THE EFFECTS OF AGGLOMERATION EXTERNALITIES ON SECTORAL EMPLOYMENT GROWTH IN TURKEY

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Abstract

Agglomeration economies are considered as the driving force behind the development of mega cities and large cities/regions, which are the most successful regions in world economy. According to "New Economic Geography" stream, externalities are approached as static and dynamic externalities. Dynamic externalities are classified as "Marshall (1891) – Arrow (1962) – Romer (1986, 1990) (MAR), Porter (1990) and Jacobs (1969)" by Glaeser et al. (1992). Dynamic externalities come out by the emergence of local knowledge and by strengthening communication among economic actors in the long term. Knowledge spillover also accelerates via strengthening of communication. This paper investigates whether agglomeration externalities affected regional growth in Turkey at the NUTS 3 level during the period 2010 – 2016 by using sectoral employment growth. The results of the study show that effect of MAR (Marshall–Arrow– Romer) externalities is found to be negative as they are in the studies done through the data of most of the countries. It is concluded that unrelated variety (JACOBS) has no effect on employment growth. Coefficients in most of the sectors are seen to be positive in PORTER externalities.

Keywords: *Agglomeration externalities, MAR, Jacobs, Porter, Employment growth, Turkey*

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TÜRKİYE'DE YIĞILMA DIŞSALLIKLARININ SEKTÖREL İSTİHDAM ARTIŞI ÜZERİNDEKİ ETKİSİ

Öz

Yığılma (Aglomerasyon) ekonomileri, dünya ekonomisinde en başarılı bölgeler olan mega şehirlerin ve büyük şehirlerin / bölgelerin gelişmesinin arkasındaki itici güç olarak kabul edilmektedir. Yeni Ekonomik Coğrafya akımına göre yığılma dışsallıkları statik ve dinamik olmak üzere ikiye ayrılmaktadır. Dinamik dışsallıklar, Glaeser et al. (1992) tarafından "Marshall (1891)- Arrow (1962)- Romer (1986, 1990) (MAR), Porter (1990) ve Jacobs (1969)" olarak sınıflandırılmıştır. Dinamik dışsallıklar yerel bilginin ortaya çıkması sonucu uzun vadede ekonomik aktörler arasındaki iletişimi güçlendirmesi ile ortaya çıkar. Bilgi yayılımı aynı zamanda iletişimi güçlendirerek de hızlanır. Bu çalışmada, yığılma dışsallıklarının Türkiye'de NUTS 3 düzeyinde bölgesel büyümeyi etkileyip etkilemediği araştırmaktadır. 2010-2016 verilerinin kullanıldığı çalışmada, büyüme sektörel istihdam artışı kullanarak değerlendirilmiştir. Analiz sonucunda, MAR (Marshall-Arrow-Romer) dışsallığının etkisinin, büyüme üzerinde negatif etkili olduğu ve sonucun literatürle uyumlu olduğu görülmüştür. İlişkili olmayan çeşitliliğin (JACOBS) istihdam artışı üzerinde bir etkisi olmadığı sonucuna varılmıştır. PORTER dışsallıklarında sektörlerin çoğundaki katsayıların pozitif olduğu görülmektedir.

Anahtar Kelimeler: *Yığılma dışsallıkları, MAR, Jacobs, Porter, İstihdam artışı, Türkiye*

1. INTRODUCTION

Introduction of the concept of 'space' into the literature has promoted a new point of view for the researchers to evaluate the economic activities. Emergence of significant economic differences among spaces, particularly after the World War II, has been a concern for economists and policy makers. While concentration of economic activities in certain areas and agglomeration of them have not been taken into consideration in traditional approach, it has become an issue of analyses through this new perspective. This new approach, also named as agglomeration economies, can be defined as benefits obtained by spatial proximity of goods and service manufacturing in an intra-connected

economy. Although Marshall had first presented this concept in 1891, it was not a concern of developmental strategies taking place in regional studies until 1990s. Transformation occurred in manufacturing systems around the world in the 1980s became influential on the concept of space to come up again. Transition to flexible manufacturing system, which differs from traditional manufacturing system, caused some transformations in the spaces of manufacturing and in the organization of industry. This transformation has increased the emphasis on regional dynamics; industrial spaces and regional economies have been redefined within the framework of flexible manufacturing (Harvey, 2001). In this process, emergence of economic activities in a region and provision of economic development and regional/urban development have been attributed to local dynamics (Davis & Weinstein, 2002:1269). Concentration/agglomeration of economic activities in a specific region is seen as a result of "snowball effect" and basic centripetal force causing agglomeration leads to emergence of externality (Küçüker, 2000). Today, agglomeration economies are considered as the driving force behind the development of mega cities and large cities/regions, which are the most successful regions in world economy (Fujita et al., 1999; Scott, 2001; Rosenthal and Strange, 2004; Melo et al., 2009; Camagni et al., 2015).

This transformation process is built on two main streams. First one is regional economy led by Isard (1956) and the second one is New Economic Geography. According to Isard's classification, agglomeration / external economies are classified into two as localisation economies and urbanisation economies. This classification frames agglomeration economies within the context of static externality. Externality mentioned in urbanisation economies focuses on the decrease of manufacturing costs as a result of clustering of firms in different industries. On the other hand, in localisation economies, production increase is the focus as a result of agglomeration of the firms operating in the same sector

(Marshall, 1891; Arrow, 1962; Romer, 1986). According to "New Economic Geography" stream, externalities are approached as static and dynamic externalities. New Economic Geography classifies the static externalities as localisation and urbanisation economies, similar to Isard's classification. Dynamic externalities are classified as "Marshall (1891) – Arrow (1962) – Romer (1986, 1990) (MAR), Porter (1990) and Jacobs (1969)" by Glaeser et al. (1992). Dynamic externalities come out by the emergence of local knowledge and by strengthening communication among economic actors in the long term. Knowledge spillover also accelerates via strengthening of communication. Although there is reconciliation on the fact that dynamic externalities have an effect on economic growth there is no reconciliation on whether knowledge spillover stems from the firms operating in the same sector or the ones operating in different sector. It should be kept in mind that the most important factor that enables the externality to come out is spatial proximity. Dynamic external economies are classified into different sub-groups according to information source and market type.

Table 1: Typology of Externalities

		Type of Market High competition	Low competition
Predominant source of knowledge	Intra-industry (specialization)	Porter externalities Porter (1990)	MAR externalities Marshall (1890) Arrow (1962) Romer (1986,1990)
	Inter-industry (diversity)	Jacobs externalities Jacobs (1969)	

Source: Lucio et al. (2002)

As seen in table 1, agglomeration externality occurs through information agglomeration among firms falling into the same industry. Moreover, they are named as Marshall-Arrow-Romer (MAR) externalities if they are compatible with monopolistic market. If agglomeration externalities come out by knowledge spillover among different industries and if they are compatible with competitive markets, they are named as Jacobs Externalities. On the other hand, while Porter externalities approach, as an intermediary condition, claims competitive markets are more appropriate to provide knowledge spillover and development, it puts forth that the most efficient knowledge spillover comes out among the companies within the same industry (Kıymalıoğlu & Ayoğlu, 2006: 200). While MAR and Porter externalities puts forward the significance of specialization in local economy, Jacobs externalities emphasizes the advantage of regional diversities. Jacobs (1969) believes knowledge spillover is in relation with the diversity of industries in the region in contrast to the MAR spillover focusing on the firms in a widespread industry (Carlino, 2001: 18).

Upon a general evaluation while statistical externalities explain the existing patterns of industrial location and formation of cities, dynamic externalities focus on explaining development inter-regional differences by knowledge spillover among the firms.

2. Literature

When the research done on regional development is examined, firms are seen to be located in densely populated cities and/or in such a way that is geographically close to each other. As a result of this, benefits provided by spatial proximity and knowledge spillovers for the firms are classified into two categories as static and dynamic agglomeration externalities (Glaeser et al., 1992; Henderson et al., 1995). Static externalities (urbanisation and localisation

economies) claim the benefit obtained will increase as long as the urban scale grows. Literature about static externalities examines productivity advantages related to urban growth through three factors: indivisibilities, synergies, and physical proximity (Capello, 2009). It is seen the studies done focus on the effect of agglomerations on productivity increase. Output and employment are used as a dependent variable in order to determine the productivity increase in the models. Studies using Cobb-Douglas production function for the measurement of agglomeration economies search the relationship between urban scale and technological development in productivity. Alonso (1971) finds out, in his study done for the USA, average labour productivity is higher in the cities with a population of more than 5 million. He asserts location costs are minimized for an urban size smaller than the one maximizing location advantages. Sveikauskas (1975) and Segal (1976) reveals urbanisation economies have a positive effect on manufacturing industry productivity for the USA, searching the relationship between urban scale and agglomeration through production function. They determine manufacturing productivity is 8% higher in metropolitan regions that have a population over 3 million when compared to other cities. Marelli (1981) finds out big cities are more productive compared to the small ones in his study he did for the USA and claims productivity is liable to decreasing return after a certain threshold. Nakamura (1985) studied on localisation economies for Japan and the effect of agglomeration on productivity. He concludes in his study done for manufacturing industry; productivity increases in light manufacturing industries are obtained in urban economies while localisation economies are significant to heavy manufacturing industry firms. He finds out a positive correlation between urban scale and labour productivity. Henderson (1986) analysed production function approach and agglomeration economies in his study he did for the USA and Brazil. He reveals the existence of localisation economies in manufacturing

industry and he finds out urban economies are in use only for the land-based industries. Henderson (1988) states in his study he did on sectoral basis that localisation and urbanisation economies have a significant and positive effect. He reveals the determining sectors in localisation and urbanisation economies. Beeson (1992) analyses the relationship between agglomeration economies and technological development. He claims in his study that the relationship between urban scale and technological level leads to productivity increase in agglomeration economies. Kanemoto, Ohkawara & Suzuki (1996) searched the relationship between agglomeration economies besides productivity increase and population growth. He reveals population has a positive oriented relationship with both variables. Doğan (2001) searched the relationship between agglomeration economies and productivity in Turkey. He determines on which sectors urbanisation and localisation economies are effective. He reveals industries benefiting from urbanisation economies condense in big cities while localisation economies are effective in relatively smaller cities in Turkey. Mukkala (2004) investigated the relationship between agglomeration economies and manufacturing industry productivity and he finds localisation economies are effective in sectors that manufacture capital intensively. According to Glaeser et al. (1992), static externalities explain the structure of existing concentration and urbanisation; however, they are unable to generate a process of economic growth. Main factor leading to the formation of dynamic agglomeration economies is the formation, use and spillover of knowledge. In empirical studies measuring dynamic externality, researchers use output level per person, employment level and manufacturing level as dependent variables. Growth of economic sectors in a region is derived from specialisation by externalities (MAR type externality), diversity (Jacobs type externality) and local competition (Porter type externality) according to Gleaser et al. (1992) and Henderson et al. (1995).

Externalities of specialisation or MAR effect are derived from knowledge spillovers among the firms in the same sector referring to Marshallian externalities. Based on this idea of Marshall's (1891), Arrow (1962) and Romer (1986, 1990), formulizing the externalities, asserts that knowledge spillovers are significant factors in explaining the economic development differences among regions. MAR type knowledge spillovers emerge as a result of facility of communication between firms within the same industry. Externalities of diversity or Jacobs effect is defined as an externality emerging as a result of interaction among firms in different industries/sectors in a certain region in Jacobs's study in 1969. According to Jacobs, sectoral diversity in local industry is more important in ensuring the local economic development than geographical specialization is. On contrary to Marshall Externality, he claims local competition has positive effects on growth.

Porter (1990) emphasizes externalities leading to regional growth advantage are based on the competition among local firms. Porter also claims the possibility of knowledge spillovers to occur is higher among geographically condensed industries, as MAR externalities do. However, Porter and MAR externalities dissociate in terms of competition types. MAR externalities assert local competition affect economic growth negatively. On the other hand, Porter (1990) and Jacobs (1969) are persistent that competition has a positive effect on growth. Jacobs (1969) differs from Porter externalities claiming externalities are derived from the competition among firms belonging to different industries.

Glaeser et al. (1992) MAR, Jacobs and Porter searched the effect of externalities on urban growth using the data between the years 1956-1987 in the USA. In their model established using production function approach, they concluded employment increase was derived from local competition and urban diversity. They emphasized spillovers among different industries were more important

than knowledge spillover within industry. Henderson et al. (1995) aimed at determining dynamic externalities for the mature and new high-tech industries using the data between 1970-1987. While Jacobs was observing MAR externalities in mature industries, he could not find evidence on externalities. Jacobs put an emphasis that externalities were significant for the development of high-tech industries. Ultimately Jacobs found out externalities were effective to attract new industries and MAR externalities were required for the continuity of the industry. Mano and Otsuka (2000) tested Henderson et al. (1995)'s study in three different periods within four industry zones and five sectors for Japan. Mano and Otsuka revealed sectoral diversity in the urban was not influential on mature manufacturing industries, just like Henderson did. Combes (2000) searched the effects of dynamic agglomeration externalities on 52 industrial sectors and 42 service sectors between the years 1984-1993 in France. He detected a negative specialization (MAR) effect and a positive diversity (Jacobs) effect on service sector. He claimed competition (Porter) had a negative effect on both service and industry sector. Lucio et al. (2002) searched the effect of externalities on industrial growth for 26 manufacturing industries through the years of 1978-1992 in Spain. In the end, they found some evidence on the existence of specialization (MAR) whereas they could not find any evidence related to diversity (Jacobs) and competition (Porter). Filiztekin (2002) searched the data of manufacturing industry and dynamic and static agglomeration within the years 1980-1995 in Turkey. He found out the short-term effect of localisation economies on employment growth was negative in manufacturing industry. He revealed positive effect of urbanisation economies was applicable for only high-tech industries. He found competition did not affect growth in heavy industries while it had a positive effect on growth within high-tech industries that considered innovation important and that had product range. Paci & Usai (2008) could not find a positive effect of MAR externalities on

employment increase in their study they did for manufacturing and service sectors in Italy. They determined both Jacobs and Porter externalities were positive and significant. Bishop & Gripaios (2010) found out MAR externality had a negative effect on growth and diversity had a positive effect on heterogonous industries and strong local competition in his study done on 23 industries in Great Britain. Dridi (2015) searched employment growth in 24 local areas and 8 industries between 2000-2009 in Tunusia. While he found out specialization (MAR) had positive effects on employment growth, he revealed diversity (Jacobs) did not have effect on it. He found local competition had positive and significant effects on employment growth. Döner (2016) searched agglomeration externalities in 43 sectors between 2001-2007 in Turkey. He ascertained MAR externalities affected employment increase negatively in 23 industries while Jacobs externalities were significant and positive in 4 industries. Porter externalities affected employment growth positively in 16 industries.

3. METHODOLOGY

3.1. Model and Variables

In this study, agglomeration externalities affecting sectoral growth between 2010-2016 in Turkey are searched. It is found out in the literature that main variables measuring the growth include employment increase, total factor productivity and labour productivity. However, it is seen that growth rate is often measured through employment growth due to the problems of collecting data (Glaeser et al.,1992; Henderson, 1995; Bishop & Gripaios, 2010; Döner, 2016). Regional and sectoral employment data used in the study is obtained from Republic of Turkey Social Security Institution considering all of the 81 cities. Starting year is determined as 2010 for all the explanatory variables used in the study. NACE Rev.1 was transferred to NACE Rev 2 in Turkey in 2009. The year 2016 was chosen because it is common in the variables used. The reason

to choose 2010 as the starting year is to provide unity in sectoral classification following this change. Economic model tested within this concept is indicated below:

$$Y_{ij} = \beta_1 MAR_{ij} + \beta_2 JACOB_{ij} + \beta_3 PORTER_{ij} + \beta_4 URBAN_j + \beta_5 EDU_j + \beta_6 EMP_j +$$
$$+ \beta_7 START_j \qquad\qquad (1)$$

Econometric study (1) is done separately for each sector according to equation (1). In the model repeated for each sector, cities whose employment levels are non-zero between the years 2010 and 2016 are included. Therefore, number of observation changes for each sector. Regression analysis is carried out taking naturel logarithms of variables in the model. Dependent variable Y_{ij} used in the model indicates the employment increase in a sector (i = 1,2, … ,99), in a city (j = 1,2, … ,81) between 2010 and 2016. In the equation EMP$_{ijt}$ shows the employment level in the year of *t*, in the industry of *i* taking place in the city of *j* while EMP$_{it}$ indicates the total employment in Turkey in the year of *t.*

$$Y_{ij} = \frac{EMP_{ij2016} / EMP_{ij2010}}{EMP_{i2016} / EMP_{i2010}} \qquad\qquad (2)$$

MAR$_{ij}$, specialization index to measure MAR externalities, is calculated according to equation (3) for each sector and city. This index is the most popular measurement, also known as location quotient coefficient to measure specialization in agglomeration economies literature following Glaeser et al. (1992). Specialization index measured through this way enables to compare the concentration of industry of *i* in the city of *j* with the concentration of the same industry in national level. Therefore, coefficient belonging to this variable indicates the effect whether the concentration of this industry in the city of *j* is higher or lower than its concentration in Turkey.

$$MAR_{ij} = \frac{EMP_{ij}/EMP_j}{EMP_i/EMP_{total}} \qquad (3)$$

As Beaudry & Schiffauerova (2009) state, the most frequently used method to measure Jacobs externalities is the version that is adapted by Herfindahl index to measure sectoral diversity in the regions. Similarly, it is aimed to measure the diversity that each industry of *i* in the city of *j* is exposed to using adverse Herfindahl index in this study. $EMP_{i'j}$ used to calculate the index expresses the employment level of each industry apart from the industry of *i* in the city of *j*; EMP_j shows the total employment in the city of *j* and EMP_{ij} indicates the employment level in the industry of *i* in the city of *j*. Therefore, for each *i* industry, diversity created by the sectors apart from this sector is attempted to be calculated. Moreover, diversity calculated for *ij* sector-city pair is proportioned again with the diversity that the aforesaid sector is confronted in the national level. Thus, this variable's coefficient will explain the effect of diversity in the sector of *i* in the city of *j* is either higher or lower than the level in Turkey.

$$JACOB_{ij} = \frac{1/\sum_{\substack{i'=1 \\ i' \neq i}}^{n} \left(\frac{EMP_{i'j}}{EMP_j - EMP_{ij}}\right)^2}{1/\sum_{\substack{i'=1 \\ i' \neq i}}^{n} \left(\frac{EMP_{i'}}{EMP_{total} - EMP_i}\right)^2} \qquad (4)$$

Porter externalities are measured by a competition index calculated as Glaeser et al. (1992) suggested. This competition index, $PORTER_{ij}$, is calculated as below for each city and industry. While $FIRM_{ij}$ gives the number of firm for each *ij* industry-city pair, EMP_{ij} indicates employment level for each industry-city. Competition index figured through this way is calculated grounding on firm number per worker.

$$PORTER_{ij} = \frac{FIRM_{ij}/EMP_{ij}}{FIRM_i/EMP_i} \qquad (5)$$

Urbanisation externalities that Glaeser et al. (1992) approached within the context of static externalities are included in the model as indicators of the fourth agglomeration externalities. Urbanisation externalities are calculated for each city in the form of population density as seen below. POP_j represents the population belonging to the city of *j* in 2010 while $AREA_j$ means the area (km^2) of the same city.

$$URBAN_j = \frac{POP_j}{AREA_j} \hspace{3cm} (6)$$

Regional control variables belonging to the city *j* are added into the model after four agglomeration externalities, three of which are dynamic and one of which is static, are inserted into it. These variables are compiled from the data related to employment and education levels of each city, which can affect the increase in employment directly. As Glaeser et al. (1992), De Vor & De Groot (2010), Caragliu et al. (2016) suggest, EMP_j added into the model so as not to ignore the effect of starting level of employment in the city indicates the total number of working people in that city. EDU_j variable showing the ratio of higher education graduates to the total population in the city *j* is added to measure the effect of human capital on employment increase in the region. Finally, number of recently opened firms is included in the study as $START_j$ by starting year data.

Industries analysed include four main groups such as Agriculture, Industry, Construction and Services. This sectoral classification used by Turkish Statistical Institute (TUIK) is shown below. Two-digit industry list figured in the divisions are presented in Attachment 6.

3.2. Research Method

Multiple regression analysis is used to examine the relationship between the dependent variable and more than one independent variables. Stepwise regression analysis, one of the multiple regression analysis types, is used to find the stepwise predictive power of the independent variables for dependent variables. Stepwise regression can be written as the following:

$$R^2_{0.123\ldots p} = r^2_{01} + r^2_{0(2.1)} + r^2_{p(3.12)} + \ldots\ldots$$

Only the predictor variable is included in the model in the first step of regression. Then, all the half-partial regressions in the form of $r_{0(i.1)}$, i=2…p are calculated. Next the other variables go into the regression step by step. Significance level of the contribution of added variables is tested. In the study, it was examined whether the data was applicable to this analysis before starting the regression analysis, it was checked in terms of multilinear regression conditions and the analysis was carried out taking the natural logarithms (LN) of the values observed related to dependent and independent variables.

Multiple and stepwise linear regression analysis was applied to this new data set obtained. Analysis was done through SPSS 23 programme. Outlier data was observed in the analyses; thus, the value 2,5 was used for outliers instead of 3 (standard division).

3.3. Findings

Regression analysis results that are applied to all two-digit sub-industries within four main industries are seen in the tables attached (Attachment 2-5). Industries whose data could not be found or whose data found to be insignificant in regression analysis were excluded from the study. The value of N

indicates the number of cities analysed. R^2 represents the extent of variability explained by the predictor and F shows the significance of regression equation. With the help of this information, regression equation belonging to (01) sector can be written as in the following:

Y =-2,902 + 0,507PORTER + 0,208EMP

PORTER predictor is the common predictor estimating the growth in two (01 and 03) out of three sub-sectors in agricultural sector. In these sectors EMP and START are in the position of second predictor. In the sub-sector numbered as 02, MAR is the first predictor of growth regression and it goes into the equation with a negative sign while EDU is in the position of second predictor and it goes into the equation with a positive sign. It is seen that Porter externalities have a positive effect on employment increase for agricultural sector. Therefore, it can be said that competition creates positive effects on agricultural sector. Local competition rather than regional specialization encourages employment growth in agricultural sector. This indicator measures competitiveness in an industry by comparing firms per worker in the region to the national scale. The density of firms in a sector is more than the density of the country in general, the value of the indicator is more than one. This industry can be said to be locally competitive.

The fact that EMP variables in 01 and START variables in 03 have a positive value can be considered as an indicator of the importance attached to agricultural incentives in Turkey. Employment in agriculture (% of total employment) in Turkey was reported at 19.05 % in 2019, according to the World Bank collection of development indicators, compiled from officially recognized sources. According to the OECD (2018) Agricultural Policy Monitoring and Evaluation report, the share of the PSE (Producer Support

Estimate) in the GDP rates of some countries for 2017 are shown in the Figure 1. According to the Figure 1. rate in Turkey it appears to be higher than in many countries.
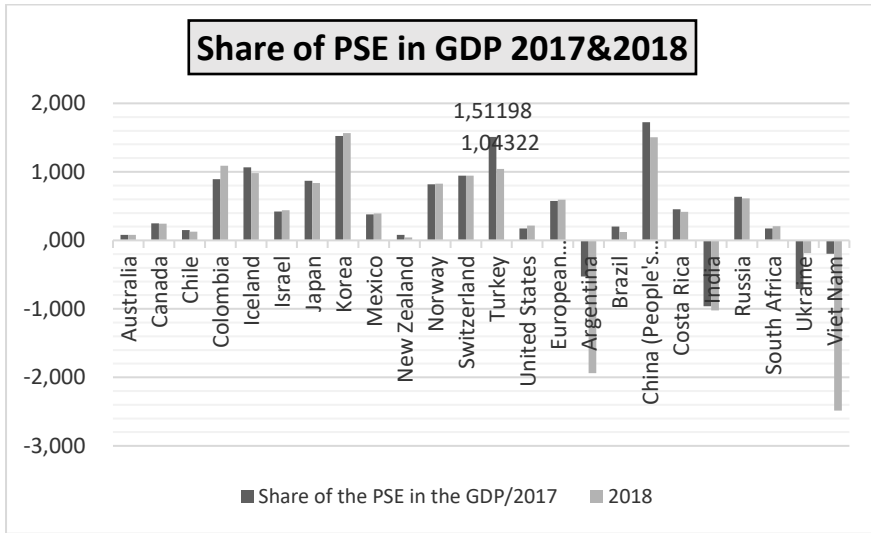
Figure 1: Share of PSE in GDP Rates of Some Countries

In all sectors in which MAR externalities, in other words specialization, are significant, the sign of the coefficients is negative in industry sector. This finding overlaps with the studies done by Glaeser et.al.,1992; Combes, 2000; Paci & Usai, 2008; Bishop & Gripaios (2010). The fact that MAR externalities have a negative sign indicates the sectors in this field are above the country average. This is an exact opposite result of the one Marshall asserted. It seems possible to maintain employment increase in the sector through policies encouraging specialization.

Industry sector is transforming into a more capital-intensive structure and the rates of technology use increases whereas employment decreases, which can reduce the rate below the average in Turkey. In industry sector, the effect of JACOBS externalities on employment is significant in only five sectors. The

diversity here is unrelated variety mentioned by Frankenet.al (2007). In the literature it is emphasized that this kind of diversity does not promote employment increase. In this study it overlaps with the literature that the coefficient of JACOBS externalities is negative. Only the coefficient in manufacture of coke and refined petroleum products numbered as (19) is found to be significant and positive. The positive sign here can be associated with the advantages that the firms in the sector provide for different sectors around them. PORTER externalities can be evaluated as the effects of competition on employment increase in industry sector. The fact that positive and significant values are obtained in the majority of the sectors is an indicator of the positive effect of competition on employment increase. As from 2000s, Turkey has built its development strategy on industrialization and it has started to attach importance to industrial investments, which has accelerated the growth in the sector. Within this context, increasing and restructuring of public support given to industry and R&D firms has increased the number of start-ups and it has contributed to the employment significantly through this way. It is seen that urban externalities characterized as static externalities are seen to be found significant in only five sectors. This externality is found to have a positive sign in only three sectors among them. When sectors with negative signs are examined, these sectors are seen to be (07) Mining of metal ores and (35) Electricity, gas, steam and air conditioning supply. These sectors operate in the places distant from intensive population zones by its nature, which explains why its sign is negative.

The fact that MAR externalities have a negative coefficient in construction industry indicates specialization of a city in this sector is above the average in Turkey. This situation affects the growth of the sector negatively. Education (EDU) included in control variables, the most remarkable variable in construction sector, is positive and significant in all sub-sectors. It can be

claimed higher education train qualified labour force addressing the needs of the market in accordance with the real sector's need in construction sector. Growth rate of the sector increases in parallel with increasing population density in the cities.

In this study, MAR externalities are found to be negative and significant in 36 service sectors out of the 48 ones included in the study. When the size of coefficient is checked, it is striking that coefficients in service sector are higher than the ones in industry sector. The same finding overlaps with Döner (2016)'s study searching the externalities between 2001-2007 in Turkey, which means over representing of similar economic activities do not produce important localisation economies. Diversity (JACOBS) is seen to have negative and significant effects on employment increase in six sectors. These results are such as to promote the dominant view in the literature. Competition externalities (PORTER) have significant and positive effect in 14 sectors. Small-scaled firms in the sector can be said to promote employment increase.

4. CONCLUSION

Dynamic externalities derived from agglomeration economies are one of the issues frequently discussed in the literature related to regional development and growth. On contrary to the substantial literature around the world, number of studies on the effect of agglomeration externalities on regional growth is quite limited. Within this context, this study becomes important for Turkey. Moreover, it lays the groundwork for further studies. These kinds of studies have a directive qualification for decision makers on policy and economy during their policy making and resolution processes.

The results in the studies examining the effects of agglomeration economies on economic growth differ in terms of country, date, and sector choice. Another

factor leading to different results is the differences in the indicators representing externalities and the differences in the ways to calculate them. In this study, effects of dynamic externalities on employment increase are calculated by regression analysis for each sector separately. Upon evaluating the general results of the study, effect of MAR externalities is found to be negative as they are in the studies done through the data of other countries. That is, MAR externalities do not lead to an effect on employment increase in all sectors. MAR externalities are refused in this study like the majority of other studies do. The negative effect of specialization indicates that it is not a meaningful policy choice in short term to encourage local specialization to create employment. The fact that regional data is not published lastingly and constantly makes it difficult to carry out studies to analyse the long-term results.

In this study, it is concluded that unrelated variety has no effect on employment as Frenken (2007) and Content & Frenken (2016) stated. No findings supporting the view that unrelated variety is more resistant against sectoral shocks existing in the region can be found in the literature. It will not be appropriate to deduce about the effects of JACOBS externality on employment growth.

Coefficients in all sectors except from two sectors are seen to be positive in PORTER externalities. This result overlaps with the results of the researchers such as Glaeser et.al 1992, Dekle 2002, Bishoop and Gripaios 2010, de Vorand De Groot, Döner 2016. Positive effects of SMEs' shares on employment increase indicate that it can be a suitable policy choice to promote local competition. When compared to the policies promoting clusters, it can be said that it is a more easily applicable policy on employment growth to increase competition by promoting SMEs.

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APPENDIX 1

SECTOR	SECTION	TITLE	DIVISION
AGRICULTURE	A	Agriculture, Forestry and Fishing	01 – 03
INDUSTRY	B	Mining and Quarrying	05 – 09
	C	Manufacturing	10 – 33
	D	Electricity, Gas, Steam and Air Conditioning Supply	35
	E	Water Supply; Sewerage, Waste Man. and Remediation Activities	36 – 39
CONSTRUCTION	F	Construction	41 – 43
SERVİCES	G	Wholesale and Retail Trade; Repair Of Motor Vehicles and Motorcycles	45 – 47
	H	Transportation and Storage	49 – 53
	İ	Accommodation and Food Service Activities	55 – 56
	J	Information and Communication	58 – 63
	K	Financial and Insurance Activities	64 – 66
	L	Real Estate Activities	68
	M	Professional, Scientific and Technical Activities	69 – 75
	N	Administrative and Support Service Activities	77 – 82
	O	Public Administration and Defence; Compulsory Social Security	84
	P	Education	85
	Q	Human Health and Social Work Activities	86 – 88
	R	Arts, Entertainment and Recreation	90 – 93
	S	Other Service Activities	94 – 96
	T	Activities of Households as Employers; Undifferentiated Goods- and Services-Producing Activities of Households For Own Use	97 – 98
	U	Activities of Extraterritorial Organisations and Bodies	99

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APPENDIX 2

SECTOR	CONS	MAR	JACOB	PORTER	URBAN	EDU	EMP	START
01	-2,902			0,507			0,208	

	N=81 R²= 0,248 F=12,884*							
02	-0,224	-0,314				0,873		
	N=80 R²=0,249 F=12,790*							
03	-1,827			0,665				0,227
	N=61 R²= ,304 F=12,655*							

***, **, * indicates the 10%, 5% and 1% signifacance levels respectively.

APPENDIX 3

SECTOR	CONS	MAR	JACOB	PORTER	URBAN	EDU	EMP	START
05	3,084	-0,176				1,125		
	N=45 R²=0,287 F=8,453**							
07	-2,255	-0,075	-0,507	0,068	-0,458	-0,08	0,16	0,257
	N=58 R²=0,084 F=0,652***							
09	-12,898	-0,695					0,887	
	N=47 R²=0,443 F=17,467*							
10	-1,037	-0,106		-0,082				0,141
	N=81 R²=0,281 F=10,034*							
11	-0,148			0,536				
	N=62 R²=0,287 F=24,141*							
13	-0,23			0,19				
	N=77 R²=0,065 F=5,195**							
14	-3,425					-1,217		
	N=79 R²=0,297 F=32,600*							
15	-0,051			0,358				
	N=58 R²=0,082 F=4,996**							
17	-6,839	-1,334	-1,223				0,839	
	N=57 R²=0,888 F=139,855*							
18	-0,16	-0,111	-0,654	0,218				
	N=81 R²=0,229 F=7,629*							
19	1,754	-0,092	0,61	0,263	0,964	1,314	-0,905	0,045
	N=44 R²=0,41 F=3,575**							
20	0,06		-1,002	0,37				
	N=72 R²=0,186 F=7,871**							

SECTOR	CONS	MAR	JACOB	PORTER	URBAN	EDU	EMP	START
21	-0,574			0,601				
21	N=19 R²=0,583 F=23,795*							
22	-0,049			0,645				
22	N=81 R²=0,287 F=31,765*							
23	0,681			0,12	0,23			
23	N=81 R²=0,208 F=10,220*							
24	-1,944	-0,158			0,365			
24	N=77 R²=0,163 F=7,197**							
25	-0,049			0,645				
25	N=81 R²=0,287 F=31,765*							
31	-1,203	-0,161		0,28				0,15
31	N=80 R²=0,449 F=20,618*							
32	-0,039			0,736				
32	N=73 R²=0,229 F=21,096*							
33	-7,932	-0,296					0,555	
33	N=81 R²=0,286 F=15,624*							
35	-4,89	-0,432		-0,242	-0,162	0,39		
35	N=81 R²=0,443 F=15,129*							
36	-9,322	-0,526			0,428	0,498		
36	N=73 R²=0,381 F=14,153*							
39	-0,495	-0,542						
39	N=46 R²=0,408 F=30,281*							

***, **, * indicates the 10%, 5% and 1% signifacance levels respectively.

APPENDIX 4

SECTOR	CONS	MAR	JACOB	PORTER	URBAN	EDU	EMP	START
41	-0,181	-0,113			0,209	0,316		
41	N=81 R²=0,268 F=9,380*							
42	-1,617	-0,322			0,209	0,316		0,203
42	N=81 R²=0,191 F= 9,202*							
43	-4,553	-0,249	-0,37			0,765	0,474	
43	N=81 R²=0,431 F=14,387*							

APPENDIX 5

SECTOR	CONS	MAR	JACOB	PORTER	URBAN	EDU	EMP	START
46	-2,727	-0,331						0,361
	N=81	**R²=0,444**	**F=31,187***					
49	-4,881	-0,213				-0,427	0,259	
	N=81	**R²=0,587**	**F=36,416***					
50	-0,694			0,62				
	N=29	**R²= 0,299**	**F=11,512****					
51	-5,396							0,594
	N=21	**R²= 0,342**	**F=9,880****					
52	-5,203	-0,259			0,152		0,305	
	N=81	**R²=0,266**	**F=9,294***					
53	-6,455	-0,773						0,826
	N=79	**R²=0,662**	**F=74,467***					
55	N=-0,804	-0,295				0,568	0,167	
	N=81	**R2=0,428**	**F=19,195***					
56	0,076		-0,178	0,272				
	N=81	**R²=0,278**	**F=15,020***					
58	-5,621	-0,657						0,704
	N=71	**R²=0,645**	**F=61,697***					
59	-0,171			0,455				
	N=63	**R²=0,229**	**F=18,103***					
60	-9,152			0,648			0,583	
	N=59	**R²=0,26**	**F=9,858***					
61	-16,855	-0,647					1,146	
	N=72	**R²=0,522**	**F=37,686***					
62	-0,865	-0,752	-0,958					0,755
	N=79	**R²=0,571**	**F=33,305***					
63	-9,173	-0,668					0,622	
	N=77	**R²=0,527**	**F=41,151***					
64	-9,173	-0,668						
	N=80	**R2=0,547**	**F=30,613***					

65	-3,228	-0,333						0,418
	N=77	R²=0,373	F=22,045*					
66	-5,167	-0,554			0,287			0,482
	N=79	R²=0,594	F=36,561*					
68	-8,071	-0,941						1,04
	N=64	R²=0,761	F=96,886*					
69	-0,046			0,457				
	N=81	R²=0,117	F=10,515**					
70	-5,113	-0,242	-0,176	0,188	-0,062	0,081	0,312	0,123
	N=81	R²= 0,335	F=5,263*					
72	7,493	-0,753	-2,36			2,906		
	N=31	R²=0,668	F=18,126*					
73	-0,173		-1,064	0,602				
	N=70	R²=0,375	F=20,138*					
74	-10,619	-0,731	-0,547	0,269			0,503	0,421
	N=79	R²=0,614	F=23,271*					
75	-4,78	-0,402		0,794		-0,536		0,423
	N=76	R²=0,852	F=102,559*					
77	-5,887			1,512	0,878			
	N=30	R²=0,583	F=18,913*					
79	-4,511	-0,53						0,561
	N=76	R²=0,456	F=30,656*					
80	-0,671					-0,263		
	N=81	R2=0,13	F=11,816**					
81	-11,385	-0,846					0,794	
	N=81	R²=0,861	F=242,542*					
82	-10,101	-0,628				0,361	0,777	
	N=81	R2=0,54	F=30,149*					
84	-15,2	-0,98					1,056	
	N=66	R²=0,725	F=83,102*					
85	-0,952				0,163			

N=81	**R²=0,234**	**F=24,123***						
86	-14,828	-0,618		0,466			1,009	
N=79	**R²=0,507**	**F=25,675***						
87	-3,465	-0,541						0,453
N=78	**R²=0,424**	**F=27,644***						
88	-10,645	-0,718					0,745	
N=80	**R²=0,725**	**F=101,744***						
90	-0,297			0,442				
N=51	**R²=0,14**	**F=7,987***						
92	-7,666	-0,382		0,433			0,532	
N=77	**R²=0,673**	**F=50,174***						
93	-14,828	-0,618	0,466				1,009	
N=79	**R²=0,507**	**F=25,675***						
94	-0,9	-0,095				-0,284		
N=81	**R²=0,199**	**F=9,672***						
95	-5,954	-0,457				0,252	0,466	
N=81	**R²=0,632**	**F=43,989***						
96	-6,293	-0,721						0,801
N=81	**R²=0,619**	**F=63,407***						
97	-0,051			1,021				
N=38	**R²=0,149**	**F=6,289****						
98	1,548	-0,407	-2,157	0,674	0,233	-0,16	-0,485	0,691
N=25	**R²=0,710**	**F=5,939***						

APPENDIX 6

01	Crop and animal production, hunting and related service activities
02	Forestry and logging
03	Fishing and aquaculture
05	Mining of coal and lignite
06	Extraction of crude petroleum and natural gas
07	Mining of metal ores

08	Other mining and quarrying
09	Mining support service activities
10	Manufacture of food products
11	Manufacture of beverages
12	Manufacture of tobacco products
13	Manufacture of textiles
14	Manufacture of wearing apparel
15	Manufacture of leather and related products
16	Manufacture of wood and cork, except furniture; manufactureof articles of straw and plaiting materials
17	Manufacture of paper and paper products
18	Printing and reproduction of recorded media
19	Manufacture of coke and refined petroleum products
20	Manufacture of chemicals and chemical products
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
22	Manufacture of rubber and plastic products
23	Manufacture of other non-metallic mineral products
24	Manufacture of basic metals
25	Manufacture of fabricated metal products, except machinery and equipment
26	Manufacture of computer, electronic and optical products
27	Manufacture of electrical equipment
28	Manufacture of machineryand equipment n.e.c.
29	Manufacture of motor vehicles, trailers and semi-trailers
30	Manufacture of other transport equipment
31	Manufacture of furniture
32	Other manufacturing
33	Repair and installation of machinery and equipment
35	Electricity, gas, steam and air conditioning supply
36	Water collection, treatment and supply
37	Sewerage
38	Waste collection, treatment and disposal activities; materials recovery
39	Remediation activities and other waste management services

41	Construction of buildings
42	Civil engineering
43	Specialised construction activities
45	Wholesale and retail trade and repair of motor vehicles and motorcycles
46	Wholesale trade, except of motor vehicles and motorcycles
47	Retail trade, except of motor vehicles and motorcycles
49	Land transport and transport via pipelines
50	Water transport
51	Air transport
52	Warehousing and support activities for transportation
53	Postal and courier activities
55	Accommodation
56	Food and beverage service activities
58	Publishing activities
59	Motion picture, video and television prog. production, sound recordingand music publishing activities
60	Programming and broadcasting activities
61	Telecommunications
62	Computer programming, consultancy and related activities
63	Information service activities
64	Financial service activities, except insurance and pension funding
65	Insurance, reinsurance and pension funding, except compulsorysocial security
66	Activities auxiliary to financial services and insurance activities
68	Real estate activities
69	Legal and accounting activities
70	Activities of head offices; management consultancy activities
71	Architectural and engineering activities; technical testing and analysis
72	Scientific research and development
73	Advertising and market research
74	Other professional, scientific and technical activities
75	Veterinary activities
77	Rental and leasing activities

78	Employment activities
79	Travel agency, tour operator reservation service and related activities
80	Security and investigation activities
81	Services to buildings and landscape activities
82	Office administrative, office support and other business support activities
84	Public administration and defence; compulsory social security
85	Education
86	Human health activities
87	Residential care activities
88	Social work activities without accommodation
90	Creative, arts and entertainment activities
91	Libraries, archives, museums and other cultural activities
92	Gambling and betting activities
93	Sports activities and amusement and recreation activities
94	Activities of membership organisations
95	Repair of computers and personal and household goods
96	Other personal service activities
97	Activities of households as employers of domestic personnel
98	Undifferentiated goods-and services-producing activities of private householdsfor own use
99	Activities of extraterritorial organisations and bodies

GENİŞLETİLMİŞ ÖZET

Giriş

II. Dünya Savaşı sonrasında mekânlar arasında önemli ekonomik farklılıkların ortaya çıkması, İktisatçıları ve politika yapıcıları yakından ilgilendirmeye başlamıştır. Ekonomik faaliyetlerin belirli alanlarda toplanması ve hatta yığılımlar **(aglomerasyon)** göstermesi geleneksel yaklaşımda dikkate alınmazken bu yeni bakış açısıyla birlikte analizlere konu olmaya başlamıştır. Yığılma ekonomileri olarak da adlandırılan bu yeni yaklaşım, içsel **(intra)** bağlantılı bir ekonomide mal ve hizmet üretimlerinin mekânsal yakınlığından sağlanan yararlar olarak tanımlanabilir. Bu kavram ilk kez Marshall tarafından 1891'de ortaya konmasına karşın 1990'lı yıllara dek bölgesel çalışmalar içinde yer alan gelişme stratejilerinin konusu olamamıştır. Günümüzde yığılma ekonomileri dünya ekonomisindeki en başarılı bölgeler olan mega kentler ve büyük kent/bölgelerin büyümesinin arkasındaki itici güç olarak görülmektedir.Yeni Ekonomik Coğrafya akımına göre dışsallıklar, statik (durağan) ve dinamik dışsallıklar olarak ele alınmaktadır. Statik dışsallıkları yerelleşme ve kentleşme ekonomileri olarak sınıflamıştır. Kentleşme ekonomilerinde bahsi geçen dışsallık, farklı endüstrilerdeki firmaların kümelenmesi sonucu üretim maliyetlerinin düşmesine odaklanır. Yerelleşme ekonomilerinde ise aynı sektörde faaliyet gösteren firmaların yığılması sonucu üretim artışına odaklanılmaktadır. Dinamik dışsallıklar ise Glaeser et al. (1992) tarafından Marshall (1891) – Arrow (1962) – Romer (1986,1990) (MAR), Porter (1990) ve Jacobs (1969) olarak sınıflandırılmıştır. Dinamik dışsallıklar, uzun dönemde yerel bilgi birikimlerinin oluşması ve ekonomik aktörler arasındaki iletişimin kuvvetlenmesiyle ortaya çıkmaktadır. İletişimin güçlenmesiyle bilgi yayılımı da hız kazanmaktadır. Literatürde dinamik dışsallıkların ekonomik büyüme üzerinde etkili olduğuna dair bir uzlaşma olmasına karşın; bilgi yayılımının aynı sektörde faaliyet gösteren firmalardan mı yoksa farklı sektörde faaliyette bulunan firmalardan mı kaynaklandığı konusunda bir uzlaşma yoktur. Bu noktada dışsallığın ortaya çıkmasındaki en önemli faktörün coğrafi yakınlık olduğu unutulmamalıdır. Dünya genelindeki bu zengin literatüre karşın Türkiye'de yığılma dışsallıklarının bölgesel büyümeye etkisi konusundaki çalışma sayısı son derece sınırlıdır. Bu açıdan değerlendirildiğinde bu çalışma Türkiye için önem arz etmektedir. Aynı zamanda bundan sonra yapılacak çalışmalara da bir zemin hazırlamaktadır. Bu tür çalışmalar aynı zamanda politika ve ekonomik karar alıcılara da politika üretme ve karar alma süreçlerine yol gösterici bir nitelik taşımaktadır. Çalışmada, yığılma dışsallıklarının Türkiye'de NUTS 3 düzeyinde bölgesel büyümeyi etkileyip etkilemediği araştırmaktadır. 2010-20107 verilerinin kullanıldığı çalışmada, büyüme sektörel istihdam artışı kullanarak değerlendirilmiştir. Analiz sonucunda, MAR (Marshall-Arrow-Romer) dışsallığının etkisinin, büyüme üzerinde negative etkili olduğu ve sonucun

literatürle uyumlu olduğu görülmüştür. İlişkili olmayan çeşitliliğin (JACOBS) istihdam artışı üzerinde bir etkisi olmadığı sonucuna varılmıştır. PORTER dışsallıklarında sektörlerin çoğundaki katsayıların pozitif olduğu görülmektedir.

Metot

Test edilen ekonomik model denklemi aşağıdaki gösterilmiştir:

$$Y_{ij} = \beta_1 MAR_{ij} + \beta_2 JACOB_{ij} + \beta_3 PORTER_{ij} + \beta_4 URBAN_j + \beta_5 EDU_j + \beta_6 EMP_j + \beta_7 START_j$$

Ekonometrik çalışma (1) nolu denkleme göre her sektör için ayrı ayrı koşulmuştur. Her sektör için tekrarlanan modelde 2010 ve 2016 yıllarında istihdam seviyesi 0'dan farklı iller dâhil edilmiştir. Bu sebeple her sektör için gözlem sayısı değişmektedir. Regresyon analizi modeldeki değişkenlerin doğal logaritmaları alınarak gerçekleştirilmiştir. Bağımlı değişken ile birden fazla bağımsız değişken arasındaki ilişkinin incelenmesi için çoklu regresyon analizi kullanılmaktadır. Çoklu regresyon analizi türlerinden biri olan stepwise regresyon analizi ise bağımsız değişkenlerin bağımlı değişkeni adımsal olarak yordama gücünü bulmak amacıyla kullanılmaktadır. Regresyonun ilk adımında sadece birinci tahmin değişkeni modelde yer alır. Daha sonra ise bütün yarı kısmi regresyonlar hesaplanır, diğer değişkenler adım adım regresyona girer. Eklenen değişkenlerin modele yaptığı katkının manidarlık düzeyi test edilir. Çalışmada regresyon analizine başlamadan önce verilerin bu analize uygun olup olmadığına bakılmış, çoklu lineer regresyon şartları yönünden kontrol edilmiş, bağımlı ve bağımsız değişkenlere ait gözlenen değerlerin doğal logaritmaları (LN) alınarak analiz yapılmıştır. Elde edilen bu yeni veri kümesine çoklu (multiple) adımsal (stepwise) lineer regresyon analizi uygulanmıştır, analiz SPSS 23 programıyla gerçekleştirilmiştir.

Bulgular

Tarım sektörüne ait üç alt sektörden ikisinde (01 ve 03), PORTER kestirici, büyümeyi yordayan ortak kestirici olmaktadır. Bu sektörlerde EMP ve START (sırasıyla 01 ve 03 numaralı alt sektörlerde) ikinci kestirici durumundadır. 02 numaralı alt sektörde, MAR büyümeyi yordamada ilk yordayıcı olup denkleme negatif, EDU ikinci yordayıcı durumunda olup denkleme pozitif işaretle girmektedir. Tarım sektörü için Porter dışsallığının istihdam artışı üzerinde pozitif bir etkiye sahip olduğu görülmektedir. Bu durumda rekabetin tarım sektörü üzerinde olumlu etkiler yarattığı söylenebilir.

Sanayi sektöründe, MAR ya da bir diğer ifadeyle uzmanlaşma dışsallıklarının anlamlı olduğu tüm sektörlerde katsayıların işareti negatiftir. Sanayi sektöründe JACOBS dışsallıklarının istihdama etkisi sadece 5 sektörde anlamlı düzeydedir. PORTER dışsallıkları sanayi sektöründe rekabetin istihdam artışına etkileri olarak değerlendirilebilir. Sektörlerin büyük çoğunluğunda pozitif ve anlamlı değerlere ulaşılması rekabetin istihdam artışı üzerindeki olumlu etkisinin bir göstergesidir.

İnşaat sektöründe de MAR dışsallıklarının negatif katsayıya sahip olması, bir şehrin bu sektördeki uzmanlaşmasının Türkiye ortalamasının üzerinde olduğunu göstermektedir. İnşaat sektöründe en dikkat çekici değişken kontrol değişkenleri içinde yer alan eğitimin (EDU) istihdam artışında tüm alt sektörlerde pozitif ve anlamlı olmasıdır.

Bu çalışmada MAR dışsallıkları çalışmaya dâhil edilen 48 hizmet sektöründen 36 tanesinde negatif ve anlamlı bulunmuştur. Çeşitliliğin (JACOBS) istihdam artışına 6 sektörde negatif ve anlamlı etkileri olduğu görülmektedir. Rekabet dışsallıkları (PORTER) 14 sektörde anlamlı ve pozitif etkiye sahiptir.

Sonuç ve Değerlendirme

Çalışmanın genel olarak sonuçları değerlendirildiğinde MAR dışsallıklarının etkisi farklı ülkelerin verileriyle yapılmış çalışmalardaki gibi negatif çıkmıştır. Yani MAR dışsallıkları tüm sektörlerde istihdam artışı üzerinde etki yaratmamaktadır. Bu çalışmada MAR dışsallıkları literatürün büyük çoğunluğu gibi reddedilmektedir. Uzmanlaşmanın negatif etkisi, yerel uzmanlaşmayı teşvik etmenin, istihdam yaratma açısından kısa vadede anlamlı bir politika seçeneği olmadığını göstermektedir. Bölgesel verilerin uzun soluklu ve sürekli yayınlanmaması uzun dönemli sonuçları analiz edecek çalışmaların yapılmasını zorlaştırmaktadır. JACOB dışsallıkları açısından da bu çalışmada ilişkisiz çeşitliliğin istihdam üzerinde etkili olmadığı sonucuna ulaşılmıştır. Literatürdeki ilişkisiz çeşitliliğin bölgede yaşanan sektörel şoklara karşın daha dirençli olduğu görüşünü destekler bir bulgu elde edilememiştir. Bu çalışmada jacobs dışsallığının istihdam büyümesi üzerindeki etkileri konusunda bir çıkarım yapmak doğru olmayacaktır. PORTER dışsallıklarında 2 sektör hariç tüm sektörlerde katsayıların pozitif olduğu görülmektedir. KOBİ'lerin paylarının istihdam artışı üzerindeki olumlu etkisi, yerel rekabeti teşvik etmek için uygun bir politika seçeneği olabileceğini göstermektedir. Kümelenmeyi teşvik eden politikalarla kıyaslandığında, KOBİ'lerin desteklemesi yoluyla rekabetin arttırılmasının istihdam büyümesi üzerinde daha kolay uygulanabilir bir politika olduğu söylenebilir.