KADIR HAS UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
ECONOMICS DISCIPLINE AREA

PATH DEPENDENCE OF PUBLIC INVESTMENT AND REGIONAL DEVELOPMENT AGENCY SUPPORTS IN TURKEY

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MASTER'S THESIS

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I, ZIYA ALTUNBAS; Hereby declare that this Master's Thesis is my own original work and that due references have been appropriately provided on all supporting literature and resources.

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APPENDIX 4 ACCEPTANCE AND APPROVAL PAGE

ACCEPTANCE AND APPROVAL

This work entitled **PATH DEPENDENCE OF PUBLIC INVESTMENT AND REGIONAL DEVELOPMENT AGENCY SUPPORTS IN TURKEY** prepared by **ZİYA ALTUNBAŞ** has been judged to be successful at the defense exam held on **10/01/2018** and accepted by our jury as **MASTER'S THESIS.**

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ABSTRACT

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The efficient distribution of limited public resources is a very important issue in terms of the formation of public investment policies, particularly for developing countries such as Turkey. Also, public investment has always been perceived and implemented as an important policy tool in regional inequality policies. However, empirical studies show that there is a serious imbalance between regions in Turkey both in terms of economic indicators and share of public investments. In this study, we have sought to answer whether the public investments in general and the development agency investments are affected by path dependence.

The path dependence suggests that the events that take place today are not merely dependent the conditions of the day, but they have come into being as a result of a number of decisions taken in the past. Path dependence or inertia in policy making emerges when public policy reform is based, qualitatively and / or quantitatively, on previous reforms, rather than on the efficiency or fair proper justifications of the proposed reforms. For this reason, countries that depend on policy reforms and under the effect of path dependence are not likely to deviate from their previous paths or reforms.

In this study, I focused on regions to identify and measure the presence of the path dependence effect in the regional public investments made by the central government and development agencies. The study employs a panel data set covering 26 regions (NUTS II level) with their population density and gross regional domestic product per capita, and pooled OLS and fixed effect models are used in this study to determine path dependence effect. The results of the study showed that the effect of path dependence on overall public investment is persistent, but the path dependence effect is not observed in RDA investments.

Key words: Development Agency, Regional Development Agency, Path Dependence, Public Investment

ÖZET

ALTUNBAŞ, ZİYA.TÜRKIYE'DE KAMU YATIRIMLARINDA VE BÖLGESEL KALKINMA AJASLARI DESTEKLERİNDE YOL BAĞIMLILIĞI ETKİSİ, YÜKSEK LİSANS TEZİ, İstanbul, 2018.

Sınırlı kamu kaynaklarının etkili dağılımı, özellikle de Türkiye gibi gelişmekte olan ülkeler de kamu yatırım politikalarının oluşturulması açısından çok önemli bir konudur. Ayrıca kamu yatırımları her zaman bölgesel eşitsizlik politikalarında önemli bir politika aracı olarak algılanmakta ve uygulanmaktadır. Bununla birlikte, ampirik çalışmalar, hem ekonomik göstergeler hem de kamu yatırımlarının payı bakımından bölgeler arasında ciddi bir dengesizlik olduğunu göstermektedir. Bu çalışmada, kamu yatırımlarının ve bu dengesizliği gidermek için geliştirilen kalkınma ajanslarının yatırımları için yola bağımlılık etkisinin olup olmadığını araştırmaya çalıştık.

Yol bağımlılığı, bugün gerçekleşen olayların yalnızca günün koşulları değil, geçmişte alınan birçok kararın bir sonucu olarak ortaya çıktıklarını ortaya koymaktadır. Kamu politikası alanında araştırmacılar politika reformunun varlığını ya da yokluğunu, "Yol Bağımlılığı" kavramı açıklamaya çalışmışlardır. Bu teoriye göre kamu politikası reformunda önerilen reformlar, nitelikli ve / veya niceliksel olarak, verimliliğe veya adil gerekçeler yerine önceki reformlar üzerine dayandığında, yola bağımlılık ortaya çıkmaktadır. Bu nedenle, politika reformlarına yola bağımlı olan ülkeler, kurumlar ekonomik açıdan güçlü ülkeler kadar önceki yollarından veya reformlarından sapması da muhtemel değildir.

Bu çalışmada merkezi hükümet ve kalkınma ajansları tarafından yapılan bölgesel kamu yatırımlarında yola bağımlılığın varlığını tespit etmek ve ölçmek için bölgelere odaklandım. Çalışma, nüfus yoğunluğu ve kişi başı brüt bölgesel yerel ürün ile 26 bölgeyi (İBBS II düzeyi) kapsayan bir panel veri seti kullanmaktadır ve bu çalışmada, yol bağımlılığı etkisini belirlemek için birleştirilmiş OLS ve sabit etki modelleri kullanılmıştır. Çalışmanın sonuçları, yol bağımlılığının kamu yatırımı üzerindeki etkisinin gözlemlendiğini, ancak BKA yatırımlarında yola bağımlılığın etkisini göstermediğini göstermiştir

Anahtar Kelimeler: Kalkınma Ajansı, Bölgesel Kalkınma Ajansı, Yol Bağımlılığı, Kamu Yatırımları

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ABBREVIATIONS LIST

AKP	Justice and Development Party
DPT	State Planning Organization
EKA	Economic Development Agencies
EIB	European Investment Bank
EBRD	European Bank for Reconstruction and Development
EU	European Union
IADB	Inter-American Development Bank
EURADA	European Association of Regional Development Agencies
FYDP	Five–year Development Plan
GAP	Southeastern Anatolia Project
GDP	Gross Domestic Products
GMM	General Method of Moments
MDP	Financial Support Programs
NGO	Non-Governmental Organizations
NUTS	The Nomenclature of Territorial Units for Statistics
OECD	The Organization for Economic Co-operation and Development
OIZ	Organized Industrial Zones
RDA	Regional Development Agency
RCC	Regional Cooperation Council
SME	Small and Medium-sized Enterprises
SUDENE	The Northeast Region Development Agency in Brazil
TURKSTAT	Turkish Statistical Institute
UNDP	United Nations Development Program
YDO	Investment Support Offices

INTRODUCTION

Particularly for developing countries such as Turkey, the distribution of limited public resources for effective and regional imbalances is a very important issue in terms of the formation of public investment policies. However, empirical studies show that there is a serious imbalance between regions in Turkey (e.g. State Planning Organization (DPT), (1996), (2002); Albayrak 2005; Ministry of Development, 2011), both in terms of economic indicators and share of public investments.

In this study, we have sought to answer whether the public investments and the investments of the development agencies that are aimed to reduce at this imbalance have the path dependence effect. The path dependence suggests that the events that take place today are not merely the conditions of the day, but that they have come into being as a result of a number of decisions taken in the past. Path dependency emphasizes that everything that is happening today has come to fruition because of events that happened in the past. To put it briefly, past events shape the future.

Path dependence in public policy is actually very common in everyday life. We can explain this with an example: Istanbul's Şişli district has a dense population. In this district, streets are narrow and there is parking problem. People live mostly in apartment buildings. The municipality has removed garbage cans from the streets as a result of the bomb explosions that happened often in trash cans, in 1990s. And the garbage began to gather in front of the doors at night. Those who live in the 4district often leave their garbage in front of the door, sometimes they can leave it at random. While the municipality began to employ more staff for both cleaning and garbage collection services, it started to use less garbage trucks for this service.

After a few years, the events subsided, and the municipality faced a problem when it wanted to put back garbage cans and resume picking garbage with garbage trucks. Vehicles have been started to be parked in places that have previously occupied by thrash can. Vehicle owners react when municipality officials want to replace parking space with trash cans again. When this matter comes on the agenda, workers who do not want to lose their jobs are reacting and temporarily leaving work. This causes the municipality to allocate more resources to the cleaning service and make the service inefficient. It also confronts the municipality with the people and workers living in the district.

In other words, it is possible to refer to something that happened in the past in different ways in the next period. In this case, the municipality has made a decision to solve a

problem and has entered a path. This decision solved the immediate problem, but the decision later faced the municipality with different problems.

Economic policy traditionally has two broad goals: enhancing productivity and improving equity. It is possible to say that public investments is expected to play a balanced and dual role: a tool for the elimination of regional inequalities and a tool to support the general (and regional) development of the country.

Functions of regional politics in a country are to minimize regional inequalities with the intention of realizing regional integration and sustainable development, or to increase economic growth and economic efficiency. Indeed, one of the traditional determinants of regional funding is regional solidarity and requirements. This implies that public funds are perhaps distributed on the basis of a needs. In other words, public investments can differ to maximize economic growth. According to Aschaur (1989), productivity decline in public services plays an important role in the decrease in the overall productivity of the growth. Especially in developing countries, economic growth targets are at the forefront of economy policies. Thus, in regions where the level of investment is expected to rise to the highest level, there is a high tendency to allocate public investments (Radolp et al. 1996).

Besides productivity and equity targets, other factors that determine public investments locally or quantitatively have also emerged. Indeed, public investments are at the discretion of the government and it can be expected that the political characteristics of a country will be determinant. Interestingly, these studies reveal that the political ideology and the style of the ruling government are the main determinants of public investment (Haan and Strumm 1997). Furthermore, it may be more difficult for large coalition and minority governments to choose to negotiate to balance the budget and this situation can also affect public policy. Similarly, it has been shown that partisan preferences are related to the type of government, such as coalition or majority governments (Haan and Strumm 1994).

Researchers in the field of public policy have preferred to explain the existence and absence of policy reform with the concept of "Path Dependency". Path dependency or inertia on policy making emerges when public policy reform is based, qualitatively and / or quantitatively, on previous reforms, rather than on the efficiency or fair justifications of the proposed reforms. Therefore, it is unlikely that countries with path dependency in policy reforms will deviate from their previous paths or reforms as much as institutions or economically powerful countries do. This path dependency emphasizes the temporal nature of politics (Liebowitz and Margolis 1995). That is, the boundaries of particularly

established institutions and policies (i.e. allocation rules) impose reasonable alternatives at a later time and increase the cost of change.

In response to these real-life concerns, *regional development* developed as an interdisciplinary field with contributions from economics, political science, sociology, urban studies etc… Regional development is associated with an unbalanced distribution of opportunities between regions. It can be defined as increasing the future expectations by improving the quality of life, social and economic possibilities of the people living in this region by increasing the economic and social capacity of a certain area. (Aydemir and Karakoyun 2011). After the First World War (especially after the Great Depression of 1929), interregional imbalances have begun to attract attention in the developed western countries that are faced with unemployment problems. The initial studies have shown that economic and social development are different from each other in the same country as in the other countries, and politicians have been tempted to produce policies aimed at reducing imbalances both within the country and between the countries (Çarkçı 2008, Dinler 2005).

Interregional / regional imbalance is a multi-faceted issue that has both economic and social dimensions (Dinler 2005). "Reducing the social dimension of imbalance can only be achieved by reducing infrastructure-related activities on the grounds of state support and public regulations, but economic imbalances can be reduced only by accelerating the development of the region" (Çarkçı 2008: 34). Theories and policy instruments with different arguments have been developed to accelerate the development of the regions and to ensure convergence by reducing the differences between regions.

In Turkey, State Planning Organization (DPT) is established in 1963 to implement development plans for the elimination of regional inequalities. In each plan period, governments focused on different aspects of regional inequalities in the plans. Sometimes governments have focused on issues such as transportation, infrastructure investments and the identification of priority areas in development and the implementation of incentive measures. And, sometimes governments have been directed to the creation of organized industrial zones (OIZs), the establishment of small industrial sites, industrial zones and free zone practices.

Although Turkey has achieved significant achievements in terms of economic growth in both industrialized and planned periods, differences in development between regions are continuing. There are significant differences in terms of development between Turkey's Western regions (especially Marmara and Aegean Regions) and Eastern regions (especially Southeast Anatolia and Eastern Anatolia Regions).

The difficult nature conditions of the Eastern and Southeastern Anatolian Regions, the distant part of the region from the big market centers, some neglect of the state and the terrorist incidents in the region have resulted in these regions being behind the average of Turkey. As Eastern Anatolia continued to send emigrates, large cities such as Diyarbakir and Gaziantep in Southeastern Anatolia continued to growth, resulting in an unhealthy and unsustainable structure in these cities (Gündüz 2013).

With the transition of Turkey from the agricultural society to the industrial society over time, the income differences between agricultural producers and city dwellers have been steadily increasing, just like it is in the world. The domestic trade mark has constantly improved against the farmers. As a result, most of the agricultural producers have opted to live in the industrialized cities by leaving the regions they are in. Regional imbalances have emerged as a result of the fact that the population of the country is rapidly concentrating in the areas where the industry is located (Gündüz 2013).

Current regional development infrastructure put into place following the 1999 Helsinki summit. The process of harmonizing the Turkish Regional Development Policies with the European Union (EU) Policies began within the framework of the new legal responsibilities created by granting the candidate status to the European Union. In this process, regional development agencies were set up in order to eliminate regional disparities.

Public investment has always been perceived and implemented as an important policy tool in regional inequality policies, which are briefly summarized above.

From this point of view, regional public investment and investment decisions of development agencies for the years 2010 and 2015 have been examined. The second section of this study focuses on the concept of path dependence in a broad framework. After motioned about the formation, development, stages, and degrees of the concept, it tries to reinforce the concept with two examples. At the end of the chapter, the literature on path dependence and regional development is included.

In section three, the concepts of development, regional development and inequality are first mentioned. Turkey's public investment policies carried out in the name of overcoming regional inequalities and traditional factors influencing these policies are described at the end of the section and is given information about the structure and functioning of Regional Development Agencies (RDA).

The rest of the work is as follows; section four presents data, methodology, empirical findings and discussion of the path dependence effect on public investments and development agency investments. Section five concludes the study.

CHAPTER 1

THE CONCEPT OF PATH DEPENDENCE

The path dependence concept is employed in economics literature mostly to study technology lock-in or formation of industrial clusters. The intersection of path dependence concept and public investment decisions studied rarely (exception being Oreggia and Font 2005). Hence, we start this section by briefly reviewing the development of concept in technology lock-in and industrial clusters.

In this chapter, firstly, how the concept of path dependence emerges, what they are emphasizing. Later, with the steps of path dependence examples of path dependency will be explained in detail for better understanding of the matter.

1.1 What Is Path Dependence?

The concept of path dependence emerges on the basis of economics and is used in the fields of economics and law and has become a common term. Path dependence has been developed by economists who have studied the process of buying consumers into a product that has been put on the market and at the same time examining industrial evolution.

According to Arthur (1985, 1989), historical events or self-empowering mechanisms that have taken place over time can affect subsequent events and eventually lead to an irreversible path. These events or mechanisms therefore lead to path dependence and eventually to lock-in. According to this theory, these self-reinforcing mechanisms are seen as increasingly system-related forces beyond the control of persons / organizations.

It is also argued in this theory that random decisions, increased benefits and network effects can lead to path dependence and / or lockout (Arthur 1985, 1989).

Roe (1996, from Mahoney 2000) classified the concept of path dependency into three categories.

Weak Path Dependency The efficiency of the selected alternative is related to other alternatives. Alternatives are not very different from each other in terms of effectiveness, although they look different. The most obvious difference between the alternatives is that

the chosen way is more effective in the future and others are ineffective. Roe's "weak path dependence" is not noticeably different from Leibowitz and Margolis's first-degree path dependence. For example, a decision taken by a person to separate his or her hair from the left may lead to the separation of the lifelong hair from the left. In this case, the first impulse that leads to the separation of the hair from the left should be considered.

Semi-Strong Path Dependency Even if the selected path loses its activity, it does not lose its value. This choice is not the best way, but it does not need to change. In the meantime, unselected alternatives can be as effective as selected alternatives. For example, financial regulations that have been in place for a long time may be inefficient, but still effective.

Strong Path Dependency The path selected is not active, but there is no possibility to modify the path. Roe (1996) describes path dependence as constructions where activity is reduced, which cannot be reversed. It argued that the inability to return was due to the costs to be incurred. Random events can determine the direction of future events. According to the path dependence, which emphasizes that the events that have taken place in the past have shaped the future events; small historical events may be the trigger for the future to cause lockout, whereas according to economic theories, the idea of economic development is not affected by accidental historical events (Vromen 1997, Hammer 2010).

There are possible consequences that past events or decisions may have an effect over a period of time. Some of these conclusions may not harm the living process. In other words, a move or decision at the beginning can drag organizations into a way to pay a price. Although this is not the only alternative, it may be most appropriate for organizations (Liebowitz and Margolis, 1995).

Many historical sociologists, while defining path dependence, they advocate a broad concept that affects events. As an example, by Mahoney (2000), the concept of path dependence is called "an incoming event may affect the outcome of the sequence of subsequent events.".

Such definitions may be useful for predicting future events because they affect subsequent events has emerged. Sociologists, on the other hand, beyond the basic concept that it affects the future time (Mahoney 2000).

Mahoney (2000) points out three features to describe the concept of path dependence.

Path Dependence Analysis

It includes the processes that investigate the causes of events in the early stages of a historical sequence. The first stages of an event are more important than the latter. For example, events that are too late may have no effect, even if they have the potential to cause big results if the timing were different (Mahoney 2000).

The classic example in this regard is the Polya Urn experiment. In this experiment there is an urn containing two balls, one red, and one black. One ball removes and returns to the urn, accompanied by additional ball of same color. This process repeats until urn fills up. İt is possible to say those about the eventual distribution of colored balls in the urn;

* In each individual trial we have no idea what the eventual ratio of red to black balls will be; it could be 99.9% red, or 0.01% red, or anything in between. If we were to run 100 trials, we would probably get 100different outcomes.
* In any particular trial, the ratio will eventually reach an equilibrium. Later draws in a series contribute only minutely to the distribution of balls in the urn. Thus, the distribution settles down onto a stable outcome.
* Sequence is thus crucial. Early draws in each trial, which have a considerable random element, have a powerful effect on which of the possible equilibria will actually emerge. If we were to run 100 trials, we would probably get 100different outcomes. This example of demonstrating the importance of the first events is consistent with the latest view in the historical sociology:

"Sequence events make a difference", and "affects when and how events occur in a sequence" (Pierson 2000).

Path Dependence Series

The experienced events consist of decisions made incidentally on the basis of previous events or initial conditions. Path dependency is a system feature in which the result that occurs after a certain period of time is influenced by a certain initial condition. In fact, the concept of path dependency dependence is a system in which the consequences are related to the initial events, given the probability. For example, in the Polya urn experiment described in the path dependency analysis, the final state of the vase is uncertain before the first color is selected, and when the first random selection process

leads to the selection of certain colors, the system begins to move around an equilibrium (Mahoney 2000).

Inaction (Inertia)

Processes tend to stay on the move and continue to monitor this result when they get into motion and start tracking a specific result. The structure of this inertia may vary according to the type of analysis being analyzed. Self-reinforcing sequences and inaction include mechanisms that reproduce a specific event over time. In contrast, reactive sequences and inactivity also involve an event chain and a counter-reaction mechanism in which an event naturally affects another event (Mahoney 2000).

Although the specific properties of both events overlap with the concept of path dependence, due to some properties, two events can be defined as the inverse of path dependence. When this definition is taken into account, it is emphasized that the concept of path dependence is not explained in most of the studies of history. The studies that have been done explain the results showing similarities and differences between situations, without considering the probabilities of the factors, considering the potential effects. Scholars have described such arguments as the concept of path dependency (Mahoney 2000).

The effect of the decisions taken in view of the existing conditions, when the conditions change it can continue. Therefore, in order to understand the choices made in the concept of path dependence, it is necessary to consider the current conditions or other factors affecting the decision-making process, as well as those who have lived in the past (Puffert 2003, in Sisko 2010).

Some developments or decisions made in the past provide the basis for future events. Due to some initial decisions, historical developments that have taken place may, in some circumstances, turn into self-reinforcing mechanisms and result in a possible locking (Schreyögg et al. 2009).

The process of path dependence can be defined by four general characteristics (Schreyögg et al. 2009);

1. Unpredictability: There is a result uncertainty. It is unpredictable how decisions made at a certain time will have an impact in the future.

2. Non-Ergodic: Under the same conditions, many different results are possible (multiple equilibrium). Decisions taken in the past are decisive in the choice of alternatives play a role. However, there is no such thing as a situation that taking lessons from past events

and producing information on the future.

3. Non-Flexibility: Dependent on the initially selected option. There is no switch possibility to the different option.

4. Inefficiency: Events that occur because of the path locks the organization lower an efficient solution.

1.2 Emergence and Development of The Concept Of Path Dependence

About path dependence, in the 1980s, evolutionary economics research in the field has begun. This concept emerged as a result of the historical studies had done by Paul David. Later on, it was the subject of many articles written by Paul David and Brian Arthur (Yalçıntas 2010).

First, Paul David examined the QWERTY keyboard technology in his paper in 1985, which will later become a research topic in the science world. The QWERTY keyboard was originally designed to reduce the speed of typing (David, 1985). The number of keypresses is reduced with the key layout on the QWERTY keyboard because it was designed to be inefficient (i.e. hard to type). Nowadays, QWERTY keyboard is still used in devices such as computer even though the mechanical limitations of 19th Century that necessitated it has disappeared. In summary, David (1985) investigated how ineffective QWERTY keyboard technology has begun, how it has evolved, and most importantly why it is still used.

Another researcher of this concept, economist Brian Arthur, and tried to compile examples related to the increased income of economics. He's dealt with such questions as "why is the turning direction of the clock today, but not the opposite?" which is not very meaningful for many people. Arthur (1989) attempted to define the concepts of "technological locking" and "path dependency" in his research.

Later, after Paul David and Brian Arthur, many economists, including Paul Krugman (1991), Liebowitz and Margolis (1995) and Pierson (2000), studied on this concept.

Paul Krugman (1991) conducts studies on factory site selection. In this study, if the firms operating in the same field have chosen the same place for production, all firms can benefit even if the chosen place is not actually the most productive place, it is thought that it is the most fertile place because of its gathering (Krugman 1991; Sisko 2010).

Liebowitz and Margolis (1995) investigated how the QWERTY typewriters and, in addition, the VHS videos were able to capture and maintain market dominance, even though they were not better.

Finally, Pierson (2000) investigated the influence of a company or institution operating

in any area and the advantage given by the first, they have investigated why firms or institutions that have started to operate later fail in spite of to produce better quality and less costly production.

1.3 Path Dependency Degrees

Liebowitz and Margolis (1995) claimed that there are three different levels of path dependence in their work. At this point, they emphasized that path dependence is very common in the first and second grades. These forms are a reflection of an ordinary continuity. Although the first and second-degree dependence of path dependence did not contradict the ongoing concepts of economics, they suggested that third-degree path dependence challenged the neoclassical theory.

1.3.1 First-degree path dependency

In first-degree path dependence, it is possible that the continuity of the previous situation or decisions can exist without any inefficiency. There is not certain inefficiency, at this stage. In short, path dependency on the first-degree includes situations that do not require payment of a price if the path is abandoned. For example, a decision taken by a person to separate his or her hair from the left may lead to the separation of the lifelong hair from the left. In this case, the first impulse that leads to the separation of the hair from the left should be considered. Similarly, a system may continue in line with the decision of the developer for a long time in a plant (Liebowitz and Margolis 1995).

1.3.2 Second-degree path dependency

Since the information can never be perfect, there is always a second possibility. When failing to predict the future, it can be understood that decisions that seem to be effective at first are not actually effective afterward. In such cases, the inefficiency of the selected route cannot be predicted at the time of the decision, but it is understood that other alternatives may be more beneficial when the process is spontaneous. In this case, which is referred to as path dependency in the second degree, consequences may arise in which the previous situation and decisions will be scorned or paid to change. At this stage, it is predicted that the effects that will occur at particular times will multiply mistakes (Liebowitz and Margolis 1995).

1.3.3 Third-degree path dependency

In this kind of path dependency, continuity leads to ineffective consequences; but in this case, the result can be corrected. That is, there are applicable regulations to define and achieve the desired outcome, but it is a matter of making the arrangements and paying very high prices to leave the way. In short, the difference of third-degree path dependence is that it is difficult to escape from mistakes.

The grading of path dependence has also strengthened claims about this concept. First and second-degree dependence of path is a reflection of ordinary continuity and is also used in economic modeling. In these two cases, the selected routes cannot be improved even if the information is given about the available alternatives. But in third-degree path dependence, the path is more likely to proceed because it is more difficult to leave the path (Liebowitz and Margolis 1995).

1.4 Stages of Path Dependence

Conceptually, path dependence assumes that decisions are open to revision at first. Over time, however, past decisions gradually limit future decisions. Apart from the effects of previous decisions on future orientations, path dependency theory has argued that the incremental gains to be achieved create a self-empowering process that cannot be controlled, which can eventually lead to a lockout for a particular solution (David 1985). The path dependency process consists of three different stages, which are shown in Figure 1 (Schreyögg et al. 2009).

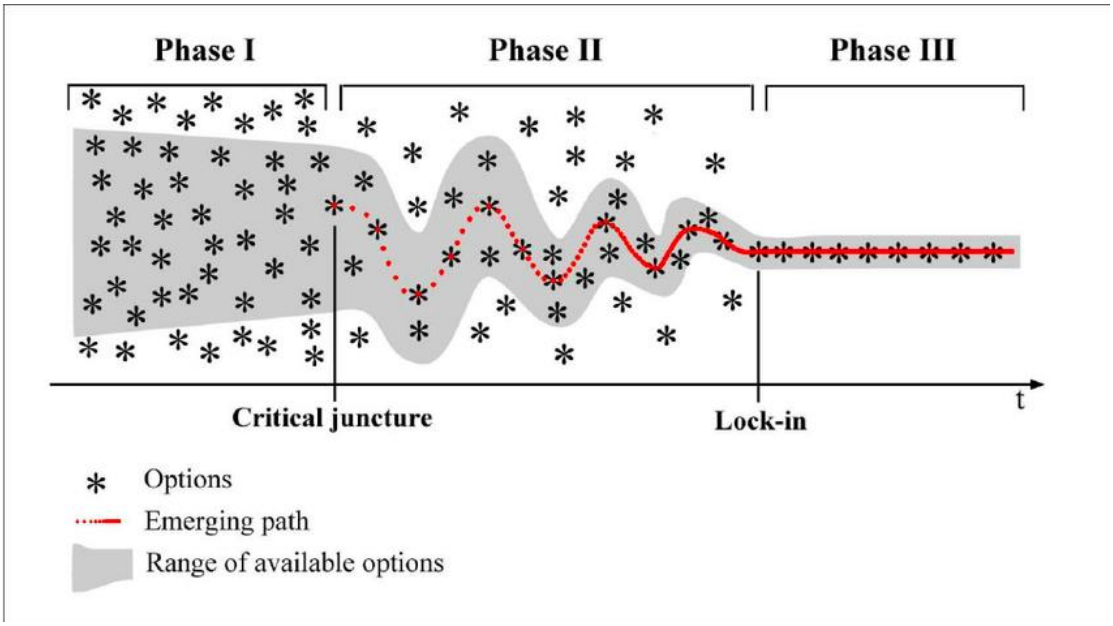

Figure 1: Path dependence formation process (Schreyögg et al. 2009).

1.4.1 Pre-formation phase

This phase also referred to as the first stage, is defined by a wide range of movements, which cannot be predicted by prior situations or events. At this stage, the effects of alternatives cannot be predicted (Mahoney 2000). At this stage, it can be affected to a particularly extent by the past. Therefore, the past should not be perceived as an entirely different conclusion without any trace. In short, history is important. Decisions that one takes may, after a while, lead to a small progress that unintentionally triggers the self-empowerment process. From the point of view of path dependency, the random decisions taken at the beginning become important only when self-reinforcing mechanisms are concerned. This entry moment, identified by self-reinforcing mechanisms, is called the 'Critical Turning Point' and refers to the end of the pre-formation step (Schreyögg et al. 2009).

1.4.2 Formation stage

At this stage, also referred to as the Second Stage, the self-reinforcing mechanisms emerging at the beginning of the path, which is initially open and controversial, are at the foreground (Arthur 1989). Six types of self-reinforcing mechanisms have been defined in economic and institutional studies.

- Economies of scale; this is best known self-reinforcing mechanisms. Increasing the output of a commodity or service (per term) causes the cost per unit to decrease; that is - if we take the prices as given - an increased profitability. The logic behind this thinking is to expand the volume and produce with the same procedure and aim to go on forever.
- Network Externalities; a user's benefits from a purchased good or service increase over-proportionally the more other persons use the same good or service, too. They work better the more employees subscribe to them, and it is more attractive to join a network the more employees are using it already and the better it fits in with other information systems (e-mail, portals, etc.). (Schreyögg et al. 2013).
- Learning Effects; if the operations is done frequently, the next operations process become more efficient. And the average cost per unit is lower. As long as a work is done efficiently, the attractiveness of passing new work will be much lower. Only sticking to the once-chosen solution promises increasing returns. (Schreyögg et al. 2013).
- Adaptive Expectations; this self-empowering effect is initially related to the interaction of choice and preference, that means, preferences are not fixed individually; instead they change with the expectations or activities of others. Generally, the quoted examples emphasize the need for social belonging and the desire for ending by the winners. Self-evident prophecies, spontaneously growing reciprocity, and the effects of goodness and farewell are often based on adaptable expectations. (Schreyögg et al. 2013).
- Coordination Effects; the coordination effect is related to the heart of organizational theory. It is based on the benefits of rule-based behavior: if more actors adopt and apply a certain rule, the interaction between these actors becomes so effective. Since the behavior of actors is guided by rules, predictable, reactions can be planned and continued in this way. As a result, if more people and institutions fit into the system, it becomes more attractive to other people and institutions to accept and follow those same kinds of institutions. (Schreyögg et al. 2013).
- Complements; complementarities come from pluralism and connection between different institutions or systems. Essentially, complementarities mean synergies resulting from the interaction of two or more separate and distinct institutions. In the case of complementarities, institutions' advantages simply do not come together, they generate an extra surplus. For example, a company that combines knowledge of marketing and R & D can achieve much more successful results. (Schreyögg et al. 2013).

When examining the above self-reinforcing mechanisms, it is possible to say that almost all mechanisms are responsible for the causes of regional inequality. For example, when the benefit of public investment made in a region is obtained, it is possible to see the same

investments in other regions in a very short period of time. However, the investment needs of each region can be different. This can be explained by network externalities. For example, one of the biggest problems in Istanbul is the traffic problem, while the problem of another region can be related to health in education. Therefore, while a road to Istanbul is a very important need, it may not be needed for another region. Doing the same investment in different regions does not eliminate regional inequality, but it can increase. Again, the adaptive effect mechanism may lead to regional inequality. Sometimes the return of an investment can take many years. In other words, the return time of investments in environment-related investments can take a very long time. However, the investor will prioritize the more ineffective investments if they are willing to obtain a return on investment within a short time and in an effort to prove themselves as the winner. These investments will provide a short-term benefit to the regional disparity, but will not produce a lasting result.

The effect of coordination and complementarity is very common in public investments. Too much regulation and the tendency of different institutions to move with each other will create more bureaucracy, which in turn will lead to slower realization of the investments that are supposed to take place.

Many of these have been modeled in studies of economics. There are different self-reinforcing mechanisms in organizations that depend on emotional reactions, prejudice or political processes. The people who worked on this concept intended to develop self-empowering feedback. Under this broad perspective, the example of increased returns has a certain place among these feedbacks. At this stage, the option field gradually decreases, and it becomes increasingly difficult to return the initial preference. At this stage, decision processes still depend on luck, and preferences are still possible, although limited. This stage is not a stage that is fully dependent on an option (Schreyögg et al. 2009).

1.4.3 Lock-in phase

The third stage, which is also emphasized as the final phase, is defined as a stronger contraction which leads to lock at the end of the course. In this process, the decisions taken are fixed, have a semi-specific feature, gain determinative properties, and eventually movements are entirely connected. A clear choice, decision or movement becomes rigid and flexibility is lost. Even new entrants to this area of action have to accept it. Lockdown is not strictly inefficient in the short term, but it is likely to cause problems when considering organizational flexibility requirements. However, the locking problem

is seen as a more effective alternative in the short-term and occurs when the long-term change is not possible. The result is a potential inefficiency that may or may not exist in the present situation (Schreyögg et al. 2009).

Examples of mechanisms that could lead to such cumulative and potentially irreversible consequences; scope economies, network externalities and learning effects. In the models in which these examples are examined, especially path dependencies, in organizations and at the beginning of organizational decision making even the question of how it emerged. Sydow and others (2005) the 4 stages of formation of path dependency in organizations are conceptualized.

1- Path Creation / Selectivity: It is defined as the emergence of a random path or a deliberate path search.

2- Path Creation / Shaping: As the forming of the path being created defined phase. The agents have to be obvious for their actions.

3- Path Dependency: As the name implies, it is defined as path dependence. This stage is perceived as a restrictive corridor.

4- Opening a path: Opening a path intentionally or unintentionally, in short, verbal, behavioral and systematic approaches to change.

As a result, the views on the dynamic structure of the paths leading to the closure have been provided by evolutionary economics studies. In this context, actions were taken in the past increasingly limits future choices. The patterns of action used repeatedly may become a necessity for future action and may leave no alternative option (Dosi and Others 1992).

1.5 Path Dependence Case Studies

In this section, VHS video recorder and Microsoft will be examined to improve the understanding of the concept of path dependency and other related concepts described above.

1.5.1 VHS video recorder

In the case of the videos, Sony which is owner of the Betamax system and the JVC which is owner of video home system (VHS) did not agree on common specifications. This dispute led to a controversy between the systems from the mid-1970s to the mid-1980s.

This subject is shown as a classic example of technological competition in marketing literature.

In 1975, Sony began selling Betamax, a 1-hour recording device. Matsushita JVC has continued to work on a machine known as the Video Home System, or VHS. Sony also wanted to make Betamax a standard for the market that would stop its rivalry.

For this purpose; Sony offered their format to Matsushita and Matsushita-JVC before offering Betamax to the market. And Sony shared Betamax's technical details with these companies. The only real difference between Sony and Matsushita-JVC was the video formatting of Beta and VHS tapes, and more importantly the size of the tape. Sony also focused on the small size of the cassette. Matsushita-JVC focuses on the length of the recording period. One of the Sony participants in the interviews suggested that VHS is a copy of Betamax. At the end of the meeting, both companies continued to progress in their own way (Liebowitz and Margolis 1995).

The focus difference between Beta and VHS has led to critical consequences. With the Matsushita-JVC launching on the VHS market, Sony's 2-year-long solid lead has come to an end. Users preferred the length of the recording time.

In addition, the most important factors in getting VHS videos to become more popular on the market are easy accessibility and price advantage. VHS machines could be reached through rental chains. Beta is seen as a brand preferred by the upper segment, which is looking for quality on the market and looking for more financial folding for it.

Sony has agreed with Toshiba and Sanyo on the Beta format. Matsushita has agreed with Hitachi, Sharp and Mitsubishi about VHS format. Beta's recording time was raised to 5 hours, VHS's was increased to 8 hours. From technological point of view; the length of the recording period requires the cassette to run slower. This has been a disadvantage of distorting picture quality (Liebowitz and Margolis 1995).

In 1984, almost all video recorders adopted VHS. At the current point, Sony Beta tapes have a better picture quality, but recording time is shorter. The picture quality of Matsushita VHS tapes is worse, but the recording time is longer (Liebowitz and Margolis 1995).

According to Margolis and Mordecai (1996), and Sydow, Schreyögg and Koch (2009); In the case of VHS there are indirect network effects. Following the first buyers, the other buyers preferred the VHS, so there was addiction. The longer the recording time of the VHS, the more it contributes to the formation of dependency. Company strategies have been influential in getting share from the market. The RCS and Matsushita partnership has created a high potential for buyers. The transition from Beta to VHS has not only

been fast, but has also been repeated on many different national markets. The triggering event in this case is not random or small. More importantly, it is a definite step towards defeating the Sony Beta standard, which is superior to technology. Matsushita has made a deal with the biggest Hollywood studios to deliver the content securely as a first step in this direction (Margolis and Mordecai, 1996, Sydow, Schreyögg and Koch, 2009).

Arthur (1989) used this competition to describe path dependence. Arthur links the superiority of VHS videos to positive feedback from the video rental market. Video rental stores have stocked up the video of the system with more customer accounts and then headed to buy a system where more customers can find more videos. Arthur, the general view Betamax is offering a higher quality, then the market selection is not the best possible output.

Cusumano (1992) supported the validity of Arthur's positive feedback mechanism and showed that Sony Betamax could not remain an alternative system. However, video rental markets have been involved in this late-stage competition, and VPH has a strong market share.

1.5.2 Microsoft

Microsoft's success can be given as another example of path dependency. Microsoft's success is an important element of networking. Some argue that Microsoft created a monopoly to destroy competitors' chances of success on the market, while others claim that a successful product can take its place on the market (Reback ve others 1995).

In many industries of the new economy, the race to win the largest share in the market arises for two reasons. In this type of industry, the network effect, leading to a growing number of customers who have first introduced a product that will satisfy consumers. This causes the company's product to become more valuable and rise to monopoly position as the customer pool expands. This monopoly situation is often mentioned for Microsoft. Some components of path dependency show that positive feedback supports Microsoft's competitive position and competitors prevent it from developing and delivering new products (Reback et al.1995, Liebowtiz and Margolis 1995).

The impact of networking on the software market plays a crucial role in Microsoft's PC operating system's apparent superiority to other operating systems. Once Microsoft has excelled over others, the market has begun to grow at its own pace. Customers locked in to Microsoft standard and operating they do not want to go through other systems by multiplying the cost of replacing the system. Microsoft has monopoly power in personal

computing systems. Everyone who uses a personal computer has to buy an operating system, and the users have to choose Windows. Because; most of the application software is written in accordance with the Windows operating system. Most personal computer users use this operating system. The fastest and most advanced microprocessors, hard drives and other hardware components are produced accordance to Windows.

1.6. Path Dependence Research In Regional Development

As a result of the literature survey; it is seen that the researches on path dependency are predominantly based on conceptual studies and case studies. In the literature, case studies are generally examined chronologically, and events called "turning point" are identified in the past of the cases. Later, the sequence of events leading to the formation of turning points was interpreted from a point of view of path dependency. It is understood that there are very few studies on the mathematical modeling and analysis of theory and in these studies, it is understood that the relationship between the factors is modeled by taking into consideration a few factors that cause path dependence in the cases mostly studied.
Nevertheless, regional conflict, destructive events, and regional path formation have gained importance in the literature discussions, although the issue of path dependence provides a broad framework for examining important issues in regional economic renewal, transformation and conflict.
David and Artur's Path dependence models share three important things in common;
First, unusual events have long-term economic impact. Second, mechanisms such as increased returns or network externalities empower situations created by a phenomenon that happens to happen by chance and is often known as locking. Thirdly, external shocks can interfere with continuity in the locked state. In other words, it can be seen as a process in which the present state depends on its own history, but eventually depends on its own situation or can return to its previous state (Hassink 2013).
Studies focusing on regional closure refer to the fact that as a consequence of path dependence, there is a lack of regional industrial structure in the absence of change. This, however, is evidence that it prevents a deviation from the historically dominant path.
The work of creating regional paths usually uses the concept of path building to describe a situation in which a zone has moved away from a previously locked location. Most of these studies focus on the development of a new way to "break" that has led to shock, changing the old, ever-decreasing path.

A major shortcoming of the literature on regional path dependence is that there is little study about the role of individual agencies that influencing individual path dependence. In a recent study, Sydow et al. (2010) showed that it may lead to path dependence of intentional actions aimed at strengthening the situation by individuals or institutions. They also showed that the Berlin-Brandenburg optic clusters entered into a path-dependent regional process, which is intentionally associated with a deliberate, pre-established regional industry structure.

Finally, path dependency studies as branching process explain the changes in regional industrial structure and new path formation as a result of new combinations restricting and restricting existing regional industrial structure. This last perspective evokes an evolutionary approach and sees new path creation as an endogenous process (Hassink 2013).

1.6.1 Public expenditure and path dependence

Public investments have an important influence on the economy and are used by many governments as an important means of achieving regional disparities. As emphasized above, researchers who research path dependence seem to focus more on conceptual studies and case studies. In the literature, it is not possible to find much studies on public expenditure/investments and path dependency concepts. Our thesis aims to contribute to the literature with this aspect.

Font and Oreggia (2005) examined the existence of the path dependence on the government's expenditures of Mexico under the conditions of a single party in power 1979-1999. In their study, they found that voter voting was effective in sharing public investments and showed that the effect of path dependence on public investment was quite high. They also indicated in their study that lack of political competition is likely to explain the continuation of similar distribution criteria over time.

In their work, they examined whether the central state governments' political rhetoric influenced the distribution of public investments over time. For this reason, they have tested the hypothesis that government changes have a significant impact on the geography of public investment. As a result of their work, they point out that the concepts of path dependence and inertia could potentially become key to explaining the governments' regional policies. And that public investments in Mexico do not rely on criteria such as compliance and productivity, but instead appear to vary depending on political discretion and are used to provide incumbent party support (Font and Oreggia 2005).

Mexico has been involved in the process of regional integration in North America in the 1990s. Following this process, Font and Oreggia (2005), investigated whether Mexico is allocating public investments to the most productive regions in the development process, affected by regional policy changes. And as a result, they pointed out that the regional integration may have distorted the dependence on the current path, and that a favorable factor in the trade leads the public investment. Nevertheless, they also stated that regional integration could enhance adaptation to road change.

In addition, Font and Oreggia (2005), pointed out that presidential changes in Mexico seemed to have only weak effects on regional policy changes because of the lack of impact on the federal government change. They stated that, but federal government changes affect the way public funds are distributed over time (Font and Oreggia 2005).

Therefore, findings that point to the existence of path dependence in public investments are a complementary explanation of the regional political processes that determine public investments. And it can say that path dependence has significant influence on regional policies. However, the literature has not been adequately researched and our study will contribute to this issue.

1.6.2. Regional path dependence and lock-in

Research contributions define path dependence based on empirical observations that resemble the past behavior of ongoing behavior of economic actors, even in environments where the business environment changes dramatically. This situation arises, for example, at the insistence of institutional structures at the regional, industrial level. Most of these expansions define regional path dependence from empirical observations of regional lockouts.

For example, Grabher (1993) distinguished cognitive, functional, and political locking in the study of Path Dependence on the Ruhr region. Lock-in has caused the Ruhr-based steel and coal industry to ignore the signs of a changing international market orientation, which is increasingly favoring low-wage countries.

In addition, Grabher saw a similar conservative reaction between the German steel industry and politicians. Despite the increasing awareness of international competition in the 1970s, investments in the Ruhr region increased. A similar situation has also been found in the clock industry in the Swiss Jura region. Although this region has been a world leader in the clock industry for some time, it has stated that this region is weakened

the system that promotes innovation, during the global clock industry's return to microelectronics from the mechanical technological system.

In addition, Meyer-Stamer (1998) found that the opening of a closed economic system (Brazil Textile and Metal Industries cluster), did not lead to a rapid adaptation in some of the established cluster firms.

More than that, Bathelt (2001) defines the path dependence of the 1960s as Boston's journey to the high-tech economy. In particular, it refers to how Boston's Route 128 area survived major structural crises.

1.6.3. Disruptive Event and Regional Path Dependence

Many scientists working on the area of path dependence have dealt with the question of when and how the unstable state of a locked stable region would be rescued without being locked again. In fact, many studies in the literature refer to cases of regional change, but they do so through the analysis of a renewal, which has mostly created a shock.

Brauner and Feldman (2006) argued that the creation of a new industrial path in their synthesis of the cluster's emergence is an evolutionary logical and sequential process. Accordingly, an entrepreneurial event unfolds with a spark, revealing technology, institutions and business models. Increased returns consolidate the competitive advantage of the enterprise, enterprise, and investments.

Meyer-Stamer (1998) argued that a crisis has destroyed the stable and path-related development of three industrial clusters in Santa Catarina (textiles, metal engineering and ceramic tiles) in Brazil, where the companies with little co-operation between them are highly vertically integrated. Meyer-Stamer (1998) shows that the opening of the Brazilian economy to international competition in 1990, made firms more co-operative, and that after this co-operation the firms were in closer contact and interaction. As a result, he talked about intensive information flow and the establishment of certain supporting institutions (Meyer-Stamer, 1998: 1508).

1.6.4. Regional Technological Path-Dependent Change

Given evolutionary interpretations of how technological change has taken place over time, regional path dependence should be considered as a branching process in the form of regional diversity, especially in old and new industries. In the context of traditional path dependence (David 1985), path dependence can also be interpreted as branching

process, leading to a transition from one path to another due to external shocks. However, it is suggested that such changes are technically more likely to come from an old path based on the old. This suggests that the growth of a new industry should be exploited from the resources of the region, rather than ignoring the sources of the region (Neffke et al., 2011).

Neffke et al., (2011) showed that a new industry is more likely to be established in a region when skills and technologies are related to the current regional industrial base, in a longitudinal study of industrial development in the Swedish regions.

The above examples indicate that the regional path dependency phenomenon is gradually differentiated. In the ensuing years, studies have only begun to make notions of regional paths dependent on the path and to what extent they are important, but also on whether the path-dependent process does not want it or whether it has been created through purposeful action.

CHAPTER 2

REGIONAL PUBLIC AND DEVELOPMENT AGENCIES INVESTMENT POLICES IN TURKEY

2.1. Concept of Development and Regional Development and Regional Inequalities

Development, perceived as economic growth, is actually a quantitative transformation. Economic development is defined as economic growth accompanied by quantitative changes in production and employment structure (Kuznets 1966). At the same time, the development includes an inherent change that creates an environment in which all people benefit from advantages provided by the development (Demirci and Arıkan 1998). Increasing national income per capita, changing and renewing the economic and sociocultural structure also are related to the concept of development (Türk 1970). Economic development, on the other hand, acquires a local dimension, such as creating jobs by local employment, directing local people to production, and increasing national income per capita on a local basis (Beer and Maude 1996).

All regions of a country carry different characteristics. They are geographical, economic, social and cultural, land, nature and so on. Therefore, regions will not develop at the same level. Thus, there will be differences in terms of development between regions. As well as the differences in development between the various countries, there is also a distinction between historical, physical, structural and organizational characteristics (Göktürk 2006). Regional planning refers to the coordination of a region in economic, social and physical terms. The main objective of regional planning is to eliminate imbalances between regions (DPT 2004: 20). Appearing of diversity in the level of development of the regions necessitated the implementation of centralized and regional development policies. This concept of development aims to make the most of the local opportunities through the mobilization of the human, natural, economic, technological and cultural resources of the region.

2.2. Regional Differences in Turkey and Public Investment Policies to Reduce These Differences

There are significant differences between regions in terms of social and economic indicators in Turkey. In general terms, the reasons for the emergence of regional imbalances are geographical, historical, economic, social and cultural reasons.

The beginning of the decline of Anatolia, which is based on the decline of the Ottoman State, also manifested itself in the Republican era. The geographical and economic conditions of Turkey's western regions provide a more suitable infrastructure for regional development. In eastern regions, the lack of necessary modernization in production systems and the lack of qualified labor have been the main obstacles to regional development (Göymen 2005; Özel 2009).

Turkey is an economically developing country in which the interregional diversification is intense. It is a very important issue for Turkey to develop the regions and to use the public investment as a means to reduce the differences in development and to develop specific policies to achieve these purposes.

In this context, the course of public investments and policies developed with the purpose of distributing these investments among the regions has changed according to the important turning points in the Turkish economy. As Özdemir (2007) stated:

> The Turkish economy can be divided into three eras; 1923-1960, 1961-1979 and the post-1980 period. The period 1923-1960 is too complex to be defined as a period in which certain strategies are followed and policies are developed. This period can be defined as a period in which short-term fiscal policies are applied. The period from 1960 to 1979 can be defined as a period in which planned recovery cycles are followed by import-substitutive development strategies. The year 1980 is an important turning point in terms of Turkey's economy.

1980 and afterwards, in which import-substitution policies were abandoned, the policies of outsourcing and liberalization were at the forefront, continued until the end of the 1980s. The 1990s were a period in which the IMF and World Bank supported an economic program, which resulted in serious crises in the economic and political arena, resulting in a series of crises in the late 1990s and early 2000s. Even though investment expenditures have shown changes in quality during all these periods, as a necessity for public spending to be done in a planned way, has come against the public authorities because the aim of reducing the national resources efficiently and economically and

minimizing the imbalances between the regions to a minimum level is a very important issue especially for developing economies such as Turkey. For this reason, in 1960, the State Planning Organization was established to accelerate economic and social development, and a new period for Turkey, a planned period, was passed (Özdemir 2007). It will be useful to touch on some issues in terms of seeing the regional development approaches in Turkey and their success in implementation. These topics can be as follows; in what regions were the investments made before the planned period in Turkey? What regional activities are implemented in practice in the context of regional policies developed after the planned period? What was the effect of going out of the empirical work done?

Prior to the planned period, investments were directed mainly towards areas of concentration outside the Marmara region and efforts were first made to strengthen the transport links between these areas and Istanbul and Ankara. In the literature, it is accepted that the period of 1950-1960, when the government considered active public intervention in the economy, emphasized the state's investments in road, dam and energy infrastructure, public investments were realized outside of large settlements and private sector investments concentrated in Marmara and Aegean regions (DPT 2008). From the perspective of path dependence, it is possible to say in this era that this is the stage of path formation described in Section 2.4.2. Decisions taken at this stage seem like optimal decisions. And there is no question of payment of any compensation if decisions are abandoned. Therefore, it is possible to talk about path dependency at first degree for this period.

In the planned period starting from 1960, policies on regional development started to be implemented through Five-Year Development Plans (FYDP). In the 1960s, when the planned period began, thoughts and studies on regional development did not find much room in the literature, the conceptual infrastructure in this context began to be formed. In these years, there is more dominance about national development and foreseeing active public intervention to reduce regional disparities (Pirili 2011).

When we look at the first two FYDP periods, we see the characteristics of path formation phases that described in Chapter 2.4.2 that growth centers are intensifying and that resources are concentrated in these centers, encouraged private sector investments in these regions.

In addition to regional planning and active public intervention, tax incentive-based incentive schemes for the underdeveloped regions are important regional development policies of the 1960-1975 period. In the 1970-1980 period, neo-liberal views in the

economy also reflected regional politics. However, the change in this liberalization in the international economic system has been more a reflection of the Turkish economy since 1980. Nonetheless, we see that in this period, various policies and implementation tools (eg, incentive programs, practices that relatively improve the wages of employees, credit for agricultural and vocational purposes, financing support for investments from the Public Partnership Fund) are developed that indirectly intervene instead of direct intervention by the state. The period 1980-1990 was a time when liberalization started in the Turkish economy and different and new approaches were emerging in terms of regional public investment policies. Southeastern Anatolia Project (GAP) first came to the agenda in this scope, and in the same period, by the State Planning Organization (DPT), "Yerleşme Merkezlerinin Kademelenmesi (1982)" (Stratification of Settlement Centers) was conducted and published at 1982. This study has been prepared to maximize the utilization of scale economies and external economies in regional development and based on this study, it is envisaged to create "Functional Regions" and 16 functional regions are defined in this frame. However, in the next plan period, no policy related to the 16 regional approaches has been produced and the system has not been taken into consideration, but instead a planning at the regional and sub-regional level has been emphasized.

In the 1990s, it became a period in which the issues related to regional imbalances became the foreground, and regional development policies for active state intervention in terms of public investments were developed. In 2000, the EU began a period of accelerating its efforts to adapt to regional development policies. In the regional politics maintained in this period Sustainability, Life quality, Social and economic balance, equality of opportunity and the need for inclusion of participation principles has been emphasized. With the adoption of Turkey's membership in the European Union in 1999 and the ratification of the Accession Partnership in 2001 by the EU, a new turn has been initiated towards the development of policies and alignment with the EU Acquis has begun (Kösecik et. al, 2004).

These are the short term;

• Preparation of Classification of Statistical Regional Units in accordance with Community rules,

• Adopt a strategy for developing an effective regional policy

• The establishment of regional policy criteria in terms of project selection in Turkey's planning process;

In the medium term, the reduction of regional disparities, the development of a national policy to ensure economic and social solidarity.

Within these structural transformations in the process of harmonization with the European Union, Regional Development Agencies are structured as important institutions to support the regional development process. Regional Development Agencies as an important means of implementation of the new regional paradigm, shaped by views such as moving local dynamics and increasing regional competitiveness; has been shaped as institutional structures that bring together the public and private sectors, universities, non-governmental organizations and local people at the local level to maximize the benefits of local resources for regional development and to design and reflect strategies that improve regional socioeconomic conditions. More detailed information on this topic is given below.

As mentioned up to this point, there has been a regional development process in Turkey where a variety of regional policies have been followed up to 2000's. In this process, the effects of public investments, which are used as a regional development tool and distributed among the regions, in reducing the regional disparities and whether the policies are successful or not are analyzed with empirical studies on Turkey. Looking at the results of the study, it is unlikely to say that public investments in general reduce regional disparities. For example; Karaca (2004) found that income differences between cities did not decrease over time, on the contrary, they increased. Önder et. al, (2007) found that public capital has no effect on reducing regional disparities. They particularly emphasized the need to increase public investment in less developed regions rather than more developed public investment regions.

If we look at the content of regional development policies in the years of 2010, this period will be mostly based on European Union regional development policies (DPT, 2008).

2.2.1. Main factors affecting regional public investment policies in Turkey

The design of policies for regional development has traditionally tended to focus on balance between equality and efficiency. As we have already mentioned above, public investment policies developed to eliminate regional disparities in Turkey are generally

seen to be shaped by balanced growth, urbanization, migration, infrastructure and rural development targets for many years.

So far the concept of regional development, which has been examined in a wide frame and in many respects, has emerged as a matter directly related to public investments. For this reason, it is important to consider the regional distribution of public investments and which factors are taken into consideration. As public investments are used as a means of eliminating regional imbalances, investing more heavily in underdeveloped regions is expected to achieve the desired results.

Indeed, one of the traditional determinants of regional funding is regional solidarity and requirements. This implies that public funds are perhaps distributed on the basis of a need, based on performance indicators (Font and Oreggia 2006). In other words, public investments can differ to maximize economic growth.

According to Aschaur (1989), productivity decline in public services plays an important role in the decrease in the overall productivity of the growth. Especially in developing countries, economic growth targets are at the forefront of economy policies. Thus, in regions where the level of investment is expected to rise to the highest level, there is a high tendency to allocate public investments (Radolp et al. 1996).

In the light of what has been said above, it is possible to say that although public investments play a balanced role, they have a dual effect: a tool for the elimination of regional inequalities and a tool to support the general (and regional) development of the country.

In many studies, variables such as national income per capita, population density per km^2, share of agriculture sector in regional productions, share of industrial sector in regional productions are determined as regional development indicators (Yavuzdurmaz and Karadağ 2014).

Besides productivity and equity targets, other factors that determine public investments locally or quantitatively have also emerged. Indeed, public investments are at the discretion of the government and it can be expected that the political characteristics of a country will be determinant. Interestingly, these studies reveal that the political ideology and the style of the ruling government are the main determinants of public investment (Haan and Strumm 1997).

Furthermore it may be more difficult for large coalition and minority governments to choose to negotiate to balance the budget. Similarly, it has been shown that partisan preferences are related to the type of government, such as coalition or majority governments (Haan and Strumm 1994).

Nevertheless, despite the recent debate on the design of a more effective economic policy to overcome regional disparities (e.g. Barca, 2009, The Organization for Economic Co-operation and Development (OECD), 2009, World Bank, 2009). The debate does not attach enough importance to the influence of electoral policy on the design of public policies. (Luca and Pose 2015).

Surveys on economics and political science show that a second type of redistribution is happening in parallel to the allocation of large / programmed public investment expenditures. Such redistribution is likely to continue even when the framework of the same general development policy remains stable. The reason behind this behavior is the power of voters' politicians to hold in power (Luca and Pose 2015).

Since 1963, governments in Turkey have established a specific policy agenda to prevent inequalities in the regions and have used public investment spending as a tool to combat these inequalities. Investment allocations in Turkey are strongly dependent on the central ruler, which allows the central government to more easily identify programmed and tactical redistributive tendencies. Investments by the central branches of the central state also reduces the risk of changing prejudice in relation to the different absorption capacities of the regions.

2.3. Regional Development Agencies

2.3.1. Definition, objectives, tasks and emergence of regional development agencies

In many countries in the twentieth century, Economic Development Agencies (EKAs) were established to address regional problems. With the development of regional and local development concept, EKA has left its place to the Regional Development Agencies (RDA) (Akın and Yildiz, 2005). The first application of regional planning and development concept was initiated in 1930 in Tenessee, United States (USA) (Çavuşoğlu 1992). Although the first period they officially established marks the 1950s, the first appearance of the RDA was the Great Depression. The "Great Depression", which has deeply influenced the rural sector, in particular the industrialized cities, has shown its influence mainly in North America and Europe. In addition to its social collapse, it has also affected the whole world in both spatial and sectoral sense. Indeed, in the United States, the economic crisis of 1929 the regional development initiated in 1933 in the affected Tennessee Valley “program is the result of such a requirement and the first known example of RDA (Dinler 1994).

Regional Development Agencies (RDA) aim the economic development of the region by cooperating with all private and public corporations, local authorities, and non-governmental organizations within a certain geographical region of a country and established on the basis of a legal ground (Koçberber 2006). The RDAs are generally established by the central government in independent administrative structure with the aim of promoting and stimulating the socio-economic conditions of a bordered territory and being partially financed by the public administration. Similar to the regulatory and supervisory bodies known as the Supreme Council, they are the governmental organizations that withdraw public decision-making power from public bodies and distribute it to legal entities composed of the private sector and non-governmental organizations (NGOs) (Maç 2006).

According to the definition of the European Association of Regional Development Agencies (EURADA); The RDAs are agencies that support projects that identify sectorial and general development problems and identify solutions for these problems accordingly (Oksay and Kubar 2007).

The main function and goal of the development agencies are to ensure regional development. However, this can be achieved in various forms. Especially in Europe, the functions of development agencies differ. Development agencies fulfill the functions such as the creation of information banks, the support of the region on national and international platforms, the support to SMEs and the discovery of the enterprise potential while creating, supporting and directing the development projects between the sectors by taking into consideration the strategies (Özer 2012).

2.3.2 Regional development agencies in Turkey

Initial work on development agencies in Turkey began in 1990s. Turkey's entry into the EU's formal candidacy process has boosted this issue. For the first time in Turkey, the RDA's have the RDA's have been added to the agenda at the 1999 Helsinki Summit, where full membership was registered to the EU. At the "Accession Partnership Document", which the EU Commission has prepared, the legal regulation process has started with the inclusion of RDAs medium term regulations.

As an organic part of the "Draft Basic Law on Public Administration", The Law on the Establishment, Coordination and Duties of Development Agencies was adopted on

January 25, 2006 (Oksay and Kubar, 2007) and was published in the Resmi Gazete (State Gazette) on February 8, 2006 (DPT, 2007: 18).

In accordance with the decision of the Council of Ministers dated 22 September 2002, numbered 2002/4720, Turkey has been divided into 3 classes in terms of population density, population size and GDP within the scope of Nomenclature of Territorial Units for Statistic (NUTS) in Turkey. Class 1 classified as 12 provinces, Class 2 classified as 26 provinces and Class 3 classified as 81 provinces covering the whole country that shown in in Appendix Table A1. As a pilot application established in 2006, in the TR62 NUTS II Region, Cukurova Development Agency covering the provinces of Adana and Mersin, and İzmir Development Agency in the TR31 NUTS II Region covering İzmir province have been settled down. Development agencies established in Turkey are shown in Appendix Table A2.

The main objective of Development Agencies according to the Law on the Establishment, Coordination and Duties of Development Agencies;

> is to set out the principles and procedures regarding the establishment, duties, authorities and coordination of the Development Agencies which shall be organized for the purpose of accelerating regional development, ensuring sustainability and reducing interregional and intraregional development disparities in accordance with the principles and policies set in the National Development Plan and Programmes through enhancing the cooperation among public sector, private sector and nongovernmental organizations, ensuring the efficient and appropriate utilization of resources and stimulating local potential.

(Law No. 5449 published in the Official Gazette No. 26074 dated 08.02.2006), (www.karacağ.org.tr)

The revenue of development agencies consists of central budget, special provincial administrations, municipalities and funds allocated from industrial and commercial chambers and other income. Resources to be provided from the European Union (EU) and other international funds, operating revenue, donations and aids are also regarded income.

Funds provided by the European Union and the World Bank are not a general or regular income. Especially "European Regional Development Fund" and "Structural Fund for Pre-Accession" step in on the issue of financing. The European Regional Development

Fund, one of the structural funds of the EU, is given to the countries with structural difficulties in order to develop their infrastructure, prioritize local development and adapt to global competition, while the Structural Fund for Pre-Accession Fund is provided for infrastructure projects of countries that are candidates for the EU membership.

Subparagraph (a) of Article 19 of the Law on the Establishment, Coordination and Duties of Development Agencies No. 5449 decrees that a certain share be given by The High Planning Council from the collection of general budget tax revenues in the previous year after tax returns and shares transferred to local banks and funds are deducted from the remaining amount for each development agency and that population, level of development and performance criteria be taken into consideration in making this distribution(allocation).

Of the total 2015 revenues of development agencies in Turkey, general budget revenues had a share of 55%, special provincial administrations 2%, municipalities 27%, chambers of industry and commerce 1%, resources provided by the EU and other international funds 1%, donations and aids 1% and operating revenues 7% (http://www.kalkinma.gov.tr).

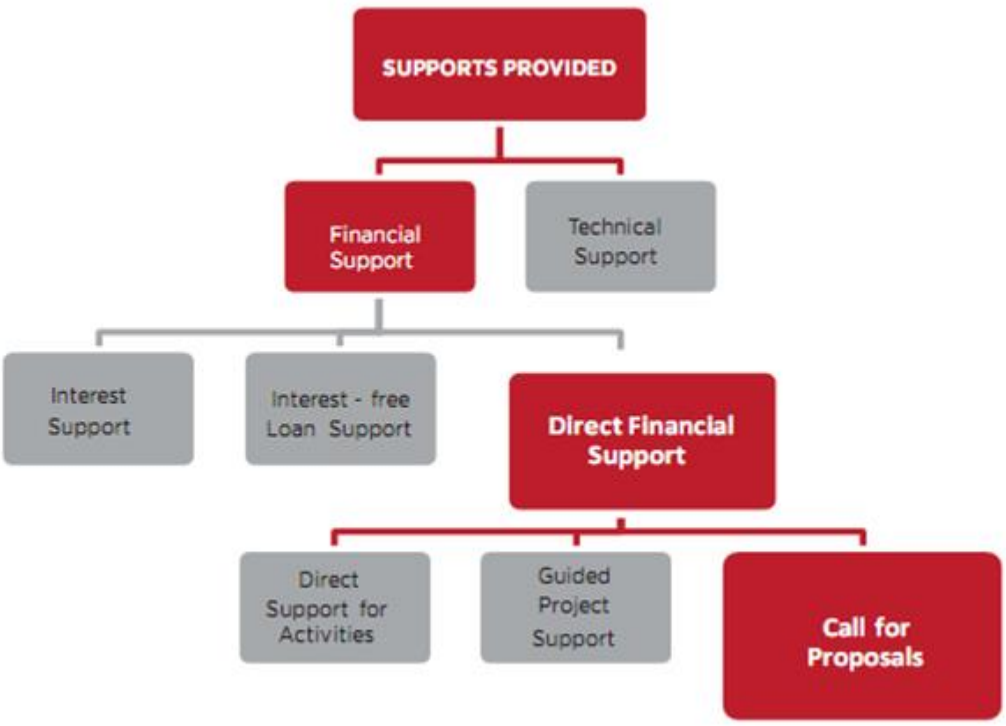

Figure 2: Supports by Development Agencies in Turkey
(http://www.karacadag.org.tr/en/destekler.asp)

Development Agencies, that are equipped with high technical capacity, act as supporters of local actors, coordinator, and catalyzer in the region; aim to accelerate regional development by improving the collaboration among public sector, private sector and non-governmental organizations. Supports that can be provided by Agencies according to the regulations are in two formats; financial supports and technical supports. Financial supports are listed in three groups as Credit Interest Support, Interest-Free Credit Support, and Direct Financial Support (Figure 2).

Direct Financial Supports are implemented in three types; Call for Proposals, Guided Project Support, and Direct Activity Support. Agency may choose to implement "Restricted Call for Proposals" method for financial support in necessary cases. Rules and conditions for each support type differ. Standard rules regarding these supports can be enhanced in support program announcement periods by adding specific conditions for the relevant support. These rules are presented in Program Application Guides that are specifically prepared for each support program.

a) Financial Supports

Development Agencies may provide financial support for the projects and actions of private sector entities, non-governmental organizations, public entities and organizations, universities, professional establishments bearing the character and nature of a public agency, local administrations and their associations, cooperatives and their associations and all other real and legal persons that would help in the implementation of the Regional Plans and Programs, provided that they are always clearly defined in the annual activity schedule and application guidelines. Financial Supports are:

- Interest Support Interest
- Free Credit Support
- Direct Financial Support

b) Technical Supports

The purpose of the technical support to be provided by the Agency, is to provide technical support to the operations of local actors which have importance for the regional development, however, owing to the difficulties that have been encountered during preliminary and implementation stages due to lack of institutional capacity.

- Training,
- Contribution to Program and project drafting
- Assigning ad-hoc experts
- Providing consultancy service,
- The institutional and capacity building activities such as lobbying and building international relations

c) Investment Support and Promotion Activities

Investment Support Offices (YDO) are offices that provide consultancy services to domestic and foreign investors, contribute to the realization of the administrative transactions required for new investments, attract investors to the region by promoting the investment opportunities of the region. YDO's are also one of the local agencies involved in organizing investment incentive certificates under general incentive schemes. YDO is accountable to the Secretary General regarding its duties. The services provided to investors by The Investment Support Offices are free of charge. (www.ankaraka.org.tr, www.investinkaraman.gov.tr)

CHAPTER 3

EMPIRICAL ANALYSIS

In this section, the investments made by the central government and the RDAs in NUTS II regions between 2010 and 2015 have been examined empirically with the perspective of path dependency. At this point; I expect RDAs investment decisions to be less influenced by path dependence because of the more flexible structure of RDAs. Structure of RDAs are more flexible because Law 5449 gives RDA administrations more autonomy. On the contrary, I anticipate that the investments made by the central government will be affected by more path dependency.

3.1 Method: Model and Variables

In order to test path dependency in RDA support and per capita public investments in RDA regions (which are also NUTS II regions), each region was regressed according to their population density and gross regional domestic product per capita. Considering that a new investment was also influential in the following years, a lagged empirical analysis model was preferred in the analysis.

The analysis focused on regions to identify and measure the presence of the path dependence effect in the regional public investments made by the central government and development agencies (NUTS II level).

Accordingly, the empirical model was formed as follows;

$$Y_{i,t} = \beta_1 P_{i,t-1} + \beta_2 X_{i,t-1} + Y_{i,t-1} + \alpha i + n_t + \varepsilon_{i,t} \qquad (3.1)$$

Where $_i$ and t represents regions and years respectively; $Y_{i,t}$ are dependent variables which are represents RDA supports and public investments per capita in regions. α_i and n_t are respectively region and year dummy variables, and $\varepsilon_{i,t}$ is the error term.

$X_{i,t-1}$ is a vector of independent variable containing deviation of regional GDP per capita from the mean (Ldis) and population density (Lpopdens). We convert GDP per capita to deviation from mean in order to account for the relative position of each region on the scale of the per capita GDP distribution. We also control for population density because public investments can be directed to large populated areas that need more resources and public services. In order to account for this effect our model includes a variable known

as Lpopdens. GAP variable in our model is dummy variable, which refers to investments made in the regions covered by the Southeastern Anatolia Project may systematically differed from rest of the Turkey.

The analysis employs a panel data set covering 26 regions (NUTS II level) with their population density and gross regional domestic product per capita, and pooled OLS and fixed effect models are used in this analysis.
All after that we adopt the following explicit forms for our model:

$$RDA\_pc_{i,t} = \beta_1 * Ldis_{i,t-1} + \beta_2 * Lpopdens_{i,t-1} + \beta_3 * gap_{i,t-1} + \beta_4 * RDA\_pc_{i,t-1} + \alpha_i + n_t + \varepsilon_{i,t} \quad (3.2)$$

$$Pubinv\_pc_{i,t} = \beta_1 * Ldis_{i,t-1} + \beta_2 * Lpopdens_{i,t-1} + \beta_3 * gap_{i,t-1} + \beta_4 * Pubinv\_pc_{i,t-1} + \alpha_i + n_t + \varepsilon_{i,t} \quad (3.3)$$

The sources for dependent and explanatory variables are summarized in Appendix Table A3. The description of each variable is below:

Dependent Variables;

Per Capita Public Investment

Per capita public investment values of the regions have been obtained by re-calculating the provincial-based investments by the central government between 2010 and 2015 according to the NUTS II regions. Total values to each region include investments, agriculture, manufacturing, transport, housing, education, health and other services. All the values expressed in 1000 Turkish Lira (TL) (Ministry of Development General Directorate of Investment Programming, Monitoring and Evaluation.).

Per Capita RDA Investments

RDA investments represent supports for programs implemented in regions of development agencies between 2010 and 2015. Among these programs, there are many kinds of supports such as social responsibility projects, infrastructure projects, environmental projects, renewable energy projects. All the values expressed in 1000 Turkish Lira (TL).

Independent Variables

In our analysis, we are trying to determine what are the variables that are effective in the public investments and the investments of the regional development agencies, and how effective these variables are.

There are various economic and political reasons in Turkey that affect regional imbalances and public investment policies developed in this context. When we examine the studies conducted in this area, we can see that variables such as population size and /

or density of population, area, per capita gross regional domestic product, voting rate of electors of the ruling party in a region, education level is considered as determinants of public investment policies at the regional level (Karadağ and Yavuzdurmaz 2014).

While we included in our analysis the variables of per capita gross regional domestic product (GDP) and population density per regional, we did not include the level of education of the region and the voting rate variable in the region of the ruling party. Because our analysis covers 2010 and 2015 years, we predict that there will be no significant increase or decrease in education level during this period. And also, since there is no change in ruling party power during this period, we think that there is not much variability in the change of the voting rates. Moreover, we present results of regional fixed effect in addition to OLS. Regional fixed effects method takes into account the influence of these slow changing independent variables.

LDis, is a normalization of the per capita GDP in each region (see Appendix Table A3 for calculation). This variable accounts for the relative position of each region on scale of per capita GDP distribution. After the normalization, poor regions have a negative sign and rich regions have positive sign in the per capita GDP distribution. Given that low-income regions have negative signs, if priority is one of equality, the expected sign of this coefficient is negative. This variable may be subject to endogeneity because low-income regions may not only require more investment but also it means there is low productivity. Region that have more population density need more resources and public services. Our analysis tries to control this effect with Lpopdens. This variable is obtained by dividing the total population of each regions of development agencies by each the total area size of regions. It is expected that the investment coefficient of this variable will be positive as more resources and investment are transferred to these regions to meet the needs of regions with more population density.

GAP is a dummy variable. Because the GAP project is an integrated project covering the TRC1 and TRC2 regions, providing for the development and services of the dams, power plants and irrigation facilities as well as urban and rural infrastructure, transportation, industry, education, health and other sectors foreseen on the Firat and Dicle rivers. According to 2005 data, the total cost of the project is 28 billion dollars. Since this region has been invested for a long time, this region data has been evaluated as dummy variable (www.gap.gov.tr).

3.2 Summary Statistics

Table 1. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Variable Dates (Years)
Rda	158	14,658,320	15,424,451	0,00	106,084,376	2010-2015
RDAPC	158	6,22	5,87	0,00	32,02	2010-2015
Pubinv	182	913,476,450	911,763,240	96,723,000	6,392,505,000	2009-2015
PUBINVPC	182	344.05	207.48	63.97	1,007.70	2009-2015
Gdppc	158	16,475.64	7.239,63	5.275,00	43.645,00	2009-2014
Dis	158	0.10	1.01	-1.44	3.84	2009-2014
Popul	182	2,889,590	2,435,563	584,360	14,657,434	2010-2015
PopDens	182	194.50	499.79	63.97	2,821.00	2010-2015

Table 1 presents the descriptive statistics of the variables used in analysis. According to Table 1; The RDAs invested an average of 14 million 658 thousand TL in the regions. The highest value of this variable is TL 106 million while the lowest value is zero. The average amount of investment per person made by the RDAs in this period was 6.22 TL. The highest value of this figure is 32 TL.

When total public investments are considered, an average of 913 thousand 476 TL has been invested by the central government in this period for regions. The highest value of the investment amount was 6 million 392 TL while the lowest value was 96 thousand 723 TL.

While the population density of the regions is 194.5 people, the highest value of this variable is 2821 and the lowest value is 26. In this period, the average income level of the regions was 68 million TL. While the population density of the regions is 192 people, the highest value of this variable is 2820 and the lowest value is 63. By definition the average of Dis variable is zero and standard deviation is one. The minimum value is -1.44 meaning that the GDP pc of the poorest region (TRB2) is 1.44 standard deviation time less than mean. The maximum is 3.84; meaning that richest region (TR10) has a GDP pc 3.84 standard deviation times richer than the mean.

Table 2. Comparative RA and FE Empirical Model Estimation Results						
Variable	RDAPC (OLS)	RDAPC (OLS) $Y_{,t-1}$	RDAPC (FE) Y_{t-1}	PUBINVPC (OLS)	PUBINVPC (OLS) Y_{t-1}	PUBINVPC Y_{t-1}(FE)
Lagged Dis.	2.450***	-2.251***	-1.048	98.703***	-10,848	53.057
	(0.660)	(0.633)	(1.803)	(31.952)	(11,636)	(35.564)
Lagged RDA pc		0.099	-0.291***			
		(0.182)	(0.060)			
Lagged Pub. Inv. pc					0,982***	0.566***
					(0.042)	(0.046)
Lagged Pop Dens.	0.001	0.001	0.005	0.060*	0.005	-0.226
	(0.001)	(0.001)	(0.009)	(0.034)	(0,019)	(0.152)
GAP	-4.020**	-3.716**		-57.888	4.122	
	(1.147)	(1.158)		(35.663)	(20.290)	
2010	0.876	0.931	-1.101	56.338*	40.732**	48.496***
	(1.117)	(1.012)	(1.388)	(28.752)	(18.393)	(12.365)
2011	3.154**	2.647*	2.254*	120,151***	27.243	43.868***
	(1.429)	(1.521)	(1.226)	(40.110)	(24.305)	(20.511)
2012	0.415	-0.286	-0.514	188,660***	27.931	40.925*
	(1.404)	(1.688)	(1.410)	(43.897)	(19.072)	(22.110)
2013	2.960	2.569	0.659	282.449***	65.433**	78.971*
	(1.837)	(1.803)	(1.765)	(53.072)	(25.222)	(40.136)
2014	7.044***	6.445***	5.115**	356.233***	42.265	65.689
	(1,688)	(1.580)	(2.172)	(53.125)	(27.173)	(40.293)
2015	7.040***	6,004**	5.334*	393.903***	10.615	32.457
	(2.273)	(2.800)	(2.878)	(61.150)	(29.394)	(56.216)
constant	3.971***	3.903**	6.114**	137.443***	11.922	169.900***
	(1.037)	(0.927)	(2.827)	(28.722)	(16.174)	(46.499)
R-squared	0.199	0.205	0.255	0.297	0.855	0.739
N	158	158	158	182	182	182
F statistic	0.0008	0.0003	0.0000	0.0000	0.0000	0.0000
Hausman			29.96***			121.11***

All explanatory variables are lagged by one year. Robust, clustered standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1

Table 3: The logarithmic transformation of data

Variable	Log RDAPC (OLS)	Log RDAPC (FE)	Log PUBINVPC (OLS)	Log PUBINVPC (FE)
Lagged Dis.	-0.259***	0.157	-0.039	0.309**
	(0.085)	(0.186)	(0.028)	(0.116)
Natural log of Lagged RDA pc	-0.181**	- 0.277***		
	(0.077)	(0.070)		
Natural log of Lagged Pub. Inv. pc			0.915***	0.319***
			(0.037)	(0.058)
Lagged Pop Dens.	0.000	0.001	0.000	-0.002***
	(0.000)	(0.001)	(0.000)	(0.001)
GAP Dummy	-0.354**		0.079	
	(0.168)		(0.089)	
2010	-0.112	-0.154	0.187**	0.211***
	(0.217)	(0.250)	(0.092)	(0.046)
2011	0.414**	0.405	0.094	0.167***
	(0.249)	(0.248)	(0.095)	(0.059)
2012	-0.181	-0.318	0.152*	0.175*
	(0.283)	(0.261)	(0.092)	(0.088)
2013	-0.013	-0.314	0.232**	0.255*
	(0.272)	(0.287)	(0.097)	(0.125)
2014	0.833***	0.436	0.220**	0.254*
	(0.251)	(0.283)	(0.107)	(0.139)
2015	0.847***	0.367	0.106	0.126
	(0.318)	(0.386)	(0.104)	(0.173)
constant	1.855***	2.032***	0.433**	4.122***
	(0.204)	(0.356)	(0.213)	(0.344)
R-squared	0.242	0.291	0.842	0.768
N	158	158	182	182

All explanatory variables are lagged by one year. Robust, clustered standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1

3.3. Estimation Results

Table 2 presents the comparative results obtained with OLS and panel data FE estimator. The first three columns show estimates corresponding to the per capita investment amount in the development agencies' regions (RDA_pc). In the second and third column, the amount of investment per capita was added to the model as a lagged variable. The third column shows the results of the fixed effect model of the per capita investment amount. The remaining three columns show the results of estimates corresponding to the per capita public investment amounts made by the government in the region. the last column in the table shows the fixed effect model results. The years on the bottom are the coefficients for the years in which the analysis is included.

In the RDAPC and PUBINVPC regression analyzes, OLS and Panel fixed effect models were used as two basic models and the results were given on a table basis. Which one of this model should be used is determined by Hausman test. Hausman test results are also included in the table. The null hypothesis was rejected because the Hausman test results were smaller than the probability value of 0.01 and the fixed effect model was preferred to the OLS model for both models.

When the analysis results are examined, it is observed that the F statistical probability values of both models are smaller than 0.01. This means that the established models are significant. If we look at the R^2 values, the independent variables have an explanatory level between 20 and 74 percent.

When we look at the data in the table, we see that the coefficients of the LDis variable are statistically significant in RDA_pc OLS models, and statistically insignificant in the RDAPC fixed effect model. However, it is seen that the coefficient of this variable is negative in all three models. This shows that more investment has been made to support the development of regions with lower GDP.

The L.Dis variable has a significant and negative coefficient in the PUBINVPC OLS model. This variable is insignificant in other PUBINVPC OLS with lagged dependent variable and PUBINVPC fixed effect models. Moreover, it has both negative and positive coefficients. This shows that in the public investment preferences the region's

GDP level is not the primary determinant, but it must be sought for other reasons as well.

The first thing that stands out for lagged PUBINVPC variable (proxy for path dependency) is positive and significant coefficient estimates. That is, the regions that are used to have high per capita investment continue to receive higher level of per capita public investment in the following year. In other words, we find strong evidence for path dependency. In total public investment The coefficient estimate for RDAPC in Fixed Effect model is significant and negative (OLS model's coefficient positive and insignificant). In RDA investments, as the investments increase, the path dependency effect decreases according to FE model. In other words, Regional Development Agencies are able break the path dependency and are able to divert their investments to previously over-looked regions.

The absolute value of coefficients of lagged variables in Fixed Effect models are liable to be under-estimated (Arellano and Bond 1991). Hence over estimates here should be taken as the lower bound estimates for the path dependency effect. In the future, this issue can be further investigated by employing General Method of Moments (GMM) as developed by Arellano and Bond (1991).

The fact that the population density coefficients are predominantly positive indicates that there is a positive (but statistically insignificant) relationship between population density and RDA investments and public investments. This indicates to us that the regions that have high population density do not receive larger share of both the public investments and the RDA investments in Turkey.

When similar studies are investigated, it is possible to see different results between public investments and GDP and population density. Pose and Oreggia (2006), studying the impact of GDP and population density on public investments in Mexico between 1971 and 1999, emphasized that GDP has a positive impact on social and infrastructure investments. Accordingly, medium and high-income regions can receive more investment. Since the impact of population density is negative and meaningless in most cases, these investments do not aim to meet the needs of the population to

overcome the bottleneck in most cases. This emphasizes the need to search for other criteria, such as the efficiency criterion, in the sharing of public investments.

Some studies on Greece and Turkey have also found a negative relationship between population and density of population and public investments (Lambrinidis et al. 2005). However, in the study conducted by Hansen (1965) on Belgium, it was stated that there is a positive relationship between density of population and public investments. When assessed in terms of GDP, there is a significant but negative relationship between GDP and public investments in the study on Greece (Yavuzdurmaz and Karadağ 2014).

The coefficients of year dummies in both RDA investment models are significant in 2011, 2014 and 2015. In addition, coefficients in 2014 and 2015 have increased more rapidly than in previous years. When the coefficients of years in public investments are analyzed, it is seen that the coefficients of the OLS model are significant in all years, but in FE model, coefficients are insignificant in 2014 and 2015.

The results in Table 3 show the logarithmic transformation of data. That is the log transformation, which can reduce the variability of data and make data conform more closely to the normal distribution. Looking at these results, it can be seen that the results are even clearer than the results given in Table 2. According to these results, path dependence (lagged dependent variable) is positive and significant for public investments in both models. Moreover, Lagged Distribution variable has a positive and significant coefficient in the fixed effect model suggesting that richer regions receive more per capita investments the path dependence effect on RDA investments is negative and significant in both models.

3.4. Discussion

When we look at the literature on the establishment purposes of RDAs, as stated earlier, the fact that the agencies operate in a limited area, have a semi-autonomous structure and have representatives from all companies, local governments and NGOs belonging to the region in their management, allows the agency to act more flexible in its activities and investments and other decisions.

RDAs, provide information to the regional and local governments, from workforce and investment areas, transport to infrastructure, on a variety of topics; the region marketing and image of the new investments, leading to the bringing to the region. Establishment of close relations with universities and other educational institutions and the development of joint projects are among the tasks of the RDA (Arslan 2005).

In the light of all these aims and definitions, we see that the analysis results of the investment allocations of RDA are overlapped with the objectives of the RDAs. Accordingly, RDAs are investing more in regions with lower income in order to eliminate regional imbalances. However, according to our analysis, population density of the region is not a priority criterion in the investment preferences of RDAs.

Looking at the results of the analysis, we can see that the coefficients of year variables are high, significant and positive in 2011, 2014 and 2015. In these years general, local and general elections were held respectively. This shows that the general political environment influences RDAs, even if it is an autonomous structure. Alternatively, overall investment budget increased including the RDA budges hence they were able to distribute more support.

Especially for developing countries such as Turkey, the distribution of limited public resources effectively and to elimination regional imbalances is a very important issue in terms of the formation of public investment policies. Regional public investment policies affect the economic growth, and thus it is an important tool used for reducing regional imbalances. If this tool can be used correctly and effectively, regional development will be achieved, and the structural transformation will be realized and the differences between the regions will be reduced to the minimum level. However, there is a still serious imbalance between regions in Turkey, both in terms of economic indicators and share of public investments. The public sector has played a crucial role in removing these imbalances, although its weight has changed at various times (Yavuzdurmaz 2011).

As we said earlier, there are various economic and political reasons in Turkey that affect regional imbalances and public investment policies developed in this context. When we examine the studies conducted in this area, we can see that variables such as

population size and / or density of population, area, per capita gross regional domestic product, voting rate of electors of the ruling party in a region, education level is considered as determinants of public investment policies at the regional level (Karadağ and Yavuzdurmaz 2014).

During our analysis period in Turkey, general parliamentary elections, one in 2011 and two in 2015, the general elections of local administrations in 2014 and the presidential elections in 2014 were held.

Our finding of positive path dependency of overall public investment requires further analysis. Our data limitations do not allow us to explicitly test the political patronage channel. The following studies have focused on this issue with differing methodologies and data. Turkey is governed by one party with power alone during the analysis period, hence, it cannot be said that the geographical distribution of public resources or investments is not influenced by the political environment. As a matter of fact, Luca and Pose (2015) in their study of the relationship between elections held in 2002, 2007 and 2011 and the regional distribution of public investments uncover statistically significant evidence showing how provinces supporting the incumbent government have, ceteris paribus, received more per-capita public investment.

According to Luca and Pose (2015), despite the literature that points to the key role played by political parties in Turkey, other forms of non-electoral political competition may be shaping the geographical distribution of public investments. For example, Buğra and Şavaşkan (2014) have pointed out the role of trade associations.

It also shows how preferences for the allocation of public resources, especially in developing countries, may be related to ethnic origins and religious commitment rather than organized interests.

The partisan fault line between Justice and Development Party (AKP) and the main secular opposition party can also affect interests that are not partisan in parallel to other social divisions and, for example, on the basis of religiosity. However, lack of sufficient quantitative data does not allow for a full investigation.

Political manipulations may arise not only in the distribution of investments in the regions but also in the smaller scale in relation to local governments and micro-level.

Local economic development initiatives examined by Özcan (2006) are the industrial Anatolian city of Kayseri.

CONCLUSION

Path dependence indicates that a number of past decisions or events have led to today's events and decisions. The concept points out that the causes of what happened today or that happen should also be sought in the past.

For example, today's production technologies are the ones we have developed in the past. Or it is possible to see the concept of path dependence in a city built around a newly built factory. It makes more sense for a factory to be located away from settlements for various reasons. However, it is the case that the factory is usually built, and the workers need houses and facilities built nearby for them. Moving the factory after it is installed is very expensive, but it is better for the community to serve on the skirts of the town, and we can see that this settlement is slowly expanding its crowd.

It can be said that, even when we think simple, our daily decisions are acted by the influence of pathway dependence. For example, if you are not sure of the path to be traversed, and you arrive at a crossroads, the choice of route A and B may require that route a progress along this path, even if it does not yield the most accurate result. With the entrance and advancement of the A road, the possibility of returning from that road and entering the road B is undermined. This is because of the negative effects such as cost and time of return. For this reason, it will continue on its way and will be one of the roads that the road has reached on the road to be selected after that. Even in this simple example, pathway dependence occurs.

From this point forward, it is also possible that past decisions taken by previous governments, implemented practices, public investments and investment of development agencies could be influenced. In this study, we have tried to determine whether the path dependency effect is effective either on public investments or regional development agencies investment, and on how effective it is. After reviewing the literature on the concept of path dependency at the beginning of this study, we gave a partial picture of Turkey's public investment policy and then overviewed the structure and functioning of development agencies. Then, on the basis of effect of population density and GDP variables which are an important criterion in public investments and

RDA investments, and public investments, these results were examined from the point of view of path dependency.

Both OLS and Panel data analysis results show that the effect of path dependence in public investment is available, but it is not observed for RDA investments.

However, in public investment; although population density and per capita GDP are positive signs, there is no significant impact (except for log-log version with fixed effect model). GDP and population density are not the primary determinant of the region's public investment preferences.

For RDA investments, population density is not a very important determinant for the RDA, which already operates in a certain region. Deviation from GDP variable has a negative effect. This shows that more investment has been made to support the development of regions with lower GDP.

The fact that the population density coefficients are predominantly positive indicates that there is a positive (but statistically insignificant) relationship between population density and RDA investments and public investments.

If the coefficients of years are taken into consideration, it is seen that these coefficients are significant and positive in 2011, 2014 and 2015. Everything else happened in a given year is captured by year fixed effects. The empirical studies show that; the voting preference of the mass of voters in the region over public investments is very influential (Luca & Pose 2015). In these years, general and local elections were held. Therefore, it is possible to say that the reason of rapid increase in the coefficients is the elections. However, more detailed research is necessary to arrive at a definite judgment. Development Agencies are able to make more flexible decisions because of their more flexible structure and are less affected by path dependency when investing in the region. However, it is not possible to say to this for public investments.

It is possible to mention first and second-degree path dependency concerning the about investments of the Public and Development agencies.

Initial conditions or initial activities in first-degree path dependence can create a path dependency that may be costly to get out of. However, if the first choice is already the optimal choice, the formation of path dependency poses no problem. Here, it is not

necessary that the first choice is the only possible optimal choice. Having acted with one of the optimal choices in the first step is sufficient for first degree road dependence. In the case of the Şişli municipality, the municipality's lifting of trash cans to prevent explosions in the trash can is a good example of first-degree path dependence.

When the first selection is made to cause path dependence at the second level, it means that the information that the decision maker possesses may be incomplete. When choosing a decision, she may not know that the choice she made is a choice that will result in a lower level of results than she wishes in the future. When path dependence occurs after a while, it can be realized that entering a better path is actually more possible at the beginning. High sensitivity to initial conditions can cause regret and dependence on a costly path. Therefore, the path dependence formed here is referred to as second degree path dependency and no inefficiency is mentioned.

Considering the public and RDA investments in the analysis, investments are made, and a way has been entered. However, it is also possible that these investments can be re-realized in such a way as to give a better result for regional differences. Therefore, it is possible to talk about first degree for some investments and second-degree dependency for others.

In third-degree path dependence, the time elapsing does not just cause a new fault, which causes the faults to increase even if these faults can be prevented. Therefore, it is not possible to say about third-degree path dependence in this case, cause of we cannot fully measure the results and effects of the investments we are currently undertaking because too little time has passed since the establishment of RDAs at 2006 (Liebowitz and Margolis 1995, 2000)

Finally, we think it would be useful to mention public investment and RDA investments in the path dependency stages. As is known, Sydow, Schreyögg and Koch (2009) divide the developmental process of road dependence into three sub-stages. Pre-Formation, Formation, and Lock-in.

In the case of being lock- in, the dominant election pattern followed by the organization according to Sydow, Schreyögg and Koch (2009) gains a decisive character. Alternative routes of action are no longer feasible. In this case, increased replacement

costs, sunk costs, etc. there are various reasons. From this point forward, all choices and all decisions to be made will have to repeat the current path.

Since 1963, the governments of the Republic of Turkey have been using public investments as a means of addressing regional disparities and developing policies there. Likewise, development agencies also operate in order to reduce regional disparities. Empirical studies show that the policies implemented have not been very successful in reducing regional disparities. However, since our study only covers a period of six years, it is not possible to draw such a conclusion from our work. So, to talk about the lock-in of public investments, there is a need for a comprehensive study that includes more variables and is for many years to come.

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APPENDIX TABLES

Table A1: The Nomenclature of Territorial Units for Statistics (NUTS)

NUTS-1		NUTS-2	NUTS-3		NUTS-1		NUTS-2	NUTS-3	
TR-Turkey					TR-Turkey				
TR1	Istanbul	TR10 Istanbul	TR100	Istanbul	TR8	West Black Sea Region	TR81 (Zonguldak, Karabük, Bartın)	TR811	Zonguldak
TR2	West Marmara Region	TR21 (Tekirdağ,Edirne, Kırklareli)	TR211	Tekirdağ				TR812	Karabük
			TR212	Edirne				TR813	Bartın
			TR213	Kırklareli			TR82 (Kastamonu, Çankırı, Sinop)	TR821	Kastamonu
		TR22 (Balıkesir,Çanakkale)	TR221	Balıkesir				TR822	Çankırı
			TR222	Çanakkale				TR823	Sinop
TR3	Aegean Region	TR31 (İzmir)	TR310	İzmir			TR83 (Samsun,Tokat, Çorum,Amasya)	TR831	Samsun
		TR32 (Aydın, Denizli, Muğla)	TR321	Aydın				TR832	Tokat
			TR322	Denizli				TR833	Çorum
			TR323	Muğla				TR834	Amasya
		TR33 (Manisa, Afyonkarahisar, Kütahya,Uşak)	TR331	Manisa	TR9	East Black See Region	TR90 (Trabzon,Ordu, Giresun,Rize, Artvin, Gümüşhane)	TR901	Trabzon
			TR332	Afyonkarahisar				TR902	Ordu
			TR333	Kütahya				TR903	Giresun
			TR334	Uşak				TR904	Rize
TR4	East Marmara Region	TR41 (Bursa,Eskişehir, Bilecik)	TR411	Bursa				TR905	Artvin
			TR412	Eskişehir				TR906	Gümüşhane
			TR413	Bilecik	TRA	Northeast Anatolia Region	TRA1 (Erzurum, Erzincan, Bayburt)	TRA11	Erzurum
		TR42 (Kocaeli,Sakarya, Düzce,Bolu,Yalova)	TR421	Kocaeli				TRA12	Erzincan
			TR422	Sakarya				TRA13	Bayburt
			TR423	Düzce			TRA2 (Ağrı, Kars,Iğdır, Ardahan)	TRA21	Ağrı
			TR424	Bolu				TRA22	Kars

			TR425	Yalova				TRA23	Iğdır
TR5	West Anadolu Region	TR51 (Ankara)	TR510	Ankara				TRA24	Ardahan
		TR52 (Konya,Karaman)	TR521	Konya	TRB	Central East Anatolia Region	TRB1 (Malatya,Elazığ, Bingöl, Tunceli)	TRB11	Malatya
			TR522	Karaman				TRB12	Elazığ
TR6	Mediterranean Region	TR61 (Antalya,Isparta, Burdur)	TR611	Antalya				TRB13	Bingöl
			TR612	Isparta				TRB14	Tunceli
			TR613	Burdur			TRB2 (Van,Muş,Bitlis, Hakkari)	TRB21	Van
		TR62 (Adana,Mersin)	TR621	Adana				TRB22	Muş
			TR622	Mersin				TRB23	Bitlis
		TR63 (Hatay, Kahramanmaraş, Osmaniye)	TR631	Hatay				TRB24	Hakkari
			TR632	Kahramanmaraş	TRC	Southeast Anatolia Region	TRC1 (Gaziantep, Adıyaman, Kilis)	TRC11	Gaziantep
			TR633	Osmaniye				TRC12	Adıyaman
TR7	Central Anatolia Region	TR71 (Kırıkkale,Aksaray, Niğde,Nevşehir, Kırşehir)	TR711	Kırıkkale				TRC13	Kilis
			TR712	Aksaray			TRC2 (şanlıurfa, Diyarbakır)	TRC21	Şanlıurfa
			TR713	Niğde				TRC22	Diyarbakır
			TR714	Nevşehir			TRC3 (Mardin,Batman, Şırnak,Siirt)	TRC31	Mardin
			TR715	Kırşehir				TRC32	Batman
		TR72 (Kayseri,Sivas, Yozgat)	TR721	Kayseri				TRC33	Şırnak
			TR722	Sivas				TRC34	Siirt
			TR723	Yozgat	TOTAL	12	26	81	

Source: www.tuik.gov.tr, (Access Date: 22.02.2017)

Table A2: Development Agencies in Turkey

Established	NUTS II Region	Development Agency	Abbreviation	Provinces	Central Province
2006	TR31	Izmir Development Agency	IZKA	İzmir	İZMİR
	TR62	Cukurova Development Agency	CKA	Adana, Mersin	ADANA
2008	TR10	Istanbul Development Agency	ISTKA	İstanbul	İSTANBUL
	TR52	Mevlana Development Agency	MEVKA	Karaman, Konya	KONYA
	TR83	Middle Black Sea Development Agency	OKA	Amasya, Çorum, Samsun, Tokat	SAMSUN
	TRA1	Northeast Anatolia Development Agency	KUDAKA	Bayburt, Erzincan, Erzurum	ERZURUM
	TRB2	Eastern Anatolia Development Agency	DAKA	Bitlis, Hakkâri, Muş, Van	VAN
	TRC1	Silkroad Development Agency	IKA	Adıyaman, Gaziantep, Kilis	GAZİANTEP
	TRC2	Karacadağ Development Agency	KARACADAG	Diyarbakır, Şanlıurfa	DİYARBAKIR
	TRC3	Tigris Development Agency	DIKA	Batman, Mardin, Şırnak, Siirt	MARDİN
2009	TR21	Trakya Development Agency	TRAKYAKA	Edirne, Kırklareli, Tekirdağ	TEKİRDAĞ
	TR22	South Marmara	GMKA	Balıkesir, Çanakkale	BALIKESİR

		Development Agency			
	TR32	South Aegean Development Agency	GEKA	Aydın, Denizli, Muğla	DENİZLİ
	TR33	Zafer Development Agency	ZEKA	Afyonkarahisar, Kütahya, Manisa, Uşak	KÜTAHYA
	TR41	Bursa Eskişehir Bilecik Development Agency	BEBKA	Bilecik, Bursa, Eskişehir	BURSA
	TR42	East Marmara Development Agency	MARKA	Bolu, Düzce, Kocaeli, Sakarya, Yalova	KOCAELİ
	TR51	Ankara Development Agency	ANKARAKA	Ankara	ANKARA
	TR61	West Mediterranean Development Agency	BAKA	Antalya, Burdur, Isparta	ISPARTA
	TR63	Eastern Mediterranean Development Agency	DOGAKA	Hatay, Kahramanmaraş, Osmaniye	HATAY
	TR71	Ahiler Development Agency	AHIKA	Aksaray, Kırıkkale, Kırşehir, Niğde, Nevşehir	NEVŞEHİR
	TR72	Middle Anatolia Development Agency	ORAN	Kayseri, Sivas, Yozgat	KAYSERİ
	TR81	Western Black Sea Development Agency	BAKKA	Bartın, Karabük, Zonguldak	ZONGULDAK
	TR82	North Anatolian	KUZKA	Çankırı, Kastamonu, Sinop	KASTAMONU

		Development Agency			
	TR90	Eastern Black Sea Development Agency	DOKA	Artvin, Giresun, Gümüşhane, Ordu, Rize, Trabzon	TRABZON
	TRA2	Serhat Development Agency	SERKA	Ağrı, Ardahan, Iğdır, Kars	KARS
	TRB1	Euphrates Development Agency	FKA	Bingöl, Elazığ, Malatya, Tunceli	MALATYA

Source: Development Agencies 2010 Annual Report, 2011: 13

Table A3. Descriptions of variables and sources of data

Variable	Variable Description	Panel Structure and Source
RDA Supports	The amount of support provided by the RDAs to projects related to the regions between 2008 and 2016 years.	Ministry of Development, General Directorate of Regional Development and Structural Adjustment
Per Capita RDA Supports (RDA_pc)	It is obtained by dividing the total population of the provinces in the region by the total amount of support.	Annual, Nuts-2, 1000 TL.
Population	Total population of the provinces in the region. Covers by years, 2008-2016	Annual, Nuts-2, TURKSTAT
Population Density (PopDens)	It was obtained by dividing the total population of the provinces in the region by dividing the total of the provinces area in the region.	Annual, Nuts-2, Km2.
GDP	Gross Domestic Product Per Capita, Covers by years, 2008-2014	Annual, Nuts-2, TL, TURKSTAT
Dis	Normalization of per capita GDP by the standard deviation (S) as: $Dis_i = (Y_i - y)/S$	Annual, Nuts-2, TL, TURKSTAT
Public Investment (Pubinv)	It is investment expenditures realized by the central government by region. Covers by years, 2008-2015	Annual, 1000 TL., Ministry of Development
Per Capita Public Investment (Pubinv_pc)	It is obtained by dividing the total population of the provinces in the region by the total amount of public investment.	Annual, Nuts-2, 1000 TL.