Real GDP per Sector.

Variables	Pooled	Fixed Effects	Random Effects
Constant	-3.14821*** (0.00)	-3.75691*** (0.00)	-3.19629*** (0.00)
MSMEs	-0.12045 (0.101)	-0.11303 (0.533)	-0.10297 (0.240)
CRDT	-0.08518 (0.150)	-0.31431* (0.063)	-0.10885 (0.143)
Sector effect		Yes	Yes
Time effect		No	No
R^2	0.024537	0.101053	0.017314

The dependent variable in all specifications is the change in the real GDP per sector in the natural logarithm form, all other variables are as defined earlier in Table (1). T- Statistics are calculated using White Heteroskedasticity robust standard errors. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. Probability Value are shown in parentheses

Hausman's Test:

Chi sq. statistic	Chi sq. d.f.	Prob.
0.874438	2	0.6458

Based on Hausman's Test, random effect technique is more appropriate than others fixed effect techniques.

Table (11) shows that measured results again are robust since MSMEs has no significant impact on the sectoral GDP growth, the sign of the relationship is negative as previously reported

6. Conclusion:

Since most of worldwide studies praise micro, small and medium size enterprises for their unique contribution to economic development considering it the "seed" of economic revival, in this study we shed light on the real situation of MSMEs in Jordan

by investigating its impact on economic growth. According to the regression test results, the micro size and small size enterprises have negative relationship with the GDP growth, but the medium size enterprises have a positive relationship with the GDP growth. Regardless of the sign of the relationship between MSMEs components and GDP per capita growth this relationship is insignificant. Meaning that MSMEs enterprises do not contribute to the GDP per capita growth even though they dominate the private sector for all Jordanian sectors. The insignificant positive effect of MSMEs on Jordanian economic growth might be as a result of : (i) low labor productivity that characterize most of these size of firms, this low productivity resulting from many problems and obstacles impede their growth, Silivestru (2012), (ii) some MSMEs may have exited the market and the newly established businesses did not offset the exited firms in terms of volume and productivity, this could be due to weaknesses in government's policies and tools used to support micro enterprises and give them incentives to start new businesses

Other potential reasons for the insignificant impact could be:

- Measuring MSMEs prevalence based on the share of MSMEs employees from the total employees in each sector may not capture the real value added created by MSMEs in the total GDP in the country. While if MSMEs share of real value added from the total value added per sector were used, it may have more fit measure and more relative proxy to measure MSMEs contribution to economic growth.
- The Jordanian government started to support and enhance MSMEs enterprises just recently. CBJ issued its unified definition for MSMEs in 2011 for the first time (CBJ circular letter no.10436/5/ dated 112011/1/). The government established the SMEs observatory through JEDCO recently in 2016 (JEDCO website http://www.jedco.gov.jo/). CBJ started its first financial support to MSMEs for the first time in 2013, using funds received by government from foreign institutions to relend it to MSMES clients through local banks with low interest rates (CBJ circular letter no.102146/5/ dated 182013/2/).
- The absence of some control variables that affect the dependent variable (sectoral-GDP) such as (export, import, government consumption, education, inflation deflator) may affect the fairness of the results, even so we obtain one important control variable which is the domestic credit for the private sector in sectoral bases.

Based on the results of this research more efforts should be exerted to investigate the determinants that may have positive effects on MSMEs growth, which shall eventually make the economy grow even more. These determinants and factors may be in the form of financial and technical support. All factors that may affect MSMEs should be deeply studied and investigated to find suitable solutions to overcome problems that impede MSMEs to grow.

The results of this study should push economic strategists to enhance existing tools and find other effective tools to support this sector and find suitable solutions to overcome the problems that may impede its growth.

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