

The Effect of Cluster Policy on Industrial Policy: The Turkish Experience

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Abstract

The purpose of this paper is to examine the effects of cluster policy on industrial policy in Turkey. All countries have specific economic conditions, level of development and policies. There are several factors which determines the improvement and development level of countries such as; economic, political, cultural and demographical conditions. However, the level of development of a country can be increased by an industrial policy and it can change the destiny of a country. Each economy has different sectorial dynamics and it can be trigger by cluster policies. In this study, the effect of cluster policy on industrial policy is examined with the Turkish experience.

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1. Introduction

Industrial Policies are the main drivers for economic development of the countries. A country could have a chance to possess a strong position in competitive world market since it has a developed industry and high level of manufacturing ability. Otherwise, countries will sentence to exploit by the stronger ones as throughout history of human being. Cluster policy is one of the strong tools for development of industrial policy. Cluster Policy has significant positive effects to the industrial policies of the governments. Industrial Policy could be seen as the control room of giant robot of government for serving to the industry. However as all machine it needs a power button to turn on the robot. Cluster policy is the dynamo of that robot which triggers all the parts of it. Therefore, the industrial policy could not move without that dynamo which is Cluster Policy. The cluster policy is increasing the efficiency of the industrial policies of countries.

In this study, the effect of cluster policy to the industrial policy in Turkey is analyzed with the examples of clusters. In first and second part, definition of industrial policy and the industrial policy of Turkey is examined over historical context. The relations between industrial policy and cluster

policy are reviewed in the third part. In the following parts, clustering policies in Turkey and the effects of the cluster policies to industrial policy are observed with the help of examples from Turkish Clusters in order to show how cluster policies increasing the efficiency of industrial policies of a country.

2. What is Industrial Policy?

There are several definitions of Industrial policy in literature. Foreman-Peck and Federico (1999) define industrial policy by European perspective as “every form of state intervention that affects industry as a distinct part of the economy” (Foreman-Peck and Federico, 1999, p3). As Yülek (2018) defines general industrial(ization) policy as “Industrial policy primarily aims at changing the production structure of the economy in favour of the manufacturing industry by channeling the government’s selected budgetary and non-budgetary resources and by channeling labour towards the manufacturing sector.” Industrial Policy is like a wand which increased the level of welfare and power of competitiveness of countries especially in east Asia. The countries which use

the industrial policies are developed economically with a high speed curve.

Every state make annually development plans in order to increase the welfare level of its citizens and country. One of the main elements of industrial policy is innovation. Innovation is a very popular term aims to find new product or service solutions with low cost and high quality which causes a feeling of new experiences in the society. But the real question is who can do the innovation? Innovation can only be done by entrepreneurs and firms. According to the economist Ronald Coase (1937) in "Nature of Firm", a firm is an organization as "entrepreneur coordinator" while individuals are only organisms. He means entrepreneurs as the coordinators of the firms which are capable of doing processes, duty, job and profession more influential than the price mechanisms do. In addition to this, famous economist William Lazonick emphasized that, innovation can be done by entrepreneurs and firms with strategizing, financing, and organizing. Nevertheless, it does not mean that every firm is innovative.

Firms are the main drivers of the economies for countries. Firm is an organization which gathers several abilities under same roof targeting with producing a service or product together. For instance, a boss could not have all abilities to produce and market construction machinery by himself. However, it will be possible to produce and marketing the machinery with human resources that have knowledge on engineering, marketing and financing. The greatest improvement in the productive powers of labor, and the greater part of the skill, dexterity, and judgment with which it is anywhere directed, or applied, seem to have been the effects of the division of labor (Smith, 1776 "The Wealth of Nations). Therefore, the productivity is going to be increase as a firm with the division of labor and by learning of a team. As Coase claims, productivity and profitability can be increase with planning and coordination. Individuals may do one unit of work, while a firm can do 10 units of works possible with a team because firms have competences different from individuals. Therefore, countries need firms because firms are the main players of the economic games of countries. Besides there is competition in the market and competitive markets feeding with innovative firms.

Firms are the social organizations which can execute several of processes at the same time. As William Lazonick emphasized that; strategizing, financing and organizing are there important steps for firms. Firstly, firms are improving strategies for the product and the technology that they are planning to compete with its competitors. Secondly, firms are financiers for the new technology investments in order to improve its product or service aiming with a profit in future. Lastly, firms have organization of all departments in order to transform a product as marketable. However, there steps are not enough to became an innovative firm.

In the late eighteenth century, Britain started to have a stronger position in world economy with mercantilism. At these years, Britain reach the raw materials and with value-added production system with mercantilist approach so they became the industrial leader in the world. They took the cotton as raw material and they produce textile with an innovative idea and export to other countries. In addition to this, this innovative production idea also improved a skilled labor force to Britain as with strategic view. Besides, they organize an on job apprenticeship learning programs which can give the opportunity of transferring the learning to next generation with adding up to new learning. Before the World War II, the mass production system of Britain is started to decline and Italy started to rise with its small firms and craftsman entrepreneurs on textile sector. The Italian government supported to the small firms and it cause the emerge of entrepreneurs and innovative firms as financial incentives. They started to improve "flexible specialization" which empowered the country economy with entering various sectors. Afterwards, USA started to rise with the managerial corporation as strategic control. Then Japan started to rise in the 20th century, with the financial commitment between innovative firms and financial institutions also showing as an organizational integration. Organizational integration can be defined as the extent to which distinct and interdependent organizational components rapidly and adequately respond and/or adapt to each other while pursuing common organizational goals (Barki and Pinsonneault, 2005, Lawrence and Lorsch, 1967).

Learning in the process and putting all this cumulative know-how as adding up is very important part of innovation. Though, it is an uncertain learning and process for a firm to create a new product or solution for a society. The innovation process is uncertain because, by definition, what needs to be learned about transforming technologies and accessing markets can only become known through the process itself. (Lazonick, 2003) This uncertainty come from the nature of the innovation because nobody knows what the new technology and product will bring to society and weather being acceptable in the market and bring profit or not. The process brings its learning and improvement with uncertain results. Learning is a social activity that renders the innovation process uncertain, cumulative, and collective (O'Sullivan 2000b) By this definition, the innovation processes not only an uncertain process but also a cumulative and collective process. Innovative firm need a cumulative learning at the same time with its human resources with different abilities. Cumulative learning could not be done alone at once and learning of today will be a step and bridge provides opportunities for new learning of tomorrow. Learning is not a linear process in innovative firms. Learning of technology, production, organizational and marketing process needs to add up the know-how layers in order to create an innovative product.

Therefore, all countries have to shape a strong industrial policy in order to catch-up the other competitive countries in world market. Thus, these kinds of tools such as innovation and entrepreneurship, industrialization and labor force could be seen as important factors of shaping industrial policies of countries. However, there is also some other policy which effects the industrial policies of countries such as clustering policy.

3. Industrial Policies of Turkey in Historical Context

Turkey's industrial policies have shown periodic variations. Periodically, the differences in policies cannot be considered independently of the developments in the world. For instance, the effects of the Industrial Revolution in 18th century, emerged with the 1839 Tanzimat movements in the Ottoman Empire and various facilities such as shipyards and ironworks were established. In the 1930s, the first industrial breakthrough of the Republic took place. Likewise, after the World War II, the protectionist policies that showed themselves all over the world gained importance in Turkey as well. As a result of these conditions, the State Planning Organization (SPO) established with the 1961 Constitution in Turkey and development plans started to made and implemented by SPO.

With the First Five-Year Development Plan put into practice in 1963, industrial investments gained momentum by focusing on non-agricultural industry. In the following periods, development plans were created every 5 years in order to increase the incentives to be made to the industry and the organized industrial zones. (Doğan, 2013:217) With the Customs Union agreement that entered into force in 1996, Turkish companies gained a competitive structure and in 1999 Turkey became a candidate country for the European Union, increasing the harmonization of the industry with the EU. In this direction, the investment profile of the industrial sector has changed and the development strategy of the information age has gained importance. After the crisis in 2001, a less risk policy was preferred and it was aimed to present export-oriented goods especially to Europe. The importance given to R&D has gradually increased and a more competitive industry has been targeted. Moreover, the importance given to R&D has gradually increased and a more competitive industry has been targeted. Although the industrial sector, which stagnated with the 2008 Global Crisis, started to strengthen with the incentives, the growth rate shows fluctuations still today. Industrial policies are related to having a high innovation level and innovative firms are the main drivers of the economies of the countries. Furthermore, every country needs innovative firms and targeted to rise empower their economies with innovation according to the history. As I mentioned above, clusters should be seen as the incubators of entrepreneurs and innovation and I will analyze the clusters experiences in

Turkey which triggers innovations, learning, export and technology.

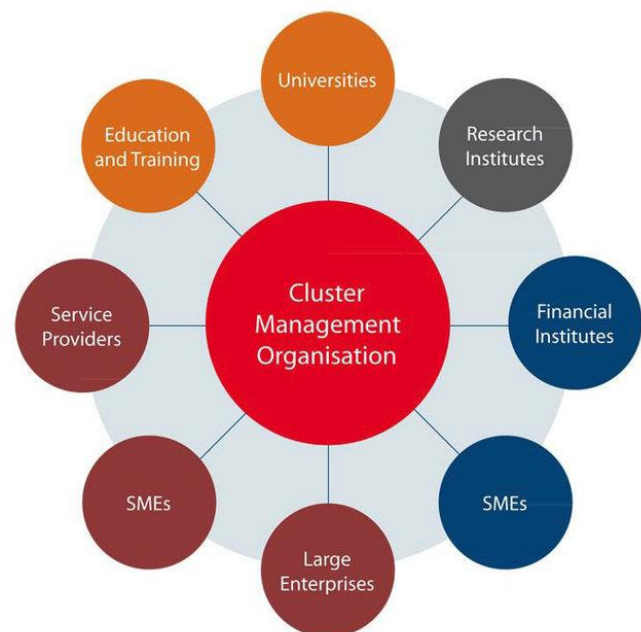
In conclusion, the main elements of increasing the welfare of the country is related to the level of innovation, level of industrialization, level of technology, level of employment, level of value adding manufacturing and level of export. The industrial policy aims to increase these factors in order to have a strong and resistant economy. These factors can be increase by the implement of cluster policies.

4. Clustering: A Tool for Development of Industrial Policy

The concept of cluster is defined in the simplest way as a group consisting of various economic units. (Henfer, 2009) According to a more comprehensive definition, clustering; It is expressed as the geographical concentration of companies, suppliers, service providers, companies in related industries, and institutions such as universities, standards institutes, trade associations that compete in a certain area and cooperate at the same time, interact with each other.

As seen in the definition above, clusters contain many economic units and institutions. Therefore, in order to fully understand the concept of clustering, the economic units and institutions within the cluster should be clearly stated.

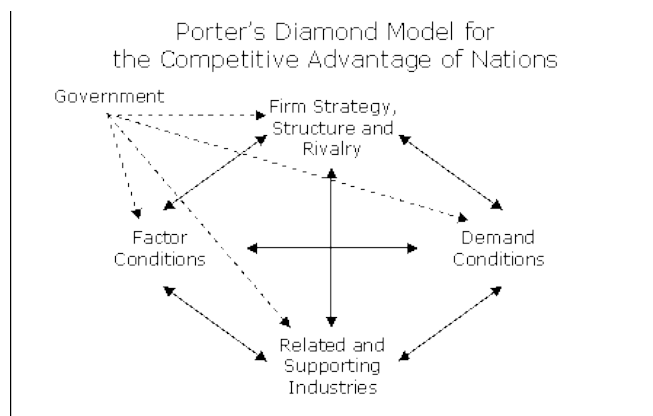
Figure 1. Cluster management organisation



Although the concept of clustering has recently come to the fore with M. E. Porter's book *The Competitive Advantage of Nations* published in 1990, it actually has a long history. As a matter of fact, one of the first studies that contributed to the emergence of the cluster concept was carried out by Von Thünen (*The Isolated State*) in 1826. In his study, Von Thünen

examined the factors that cause agricultural production to gather around a certain city center and stated that the main reason for this situation was transportation costs. It is the first time that industrial activities are gathered in certain regions; it was studied by A. Marshall (Principles of Economics) in 1890. In his study, A. Marshall stated that the companies gathered in certain regions benefit from a common infrastructure and facilitates the flow of information between these companies, leading to various externalities, giving companies the opportunity to expand their activities. With the expansion of the activities, the region's becoming more attractive in terms of capital and labor leads to the concentration of the said production factors in these regions, and as a result, the prices of the production factors decrease and/or their productivity increases. The decrease in the price of the factors of production and / or the increase in their productivity; it provides an economic benefit to the companies operating in the region in the form of a decrease in unit costs compared to the companies outside the region. In other words, according to A. Marshall, concentration of economic activities in certain regions positively affects economic growth and welfare by providing cost reduction and/or productivity increase. Almost a century after A. Marshall, M. E. Porter, in his study, examined the concept of clustering in detail and explained the factors affecting the economic performance of clusters within the framework of the "Diamond Model".

Figure 2. Porter's diamond model for the competitive advantage nations



Source: Porter's Competitive Diamond (Porter, 1990)

In recent years, clusters are thought as essential mechanisms for pioneering innovation, supporting growth in specific sectors and facilitating the industrial development. Clusters can be created either through a bottom-up approach, that is by firms and agents that already collaborate and have established relationships, formal or informal, or a top-down approach, by a specific policy mix, in the context of an overall industrial policy (Boekholt, P. 1997). Clusters can be occurred by the private sector or non-governmental organizations and at the same time it can be planned as an industrial policy by a

government. Clusters can direct the industrial policies of a government with the power of cooperation.

Clustering has become a frequently used as an industrial policy tool in many countries, as it is an approach that increases national and regional competitiveness. The relationship between industrial policy and cluster policy is like a helix which could not be sever from each other. This helix can provide a chance to live under a welfare state conditions to societies and these conditions could be possible with a strong economic growth level and high income level of the country. Therefore, citizens expect their governments to provide them with a prosperous environment. On the other hand, governments also try to provide an environment where the quality of the services they provide to their citizens and the level of economic welfare are high. It can be possible to have a right industrial policy planning for a state and to balance this demand and supply; governments need to set various policies. Among these policies, one of the most powerful issues that can increase the economic income level of the country is industrial policies. A country that plans its industrial policies correctly is stronger and has a power to say in the world. There are different policies that can affect industrial policies. Cluster policy is one of the main factors affecting industrial policy. Increasing the power of industrial policies is through planning cluster policies. Clustering policies reveal and develop the strengths of countries by highlighting their sectorial capabilities. All actors of the sector focus on the same goal within the same value chain and there is very little chance of failure with clustering. Of course, this does not mean that clusters never fail. There are many clusters that fail due to lack of management. Because the most important block of a cluster organization is the structure of its management. The main factor that leads clusters to success is actually having a correct management structure. Therefore, it is very important planning the structure of the cluster correctly. First of all all clusters has a Cluster Management team compose of Board Members and Cluster Coordinators (managers). They need to think about what is best for the Cluster members and how to improve the sector in belonging region. Cluster management related such tools as; mission/vision, strategy, human resource, finance. Clusters could be establish on some legal basis forms such as; association (non-profit or for-profit), private limited company (LLC), joint stock company, hybrid forms (mix of association and public or private limited company) and foundation. Irrespective of what legal form is selected for the cluster, it is important to determine and decide on a formal cluster management structure. This involves determination and agreement on the following issues: Structure and composition of the cluster governance structures, Cluster management roles and responsibilities (who does what and who is responsible for what), Cluster management (how the cluster management structure will interact with cluster members on a day to day basis). The issue

of cluster management has also been underestimated, as Porter's cluster approach does not sufficiently take into account that cluster management is an important success factor. Most of the cluster programs that flourished in various parts of the world now focus heavily on the proper establishment and development of cluster management. In recent years, the issue of excellence in cluster management has come to the fore and clear evidence has developed that the tools developed in this context play a decisive role for the successful development of clusters. Cluster excellence is determined by three key dimensions: framework conditions, cluster actors and cluster management organization (Christensen T, Köcker G, Lämmer-Gamp T, 2011).

Clusters has a unifying role between all players in value chain such as raw material suppliers, manufacturers, maintaining service companies, stakeholders, sectoral NGOs, educational and governmental institutions. All these cluster participants and actors are starting to think together to create new solutions for sector problems and they also participate the need analyzing and networking activities of the cluster together therefore they feel themselves closer. In addition to these, clusters organize lots of activities such as training, consultancy and matchmaking events with trade delegations abroad. It is a very proper platform that all the actors and members of the cluster to create and/or strength their relations. An SME which is a member of cluster could be a supplier of an large scaled member company owner just with sitting next seat to him/her in a long hours flight by plane during cluster trade delegation visit to abroad. In addition to this, clusters creating network with other clusters and between their members in other countries and this is also a unifying role of clustering.

There are several success stories of clusters in different countries such as Silicon Saxony, Californian Wine Cluster and

Italian Leather Fashion Cluster. First of all "Silicon Saxony" is Europe's largest microelectronics cluster and the fifth largest worldwide. Every third chip produced in Europe bears the label "Made in Saxony." In Dresden, GLOBALFOUNDRIES, Infineon Technologies, and – starting in 2021 – Bosch operate some of the most modern semiconductor production sites to be found anywhere on the globe. A unique concentration of companies providing extensive expertise in the sectors micro and nano electronics, organic & flexible electronics, 5G, MEMS / sensors, and automation technology is found in the region. Renowned research institutions such as the Fraunhofer Institute for Photonic Microsystems IPMS in Dresden are working on the technologies of tomorrow. With "Silicon Saxony e. V.", Saxony has one of the most successful branch associations in Europe. (www.business-saxony.com) To look for another success stories, Porter basically highlights two important cluster formations in almost all of his works. The first of these

is the cluster of wine producers in California, USA. Another is the cluster where leather fashion production in Italy is concentrated. Californian Wine Cluster. The California wine cluster is a good example of this. This cluster includes 680 commercial wineries and several thousands of independent (wine) grape producers. There is also a wide range of complementary industries that support both winemaking and grape growing, including vaccines, irrigation and harvesting equipment, casks and labels, specialist PR and promotion companies, and numerous wine advertisements targeting the consumer and commercial audience. However, local institutions such as the world-renowned viticulture and winemaking program at the University of California at Davis, the wine institute, and special committees in the California senate are all wine-related hosts. The cluster also has weaker links with other California focuses of agriculture, food-restaurant and wine tourism (Porter, 1998a:78; 1998b: 201).

In addition to the California example; consider the Italian leather fashion cluster, which includes the best known shoe companies such as Ferragamo and Gucci as exclusive suppliers of shoe parts, machinery, molds, design services and tanned leather. Various types of leather goods (connected by common inputs and technologies) and different types of leather shoes (with overlapping channels and

It consists of interrelated industries, including manufacturers (linked to technologies). These industries use common marketing media to compete with similar images in similar customer areas. An Italian cluster related to textile fashion; manufactures complementary products, including clothing, drapes and accessories, often using center channels. The extraordinary strength of this cluster is due, at least in part, to the large number of connections and synergies employed by the participating Italian businesses (Porter et al. 1998a:79; 1998b:200). In particular, the studies on the region called the third Italy are actually shown as the most important success example of clustering. Third Italy; It is used to express the regions between the industrial zone in the north-east of Italy, which is based on the mass production of standard goods, and the underdeveloped southern region. The industrial structure in these regions is generally based on small and medium-sized enterprises that specialize in the production of traditional sectors such as textiles, ready-made clothing, shoes and leather goods, ceramics and machinery for these sectors based on traditional technologies and low competitive labor costs. It has been observed that these companies, which continue to operate, have adapted very well to the changing market conditions after the 1970s. Thus, these companies have achieved great competitive success after the 1970s by clustering among themselves and combining traditional and computer-aided new technologies with qualified workforce (Ferri and White, 1999:99–105).

As a result of clustering, the industrial policies of the countries begin to change and take a better shape together with

the developing sectors and regions. The demands of sectoral companies, educational institutions, public institutions and non-governmental organizations cannot be ignored in the shaping of industrial policies. Clustering is where all these actors meet and influences decision makers with their demands. Governments care about the demands coming from the actors of the sector and try to develop policies according to them. Generally, governments do not have a chance to know the dynamics and requirements of the sector better than the sector players. Thus, industrial policies and clustering policies are in a strong relationship that interacts with each other.

5. The Turkish Clustering Experience: OSTİM Clusters

The concept of clustering entered Turkey at the beginning of the 2000s and quickly became one of the top of the agenda with the awareness-raising activities carried out by various institutions and organizations. Clustering studies, which started to become widespread and find application areas in Turkey in the early 2000s, have shown a serious increase especially in the last 10 years. It was stated in the Ninth, Tenth and Eleventh Development Plan of Turkish Republic that clustering would be supported, and subsequently, measures to support clusters by the public were put into practice in annual programs. (online: <https://www.sbb.gov.tr/kalkinma-planlari/>) In summary, the inclusion of clustering in Turkey's last three Development Plans shows that the steps taken in clustering have been maintained and developed. In this context, clustering, like innovation, has managed to take its place as a fixed range in the field of national development. Although national coordination cannot be fully achieved in clustering still, players at the national scale; stands out as The Ministry of Industry and Technology, the Ministry of Commerce and the Ministry of Development.

As it is stated above, the clustering can be organized naturally by regions and private organizations support. Ostim Organized Industrial Zone is one of the best examples which proof the effects of cluster policies to industrial policies of Turkey. It has started with the competitiveness analysis study carried out in 2007 is the basis of the clustering studies initiated by the Ostim Organized Industrial Zone. Ostim established the first cluster which is Construction Machinery Cluster (ISIM) in 2007 with the collaboration of Cankaya University as a result of the competitive sector analysis. Thereafter, OSTİM established Ostim Defence and Aviation Cluster (OSSA), Ostim Medical Industry Cluster, Ostim Renewable Energy and Environmental Technologies Cluster (ENERJIK), Anatolian Rail Transportation Systems Cluster (ARUS), Ostim Rubber Technologies Cluster and Ostim Communication Technologies Cluster.(HTK). Nowadays, OSTİM has seven clusters in seven sectors as a regional and sectorial development model. OSTİM forces the Ministry of Trade of Turkish Republic in order to prepare an incentive

program which supports only clusters in Turkey. As a result of the social pressure of Clusters which consist of hundreds of Industrial companies for each cluster under OSTİM, the Ministry of Trade of Turkish Republic started to prepare a special incentive program which name is Increasing the International Competitiveness (URGE) Projects with the contribution of OSTİM. URGE projects started to run at the beginning of 2011 with 3.000.000 million USD budget. Construction Machinery Cluster (ISIM) execute one of the first URGE projects in Turkey in 2011 and at the end of the project the results were very satisfied for Ministry of Trade and also for member companies. As Akyüz (2017) shared as a ISIM project manager of URGE, at the end of the first URGE project, the export rates (export turnover based) of companies increased up to 121%, the number of new export markets had increased up to 97% and the level of employment rate up to 94%.(www.ostimgazetesi.com) It shows us clearly that a cluster policy could direct the industrial policy positively. As a matter of fact, the industrial polices aims to increase the export levels and the employment levels of countries in order to become a welfare state. Therefore, we can say that cluster policies can increases efficiency of Industrial Policies as mentioned with an example above.

On the other hand, OSTİM Clusters are started to force The Ministry of Science and Technology of Turkish Republic to plan and implement a special incentive for Industrial companies under clusters. As a result of this social and industrial pressure of clusters, The Ministry of Science and Technology of Turkish Republic created Cluster Project program which supports a cluster up to 25.000.000 Turkish Liras budget. These programs targeted to establishing new clusters in strong sectors in different regions of Turkey. Nowadays, ENERJIK cluster executes one of the first projects with the support of The Ministry of Science and Technology of Turkish Republic. ENERJIK cluster aimed to establish a common Wind Tribune with its cluster members at the end of the project. If the project is going to be successful at the end, Turkey will develop learning for industry and technology also in renewable energy sector.

Besides ARUS has a different experience about giving a new way to public industrial policies of Ministry of Transportation Turkish Republic. This cluster forced the Ministry of Transportation of Turkish Republic in order to put an offset in the tenders of high speed train wagons as public procurement. Few years ago there was a tender of government to buy 324 high speed train wagons. As you can guess, the tenders are generally gained by Chinese or other huge companies in this sector. However, there was ARUS cluster which is going to object to this system of tenders in the last tender of Ministry of Transportation of Turkey. This cluster and OSTİM forced the ministry to put a 51% offset rule to the tender. This offset force the foreign company who wins the tender to buy some parts of those wagons as local (from

Turkish local companies) up to 51%. This will bring the technology learning and developing the ability of the companies in Turkey. It means the foreign company should buy up to half from Turkey and it will remain the value-added profit in Turkey which is seriously important for a country.

The last experience belongs to the Communication Technologies Cluster (HTK) about producing the 5G Technology. This cluster established in 2017 and it has over 150 members operating in Communication Technologies. This cluster aimed to produce 5G technology with the same time with the worldwide competitors. This target is become an industrial policy of the government as a result of this cluster initiatives on this technology. Information and Communications Technology Authority of Turkey could not be remaining unconcerned to this subject and they support the cluster and development of 5G technologies. Furthermore, it shows us a cluster can direct an industrial policy of an country with adding this subject to its implication plans. Industrial Policies are targeted to increase innovation, technology, learning and export for increasing the income level of society. As a result of the cluster policies, new sectors will emerge in Turkey and innovative entrepreneurs will increase with these kinds of developments.

6. The Effects of Cluster Policies on Industrial Policies

In addition to these, there is a risk for every country and companies to catch the new technologies in order to survive in this high competitive market game. In the history of human being, there are several inventions made by inventors and some of them stayed as just an invention and some of them turned to innovation. Innovations create demand in the market and makes money because they give to society a feeling of a new experience. Every Innovation has big effects and changes in habits of society whereas inventions not always have these result. Joseph Alois Schumpeter is the first economist who defined innovation and he has a theory of "Creative Destruction" (Schumpeter,1942). This theory claimed that innovations comes by itself in a time, creates productivity and destructs old ones. The Schumpeterian view has an evolutional economics approach which is such a perspective is at the core of Schumpeter's analysis of capitalism, just as it is in Marx. "Capitalism . . . is by nature a form or method of economic change and not only never is but never can be stationary" (Schumpeter 1950, p.82). According to Schumpeter, the main feature of capitalism, which is the dynamic structure it exhibits. Capitalism is a proactive system where the capital accumulation process constantly requires new production methods, new forms of industrial organization, new transportation methods and new markets. As a short definition of the "creative destruction" process in which the economic structure is transformed from within, the old one is destroyed and a new structure occurred.

The fundamental new impulse that sets and keep the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise create...the same process of industrial mutation ... that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in...Every piece of business strategy acquires its true significance only against the background of that process and within the situation created by it. (Schumpeter 1942), Capitalism, Socialism, and Democracy: 82–84) As Schumpeter's view, "Evolutional Economics" view is gaining inspiration from Darwin's evolutionary theory. Darwinian principles said that the one who adapts best to the environment will survive. It is not about being too strong, it is just about being fast adaptation to new ecosystem and new ideas. As Schumpeterian approach, you will bring innovation to market and it changes the sector and industry. Therefore, we can clearly see there are several industrial cycles even in the near history. For instance, there was beepers (pager phone) as an important technology for communication at the end of 1980s in Turkey. People especially business man bought that device and generally men carried the pager by attaching it to the belt around their waist. The device had given a beep when any people called you and it can also possible to send very short text messages as 2 words. Few years later, mobile phone came to Turkish Market and it started to spread rapidly in the society for use. The mobile phones destruct the beepers suddenly. Cassettes are another example which is destructed by music downloads such as mp3 and mp4s. Rental Films were very famous 10 years ago but now there is video streaming subscription service such as Netflix. Moreover, the issue of renting a movie cd has long been forgotten. Besides, alarm clocks, cameras, calculators, telephone directories and old line house telephones are already buried in the ground with the innovation of the mobile phones and applications.

Innovative technologies and goods can replace the old ones but it does not only harm to the old product or technology. It has also negative affects to the company owners, staffs in the company, suppliers and sub suppliers of that company also. For instance the stores in shopping malls could face a threat of bankrupt with the online stores e-buying systems. As a result, the owner of the store will close his store and the workers of that store will lose their job and the product suppliers will lose their customer and the producers of the products could lose their customer again.

To sum, as Schumpeter's "perennial gale of creative destruction" of capitalism, always harms the old technologies and creates new technologies. These technological paradigms increase productivity. Productivity increases the innovation

and then economic growth occurs. Capitalism creates a high motivation environment than Socialism. For instance, USSR was a Socialist regime and could not have a strong and successful economics system. On the other hand, western countries which have capitalist system are more successful than USSR and had a great growth than other countries.

As several economists in the history stated that entrepreneurs and firms are driven of the economies because of their creative and innovative view. However, it is not easy to become an innovative firm. The firms are trying to become more competitive in world market and they tried to make some innovations. According to Schumpeter, innovation has different types not only for products but also for processes, organizational side and marketing side. There are several international brands which gained success and money with making innovations on these innovation types. According to this view, Turkish companies should be try to be more innovative in these titles in order to create world brands. Innovation can be seen as a way to reach the success to new world market and an ability to adopt to the new technologies which is changing too fast. Otherwise you have to be going out of game with the “Creative Destruction”.

In history, there are several thoughts about economic development models especially innovation. German Economist Frederick List who led Germany to catch up England and also founder of National Innovation System. He has an important work related with Political Economy of the National System (1841). In the first part of 18th century, England had been taken the dominance in production and value-adding to products with their developed industry. Unfortunately, other countries had fallen behind of England especially in producing value-added products. Germany was also at behind in these years. Then he led Germany increase with his approaches and arguments about new innovation approach. Germany listen him and he also became popular. I am going to examine the List’s new innovation approach according to his arguments.

One of List’s arguments is about countries can improve an industry under the protection of state intervention. For instance, England has become a world leader in textiles by developing its textiles industry with the state intervention protection. List’s second argument is about buying the raw material from abroad and then after value adding with processing and selling it to abroad. For instance, British bought cotton as raw material from poor countries and after spinning, weaving and processing it became a clothing product. Then they sold it to abroad and it is value adding ability. They may be able to buy as a 2 USD/per kg of cotton but they can sell it to abroad as 500 USD/unit with a known brand of UK. This was how colonialism began. Furthermore, the value-adding profit remains in the UK and it increasing the GDP per capita. Thirdly, List has an argument about protecting small companies until they can be ready to enter

world competition. List strongly disclaims Adam Smith's approaches of the free market the invisible hand argument which describes that people will make decisions based on their own personal self-interest and benefits. Furthermore, he emphasize the state should protect infant industries until they become developed. Fourthly, List has an Economic nationalism approach which claims economics should be applied for the welfare and interest of countries. His fifth approach is productive forces of the countries are the pistons of the economic development of the countries. A country can be strong in its productivity with its labor forces also and if a country did not give importance to education of nations and growth its citizens as craftsman, engineers, and technical persons and if they did not give importance to doing a systematic R&D then how can they became an innovative nation and state of art. His last argument is about the productive forces for that time: educational infrastructure, transportation infrastructure, technical/technological infrastructure, entrepreneurial infrastructure, institutional infrastructure of the state. In Japan’s success story we can see this approach as a nation. Japan is a rising star in the world market although they were at the deep at the end of World War II and as victim of nuclear attacks of USA. Because they are successful as a new innovation nation with new innovation approach not only with their innovation policy of government but also with their educational infrastructure, transportation infrastructure, technical/technological infrastructure, entrepreneurial infrastructure, institutional infrastructure of the state. The new innovation approach can make a nation and country as a shining star in the economics field and in the world market. There should be a good interaction between all the players in national innovation system such as government, educational institutions, political systems with feedback and agents about demand and framework conditions. This model is very similar to cluster policy. Clusters should get their members in all the players in values chain of the sector.

There are several effects of the cluster policy to industrial policy of the governments. First of all clusters are shape the industrial policies in the right direction because the suggestions are coming from all the players of the sector under cluster value chain. It means, the data are the real demands which are coming from the field by the cluster interface to the policy makers. Secondly, clusters facilitate the implementation of industrial policies because governments need to have a facilitator. For instance, think that a government wants to increase the innovation and technology level of industrial companies and opens a new incentive to motivate them. However, industrial companies could not have awareness the importance of innovation, a trust to government or self-confidence to prepare the application documents to that incentive program. However, cluster coordinators can motivate them and also help them to do this because they are with them in the field and they already created a trust.

Furthermore, the industrial company owners could be convinced to use some state incentives about innovation with the help of cluster coordinators. Thirdly, clusters can ensure the success of the industrial policies by the implementation in the field with its proactive role. Fourthly, clusters develop the country's industry with gathering all the abilities and the actors in the sector. It gives a chance for a rapid flow of information and technical knowledge between the companies. It speeds up the developing of the abilities and knowledge about manufacturing. In addition to these, cluster policies increase the innovative side of industrial policies with organizing trainings, consultancy programs and market research delegations to all over the world. It provides an opportunity to have a training and consultancy programs about innovation and technology and also enables to see the current technologic improvements in other countries. Moreover, the industrial companies could have a chance to think more innovative way. Besides, cluster policies strengthen the relations between the public and industrial companies with gathering all of the sectorial actors together with the seminars and meetings. There beside, cluster policies are puts forward the strong sectors of the countries in a country and it can raise the awareness of customers in other countries. Therefore, the foreign customers could notice that the country has a strong in this sector if it has a cluster and will be willing to trust and buy from them. So, cluster policies will increase the export rate of the countries. It means the industrial policies about export will be shaped and affected by cluster policies. Cluster policies strength its members with the export rate and opening new markets for them. Thus, the employment level will be increase by the clusters. Cluster policies including increasing the qualified technical workers so it has some studies to increase the qualified human resources. It will also affect the industrial policy of the government about teaching more qualified technical works and need to shape its policies again about vocational education systems. Cluster policies increase the technology and innovation level of the sector so the country needs more technological infrastructures especially in Organized Industrial Zones. Therefore, industrial policies will be affected by this need of change and demand. Then, clusters always try to see the needs and find solutions for sector. Clusters have a power to affect the policy makers with the power of collaboration of the high numbers of members and stakeholders. For instance, a cluster can change a public procurement rule and styles of a government with the force with its members and using media with saying of national production and patriotism. Lastly, clusters aims to gather actors of a sector and increase the competitiveness of their members and sector. According to this target, clusters seek some tools such as incentives for their clusters members. Developing the cluster policies in a country could emerge some strong sectors in some regions and will affect the industrial policies in those regions such as establishing the

local development agencies and incentives for special sectors. Furthermore, some sectors will be determined by the cluster policies in the regions rather than strategic sector plans of government's industrial policies. Thus, the government will change their strategic sectors with the strong clusters in different regions.

7. Conclusion

In conclusion, cluster policies highly influenced the industrial policies of the countries. There is a strong relationship between cluster policy and industrial policy. Cluster policy has very positive affects to shaping the industrial policies of countries. Cluster policies emerges new sectors and also entrepreneurs which is going to develop the economies of the countries. The cluster policy is the triggering tool for industrial policies of the countries. Clusters are the incubators of innovation, new technologies, high industrial employment quality, competitiveness of industrial companies and export. These are the significant factors of the development of economies and industrial policies of countries. Cluster policy is a successful tool to have a strong industrial policy and save the economy with creating new technologies. Cluster policy increases the efficiency of Industrial policies with its proactive role in the industry and economy. In Turkish experience, there are several clustering examples which directs the industrial policy according to these cluster's policy. It shows that cluster policy affects the industrial policy of the countries as a director and facilitator for the implementation of the industrial policies.

References

- Online, https://businesssaxony.com/sixcms/media.php/78/mikro_eng_l_web_20190329.pdf
- Akyüz, E. 2017, Online - Ostim News Paper Article; GÜÇLÜ REKABETİN ŞARTI: İHRACAT, p 16. <https://www.ostimgazetesi.com/content/upload/bulletins/documents/isimkumemart2017gazeteweb-20170410084007.pdf>
- Boekholt, P. (1997). The public sector at arms length or in charge? Towards a typology of cluster policies. Technopolis, Innovation Policy Research Associates., 23.
- Coase, R. H. 1937. "The Nature of the Firm." *Economic*(16):386–405.
- DOĞAN, Mesut; (2013), "Türkiye Sanayileşme Sürecine Genel Bir Bakış", *Marmara Coğrafya Dergisi*, Sayı:28, ss. 211-231.
- Ferri, M. and T. J. White (1999), "Regionalism, Cooperation and Economic Prosperity: Effective Autonomy in Emilia-Romagna", *Mediterranean Quarterly*, Vol. 10, No. 3, pp.89–106.
- Foreman-Peck, J. and Federico, G. (1999) *European Industrial Policy: The Twentieth Century Experience*, Oxford: Oxford University Press.
- H. Barki, A. Pinsonneault, A model of organizational integration, implementation effort, and performance *Organization Science*, 16 (2) (2005), pp. 165-179, 10.1287/orsc.1050.0118
- Lämmer-Gamp, Thomas/Meier zu Köcker, Gerd/Christensen, Thomas Alslev, 2011: *Clusters Are Individuals. Creating Economic Growth through Cluster Policies for Cluster*

- Management Excellence, Danish Ministry of Science, Technology and Innovation/Competence Networks Germany, Copenhagen/Berlin.
- Lazonick, William. 2003. "The Innovative Firm", To appear in J. Fagerberg, D. Mowery, and R. Nelson, eds., *The Oxford Handbook of Innovation*, Oxford University Press, 2004.
- The National System of Political Economy
Friedrich List
translated by Sampson S. Lloyd, 1885
- List, The National System of Political Economy Friedrich List translated by Sampson S. Lloyd, 1885
- Marshall, Alfred, 1842-1924. *Principles of Economics; an Introductory Volume*. London :Macmillan, 1920, pp.225.
- Porter, Michael., "Location, Competition, and Economic Development: Local Clusters in a Global Economy", *Economic Development Quarterly*, Volume: 14, No: 1, 2000, p. 15.
- Porter, Michael E. (1998a), *On Competition*, Harvard Business Scholl Publishing, Boston.
- Porter, Michael E. (1998b) "Cluster and the New Economics of Competition", *Harvard Business Review*, November – December, pp. 77–90.
- Schumpeter, J. 1942. *Capitalism, Socialism, and Democracy*. New York: Harper & Bros. Trefler, D. 2004. The long and short of the Canada–U.S. Free Trade Agreement. *American Economic Review* 94, 870–95.
- Smith, A., *An Enquiry into the Nature and Causes of the Wealth of Nations* (New York: Random House, 1947), pp. 3-5, 7, 11-12.
- Yülek, M. (2018). *How Nations Succeed: Manufacturing, Trade, Industrial Policy, and Economic Development*, Palgrave MacMillan, 2018