THE POLITICAL ECONOMY OF INNOVATION: *TECHNOLOGICAL NATIONALISM, EXECUTIVE INTERFERENCE, AND NEO-POPULISM IN THE R&D SECTOR IN TURKEY*

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ABSTRACT

This thesis is about political economy factors that have influenced R&D policy-making processes in Turkey during the 2000s. The encompassing question is, how do political economy factors shape innovation policy? The central research question is, *why did Turkish R&D policy change in the 2000s, and what political economy factors did affect the process?*

After engaging in a dialogue with the political economy of innovation scholarship, the thesis kicks-off with the assertions that politics matter in the study of innovation, and innovation policy-making is a multi-faceted process. Then, by relying on the theoretical arguments and insights of scholarly works that specialize in *technological nationalism, developmental state,* and *clientelism*, the thesis adopts a comprehensive framework for the analysis of R&D policy-making processes in Turkey. Each of the three scholarships focuses on a different layer of policy-making. And then, each empirical chapter zooms into a different dimension of R&D policy in Turkey in the light of the analytical framework adopted.

The thesis relies on multiple sources and triangulation while making its core arguments. In specific, the thesis relies on 26 face-to-face semi-structured interviews (expect for the one which was conducted over the phone) with bureaucrats and relevant stakeholders in Turkey in different intervals between October 2014 and June 2016. In line with the thesis' primary motivations, interviewees are selected from leading innovation agencies in Turkey. Main governmental and organizational policy documents, laws and regulations, and parliamentary discussions on key R&D legislation, are other important sources of information.

The thesis supports a growing body of work on the politics of innovation policy by demonstrating the importance of the political realm in the study of innovation. The thesis also underlines the opposition parties' role in R&D policy-making –a rather overlooked channel of influence in the scholarship. In this regard, the thesis argues that technological nationalism, and the opposition's institutional weaknesses in policy-making, can potentially influence R&D

policy by hindering the effective formulation and implementation of alternative policy options. This is found out to be crucial in the Turkish context.

The thesis also offers potential contributions to the Turkish political economy scholarship. Among the essential ones, and besides the argument on technological nationalism and the weak opposition, the dissertation claims that (i) the executive's continuous interferences with autonomous innovation agencies have influenced R&D policy in many ways in the 2000s in Turkey; (ii) rather than clientelistic relations (akin to the ones that are observed in the construction and the media sector in Turkey), a neo-populist approach has characterized the main rationale in R&D fund allocation to the private sector; and (iii) despite some positive steps undertaken, the Turkish state has yet to embody the essential traits of the 'developmental state' in the R&D sector. These findings speak to the broad scholarship on the Turkish political economy in important ways, and offer potential contributions via an in-depth elaboration of the R&D sector.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

vii

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

AKP – Adalet ve Kalkınma Partisi – The Justice and Development Party

ANAP – Anavatan Partisi – The Motherland Party

BDP – Barış ve Demokrasi Partisi – The Peace and Democracy Party (BDP)

CHP – Cumhuriyet ve Halk Partisi – The Republican People's Party

DP – Demokrat Parti – Democratic Party

DSP – Demokratik Sol Parti – Democratic Left Party

DYP – Doğru Yol Partisi – The True Path Party

EOI – Export Oriented Industrialization

FP – Fazilet Partisi – The Virtue Party

GDP – Gross Domestic Expenditure

GERD – Gross Domestic Expenditure on Research and Development

HDP – Halkların Demokratik Partisi – The Peoples' Democratic Party

IASP – International Association of Science Parks and Areas of Innovation

IMF – International Monetary Fund

IRAs – Independent Regulatory Agencies

ISI – Import Substitution Industrialization

ITU – İstanbul Teknik Üniversitesi – Istanbul Technical University

KOSGEB – Küçük ve Orta Ölçekli İşletmeleri Geliştirme ve Destekleme İdaresi Başkanlığı – The Small and Medium Sized Enterprises Development Organization

METU – Orta Doğu Teknik Üniversitesi – Middle East Technical University

MHP – Milliyetçi Hareket Partisi – The Nationalist Movement Party

MNP – Milli Nizam Partisi – The National Order Party

MoD – Kalkınma Bakanlığı – The Ministry of Development

MoIT – Sanayi ve Ticaret Bakanlığı – The Ministry of Industry and Trade

MoSIT – Bilim, Sanayi ve Teknoloji Bakanlığı – The Ministry of Science, Industry, and Technology

MÜSİAD – Müstakil Sanayici ve İşadamları Derneği – Independent Industrialists' and Businessmen's Association

NSI – National Systems of Innovation

NSF – National Science Foundation

NSP – Milli Selamet Partisi – The National Salvation Party

OIZs – Organized Industrial Zones

R&D – Research and Development

RP – Refah Partisi – The Welfare Party

SCST – Bilim ve Teknoloji Yüksek Kurulu – The Supreme Council for Science and Technology

SPO – Devlet Planlama Teşkilatı – The State Planning Organization

STI – Science, Technology, and Innovation

TEB – Türk Ekonomi Bankası – Turkish Economy Bank

TİM – Türkiye İhracatçılar Meclisi – The Turkish Exporters Assembly

TTGV – Türkiye Teknoloji Geliştirme Vakfı – The Technology Development Foundation of Turkey

TÜBA – Türkiye Bilimler Akademisi – The Turkish Academy of Sciences

TÜBİTAK – Türkiye Bilimsel ve Teknolojik Araştırma Kurumu – The Scientific and Technological Research Council of Turkey

TÜBİTAK-MAM – TÜBİTAK Marmara Research Center

TÜİK – Türkiye İstatistik Kurumu – Turkish Statistical Institute

TÜSİAD – Türk Sanayicileri ve İşadamları Derneği – The Turkish Industry and Business Association

UNFSTD – United Nations Fund for Science and Technology for Development

WTO – World Trade Organization

YÖK – Yüksek Öğretim Kurumu – The General Assembly of the Council of Higher Education

CHAPTER 1: Introduction

What *political economy factors* affect *innovation policy-making processes*? To what extent, and how exactly, political factors influence the *formulation and implementation of innovation policy*? How can we account for, and address, innovation policy's *multi-dimensional character in theory*? This thesis speaks to the political economy scholarship by concentrating on these and alike questions.

On the theoretical front, the thesis engages in a dialogue with scholarly works that zoom into different aspects of innovation and industrial policy. It starts the analysis by highlighting one main assertion of the national-systems-of-innovation (NSI) approach: *politics matters and needs to be studied*. Then, it goes through the literature on the *politics of innovation policy* to elaborate how political scientists and political economists addressed the issue. And then, by focusing on R&D as a specific innovation policy domain, and noting that R&D policy-making is a *multi-layered process*, the thesis forms a holistic framework by relying on the main theoretical arguments of *technological nationalism*, *developmental state*, and *clientelism* scholarships. Each of these literatures capture an important dimension of R&D policy-making.

On the empirical front, the thesis takes *Turkey* as a *single-case study* and analyzes R&D policy-making within the Turkish context. The main emphasis is placed upon the *Justice and Development Party* (AKP) period. The AKP was established shortly before the 2002 general election, and the party won the election with a landslide electoral victory to end the coalition-government era of the 1990s. Later, the AKP achieved an unprecedented success in Turkish political history by winning three consecutive general elections in 2007, 2011, and 2015.[1] The

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[1] The AKP failed to form a single-party government after the general election held in July 2015, but managed to accomplish that soon afterwards following the snap election held in November 2015. See Appendix 2 for the parties' vote shares and the distribution of seats in the parliament in Turkey during the 2000s. See Öniş (2016b) for an elaboration of the two general elections that were held in 2015.

AKP has managed to form strong single-party governments since 2002. Thereby, this thesis primarily focuses on *the post-2002 period in Turkey*.

This introductory chapter provides the essential information regarding the building blocks of the dissertation. Section 1.1 and Section 1.2 contextualize the main concern of the thesis within the broad political economy literature. Section 1.1 briefly reviews the *NSI approach* to highlight *a certain gap* in NSI scholarship: *politics*. Section 1.2 investigates how a growing body of work on the *politics of innovation policy* has studied the *political dimension of innovation policy-making*. Then, Section 1.3 discusses the main agenda and scope conditions of the thesis within the context of NSI paradigm and the politics of innovation policy literature. Section 1.4 introduces the *holistic framework* by briefly going through the scholarships on *technological nationalism*, *developmental state*, and *clientelism*. Section 1.5 puts forward the central research question. Section 1.6 outlines the research design and methodology. Section 1.7 conveys the main contributions. Section 1.8 provides a short road map for the thesis.

1.1 The 'political economy' without the 'political': The 'political economy of innovation'

The term 'political economy' is a contested one and it is used in various ways in different contexts (Csaba 2007, 19–24). In broad terms, while some scholars focused on the 'economy' part of political economy to take a more economics-oriented stance, some others placed a special emphasis on the 'political' dimension to take a more politics-oriented perspective. The proper weight that needs to be placed on each dimension has generated lively debates in the literature (Acemoglu and Robinson 2013, 173–75). Depending on the inquiry at hand, 'political economy' is explicitly or implicitly defined in different ways.

In innovation studies, the term 'political economy of innovation' aimed to capture both the 'political' and the 'economy' aspects of innovation process. All factors that potentially influence innovation are taken into consideration and went into the definition of 'innovation

system' (Edquist 1997a, 14; Edquist and Hommen 2008, 6). Nevertheless, significant elements of the political sphere are excluded from the agenda, as the boundaries of research have not encompassed the crucial factors that directly influence innovation policy-making. This argument is best illustrated with a brief re-visiting of the national-systems-of-innovation (NSI) approach.

Emerged in the late 1980s and the 1990s (Freeman 1987; Dosi et al. 1988; B.-A. Lundvall 1992; Nelson 1993; Edquist 1997b), NSI has become the *mainstream paradigm* in innovation studies. The approach argued against linear conceptualizations of innovation that equated R&D with innovation,[2] and also against neoclassical economics that struggled in conceptualizing the socially-embedded and structural traits of innovation processes (B.-A. Lundvall 1992, 8–14). The approach primarily took nation as the unit of analysis, since innovation is strongly effected by nation-specific institutions.[3] NSI also emphasized the systemic character of innovation, as organizations, institutions, and the linkages between them show systemic traits.

Many nuanced definitions are provided for 'national-system-of-innovation' (Niosi 2002, 292). The one that is put forward in the *Handbook of Innovation Systems and Developing Countries* (2009) captures the essence of those definitions. As put forward, "the national innovation system is an open, evolving and complex system that encompasses relationships within and between organizations, institutions, and socio-economic structures which determine the rate and direction of innovation and competence-building emanating from processes of science-based and experience-based learning" (B.-Å. Lundvall et al. 2009, 6). As this

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[2] For a review of linear conceptualizations of innovation see Godin (2006).
[3] While some scholars dropped the 'national' from the label in regards to the influence of globalization processes (Edquist 1997), some others preferred to take regions and sectors as unit of analysis. These perspectives are complementary, as they share the same building blocks, thus they are labelled as national-systems-of-innovation in this analysis.

comprehensive definition suggests, NSI adopts a broad perspective to the study of innovation by considering the myriad factors that potentially influence the process.

Despite the broad perspective adopted, practitioners of NSI have not yet turned a keen eye on the political factors that shape innovation policy-making. Put differently, they do not analytically question how various political dynamics, such as the governing elites' ideational stance on innovation, or the tug-of-war between the political leadership and the bureaucracy, or the motivations of the ruling elite in pursuing a specific variant of innovation policy, affect the formulation and implementation of innovation policy. Important handbooks in the field, including *The Oxford Handbook of Innovation* (2005), *The Theory and Practice of Innovation Policy: An International Research Handbook* (2010), and *Handbook of Research on Innovation and Entrepreneurship* (2011), all investigate innovation with an exclusive focus on conceptual issues and post-policy-making phenomena. They discuss various definitions and types of innovation (product, process, etc.), examine different system domains (national, sectoral, etc.), link innovation to economic performance, and analyze economic determinants of innovation. However, the *political dimension is not touched upon.*

The studies that directly focus on innovation policy, such as Lundvall and Borras (2005), Bergek et al. (2010), Chaminade and Edquist (2010), Smits, Kuhlmann, and Teubal (2010), and Vonortas and Aridi (2012), also refrain from questioning the political dynamics of innovation policy. To exemplify, Lundvall and Borras (2005) distinguish between science policy, technology policy, and innovation policy; then jump to the issue of impact assessment. Other studies mainly inquire when governments should intervene to the economy, and what should be the appropriate dialogue between NSI theory and policy. The main claim is that government intervention is required when a 'systemic failure' is inherent (Edquist and Chaminade 2006, 115), and 'systemic instruments' are needed to fix those 'systemic failures' (Smits, Kuhlmann, and Teubal 2010, 418). The analytical preference that favors the 'economy' over the 'political'

can be seen in almost all works that assess the pros and cons of various countries' innovation systems (Nelson 1993; Edquist and Hommen 2008; B.-Å. Lundvall et al. 2009).

Putting aside this general tendency, *NSI scholars explicitly note that political dynamics should matter in the study of innovation*. In fact, some scholars perceive *the absence of politics* in NSI paradigm as a *major weakness*. In the words of Charles Edquist, who is one of the leading scholars of the framework, "[one of the weaknesses] of the [system of innovation] approach is that it lacks a component ('theory') about the role of the state. This is an important neglect, since the state and its agencies are important determinants of innovation in any [system of innovation]…many laws and rules, which influence innovation processes, are created by the state" (2001, 17).[4] Indeed, the state is important for many reasons, and one of them is related to its legislative power.

In this regard, even though the importance of the 'political' has been known, NSI scholars have commonly pursued analysis by explicitly or implicitly assuming the pre-existence of a capable, willing, and a rational state apparatus. Thus, they have not analytically focused on the political sphere. However, as Edquist (2001: 19) further notes, "nothing guarantees that innovation policy is designed [ideally]…there are many other factors than knowledge and rationality that may influence the state in its role of pursuing innovation policy." Edquist (2001, 20) cites interest groups' lobbying activities as one way of influence. In his inquiry, Edquist (2001) does not elaborate how politics of innovation policy can be analyzed in a comprehensive manner. He does not further the discussion by going beyond the lobbying hypothesis. However, Eduquist (2001, 20) emphasizes *the overall neglect of politics and political dynamics in NSI approach* to pinpoint a fertile research agenda:

> We need more knowledge about how innovation policy has *actually* been designed and implemented and which societal forces that have governed these activities. On that basis it would be possible to make empirical generalizations or create (appreciative) theories about what determines innovation policy. *These attempts should also build upon and be*

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[4] Edquist (1997, 2001) argues that "national", "sectoral", and "regional" conceptualizations of innovation can be labelled together as "systems of innovation" (SI).

related to the knowledge about policy processes accumulated within political science. This could then be *the beginning of formulation* of a 'component' about the role of the state in the SI approach and in the field of innovation. Maybe such knowledge could contribute to make innovation policies analytically based to a larger extent and more long term? (emphasis added)

In addition to NSI, scholars who conduct impact evaluation of governmental support programs, or focus more on economic determinants of innovation, highlight the political sphere's potential role in the shaping of innovation policy. For instance, the *Journal of Business Venturing* devoted a special issue to the study of science parks and incubators in 2005. As noted in the introductory article, "incubators [may] exist at the behest of political interests… [and if that is the case] …without the support of those interests, incubators as an organizational form may not be very viable, which is often the case for nonprofit incubators" (Phan, Siegel, and Wright 2005, 174). While examining economic determinants of innovation, Morck and Yeung (2001, 52) assert, "[the major problem] seems to be a tendency for government subsidy programs to be captured by special interests." In a similar fashion, Crespi (2004, 21) elaborates the possibility that bureaucracies may hinder innovation via rent-seeking.[5] Thus, even though their interest lies in technical aspects of innovation, these scholars underline the potential significance of the political realm.

1.2 The politics of innovation policy

"The knowledge about policy processes accumulated within political science…[can] be the beginning of formulation of a 'component' about the role of the state…in the field of innovation" (Edquist 2001, 20). Indeed, the knowledge accumulated within political science, and political economy also, offers fertile grounds to elaborate the state's role in the innovation

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[5] Both Morck and Yeung (2001) and Crespi (2004) refer to Murphy, Shleifer, and Vishny (1991) to make this argument. In short, Murphy, Shleifer, and Vishny (1991) argue that entrepreneurs may involve in rent-seeking activities if rent-seeking turns out to be more profitable than investing in innovative activities. Morck and Yeung (2001) further review this line of the economics literature.

system. What is more, the accumulated knowledge also allows us to investigate more deeply *the political factors that influence innovation policy* by going beyond the state's role in the process. The scholarship that can be referred as *the politics of innovation policy* elaborates such political dynamics from various angles in different contexts.

In parallel to the exponentially-increased attention that has been paid to innovation studies in the last two decades, the examination of *the politics of innovation policy* has emerged as an interdisciplinary field. By relying on the toolkit of political science and political economy, and applying them to the study of innovation, this agenda aims at *exploring the dynamic interplay between political factors and innovation*. Although there are some early works, there has been a recent revival of interest both in terms of empirical contribution and theorization. Thus, this research agenda is quite fresh, as many works in this domain still aims at addressing "the absence of political analysis characterizing most literature on innovation and development" (Doner, Hicken, and Ritchie 2009, 151).

In this regard, one line of the scholarship has inquired under what political conditions the development-enhancing institutions that are examined in the developmental state literature (Chapter 2), such as the state's 'autonomy' and 'embeddedness,' the state's extractive capacity, the Weberian bureaucracy, etc. emerge. One argument is that 'good economic institutions' emerge when the 'systemic vulnerability' is high (Doner, Ritchie, and Slater 2005, 327). In other words, politicians are incentivized, or forced, to create development-enhancing institutions when they face (i) external threats, (ii) popular discontent at home, and (iii) lack of resources to meet the two challenges (Doner, Hicken, and Ritchie 2009, 153). To exemplify, while the 'systemic vulnerability' was a driving force in the successful cases of South Korea, Taiwan, and Singapore, it was not an issue in the less successful cases of Indonesia, Malaysia, the Philippines, and Thailand (Doner, Ritchie, and Slater 2005, 327).

It is important to note that the constraints that give rise to 'systemic vulnerability' not only determine politicians' will to create 'good economic institutions,' but they also mitigate certain political institutions' negative influence on the creation of 'good institutions' (Doner, Hicken, and Ritchie 2009, 165). For instance, both the existence of large and small number of veto players (political institution) poses challenges for effective innovation policy-making (ibid.). As noted, "the structure of political authority, reflected in the effective number of veto players, matters for innovation by shaping the incentives and capabilities of policy-makers" (Doner, Hicken, and Ritchie 2009, 156). In regards to this, a high level of 'systemic vulnerability' (external threats, domestic opposition, and lack of resources to meet the two challenges) alleviates the problems that are caused by small or large number of veto players (ibid.).

As a matter of fact, the link between the structure of political economy (veto players) and innovation policy is noted more than fifteen years ago within the US context. In her brief study, Mogee (1988) questions why the US failed to adopt a national innovation policy although it was well-known that innovation was the main driver of economic growth. In addition, advanced countries other than the US were all trying to formulate coordinated and encompassing innovation policy at the time. The main reason was the *pluralistic and fragmented nature* of the US system (Mogee 1988, 40–42). On the one hand, *fragmentation of political power* and the subsequent *conflict among interest groups* made it *difficult to reach consensus* on innovation-related matters. On the other hand, the political structure made it easy for actors to *block change*. Furthermore, although it is not substantiated as in the work of Doner, Hicken, and Ritchie (2009), Mogee (1988, 41) also argues that external factors influence innovation. As noted, "the diversity and power of interest groups…makes it difficult to achieve the necessary degree of consensus to establish policies which conflict with the traditional value

of limited government or which threaten important economic interests, *except in times of national crisis such as war or economic depression*" (Mogee 1988, 41, emphasis added).

Feller (1988) supports Mogee (1988) by showing how *large number of participants in decision-making undermined the effective formulation and implementation of innovation policy* in the US. As Feller (1988, 108) notes, "the more comprehensive the state programme, the larger the number of 'interested' participants; the larger the number of participants, the greater the time needed to generate consensus...and the greater the tendency for programme dilution to ensure funding of projects for each participating sector. The greater the programme dilution, the greater the likelihood of 'marginal' showcase results, and the less likelihood for the major scientific and technological advances which create...employment opportunities." In consequence, both recent scholarship and early works on the politics of innovation policy underline that *the effective number of veto players* and *external conditions* affect the innovation system in important ways.

If we turn back to the question under what political conditions 'good economic institutions' emerge in the sphere of innovation, we are provided with a *structural explanation* in a recent study that focuses on the 'middle-income trap' (Doner and Schneider 2016). The question is, why some countries continuously fail at overcoming the 'middle-income trap' even though the remedies are well-known? Doner and Schneider (2016, 618–29) claim that *building a pro-development coalition is paramount* to overcome the trap, and certain *social cleavages* that stem from *structural factors* curtail the emergence of such coalitions in the middle-income countries. In the words of the writers, "big business is split between foreign and domestic firms, labor is divided between formal and informal sectors, and societies overall are riven by high inequality. These cleavages splinter interests and make coalition building more difficult" (Doner and Schneider 2016, 611). As the writers indicate, the "splinter of interests" result in low levels of investment in human capital and R&D.

The presence or absence of strong business interests is also noted as a political factor that affects innovation policy-making. As Berman (1991, 33) observes within the US context, "when a strong business interest is present, this presence helps to sustain the momentum needed for carrying legislation through Congress and/or help the White House to overcome bureaucratic resistance of agencies to new initiatives" and "when business interests are weak, technology policy initiatives founder." One example illustrates this. In 1985, the R&D tax was set to expire and the administration did not attempt to extend it in the US (ibid.). Once the program expired, the large corporations began lobbying for its renewal. The bill was renewed once the business showed an interest in the subject. The expiration and the renewal of the credit was not due to a reversal in administrational position, budgetary politics, or the policy's ineffectiveness. It was mainly due to the *business' organizational failure* (ibid.).

The executive's or *the ruling parties' 'ideological consistency'* is also cited as a political determinant of innovation policy (Berman 1991, 31–32). For instance, since the Reagan administration in the US subscribed to a market-oriented perspective in broad terms, whereby "the efficiency of the markets" was brought to the fore at the expense of government intervention, the administration also preferred market-friendly policies over government spending programs in the domain of innovation (ibid.). Likewise, while a left-of-center coalition was pursuing policies that allowed the emergence of developmental institutions in Ireland during 1994–1997, the later coalitional government parted ways with those institutions in line with its neoliberal agenda during 1997-2007 (O'Riain 2014, 79).

Competing bureaucratic interests and the politics of the federal budget are also noted as innovation policy's political dynamics (Berman 1991, 34–35). On the one hand, *bureaucratic structures that have different traditions and orientations* may *block* the formulation and implementation of *new policies* if those policies do not comply with their agenda (ibid.). The struggle between the academic engineering community and the academic science community

in the National Science Foundation (NSF) is a case in point (ibid.). On the other hand, *budget deficit* is also said to have a *negative influence* on the initiation of new technology undertakings (ibid.). Competing bureaucratic interests and the politics of budget are said to have limited effects on innovation policy –*strong business interests dominate if they exist*. (ibid.).

To conclude, a growing body of work on *the politics of innovation policy* suggests that political dynamics affect innovation processes greatly. The number of veto players (Doner, Hicken, and Ritchie 2009, 156–61), fragmentation of political power (Mogee 1988, 40–42; Feller 1988, 108), external threats (Doner, Hicken, and Ritchie 2009, 161; Mogee 1988, 41), resources available to political elites (Doner, Hicken, and Ritchie 2009, 161), structural factors (Doner and Schneider 2016, 611), the presence or absence of strong business interests (Merrill 1988, 52; Berman 1991, 33), ruling parties' 'ideological consistency' (Berman 1991, 31–32; O'Riain 2014, 79), competing bureaucratic interests (Berman 1991, 34–35), and the politics of budgetary policy (ibid.), are all cited as important dynamics that shape innovation policy.

1.3 Main agenda, scope conditions, and towards a comprehensive framework

This thesis *speaks* to the political economy of innovation scholarship (*NSI approach* and the *politics of innovation policy*) in various ways. Before passing to that, a brief comparison of NSI paradigm and scholarly works on the politics of innovation policy is in order (table 1).

To begin with, both NSI and the works on the politics of innovation policy are *political economy approaches* that focus on different dimensions of innovation process. While NSI mainly focuses on the 'economy' sphere, studies on the politics of innovation policy primarily concentrate on the 'political' one. Whereas the *main dependent variables* are *economic performance* and *learning process* in NSI approach, they are *innovation policy-making process* and *'good economic institutions'* in the *politics of innovation policy literature*. Therefore, even though they are both labelled as 'political economy' approaches, they focus on different spheres

of innovation process. Accordingly, this dissertation speaks to the two literatures in related but different ways –which require further elaboration.

Table 1: The literatures on national systems of innovation (NSI) and the politics of innovation policy in comparison.

	National systems of innovation (NSI) approach	The politics of innovation policy
Field	Political economy of innovation	Political economy of innovation
Essential focus	'Economy'	'Political'
Main research questions	What factors affect innovativeness? How does the interaction between economic institutions and organizations affect innovativeness? What factors affect learning?	What political factors affect innovation policy-making? What are the political underpinnings of 'good economic institutions'?
Main dependent variables	Innovation performance Learning process	Innovation policy-making process 'Good economic institutions'
Main independent variable	Economic determinants of innovation Sociological factors that affect learning	Political institutions Political dynamics
Argue against	Linear conceptualizations of innovation Neoclassical economics	Apolitical readings of institutions and innovation policy
Main conclusion	Political factors are potentially important and should be studied	Political factors are important and significantly influence innovation
My take from the literatures	Political dynamics are essential and need to be studied.	In fact, political dynamics influence innovation policy in numerous ways.
How I speak to the literatures	1) Partially address the absence of politics in innovation studies 2) A minor step is taken toward the conceptualization of the state's role in the innovation system [***not*** a theoretical contribution, but an *in-depth elaboration of the state's role in innovation policy-making within the Turkish context*]	1) Support the claim that political factors significantly influence innovation policy-making process. Focus on R&D as a specific domain of innovation policy: a least-likely-case. If political dynamics turn out to be important in this domain, then they would be crucial in all other innovation-related policy fields. 2) Argue that the opposition parties' stance on innovation (technological nationalism and weak institutional capacity) may also influence R&D policy-making processes significantly. 3) The in depth-examination of Turkey is an empirical contribution.

1.3.1 A dialogue with national systems of innovation (NSI) approach and scope conditions

We can derive two main conclusions from the brief re-visiting of NSI paradigm: (i) *political factors should matter and need to be studied*; and (ii) *there is a need for a broad framework that conceptualizes the state's role in the innovation system*. The comprehensive framework that is adopted in this dissertation (based on technological nationalism, developmental state, and clientelism scholarships) *aims to further our knowledge in regards to these points*. However, it should be noted that the goal is *not* to make a concrete theoretical contribution. Rather, the framework concentrates on the state's different dimensions (opposition parties' stance on innovation policy, the tug-of-war between the executive and key innovation agencies, and political leadership's motivations in pursuing a specific variant of R&D policy), and elaborate their potential influence on R&D policy-making. On this note, there are certain *scope conditions* that need to be mentioned at the outset.

This dissertation *does not aim to elaborate all aspects of state involvement* in the innovation system. On the one hand, the state can intervene the system in various ways ranging from provision of R&D to competence building (education, training of the labor force, etc.), and from creating a suitable institutional environment (patent laws, etc.) to provision of consultancy services to the private sector (technology transfer, commercial information, etc.) (Edquist and Chaminade 2006, 114). This represents a broad domain for state action, and this thesis cannot handle the analytical investigation of such a broad topic.[6]

On the other hand, innovation policy spans a broad range of policy domains including science policy, technology policy, R&D policy, and education policy. This also represents a broad domain. Therefore, this dissertation *sets a scope condition and focuses on R&D policy. R&D policy specifically refers to the governmental support funds allocated to the private sector*

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[6] Therefore, even though this thesis discusses the state's role in the innovation system (how its internal structure and other characteristics influence effective policy-making), the goal is not to speak to the broad 'government vs. market' debate in regards to the promotion of innovation (in broad terms) and development (Mazzucato 2013).

with the aim of promoting R&D. This includes both direct and indirect support mechanisms. Thus, *another scope condition* limits the domain of R&D policy itself. The focus on R&D has implications on the demonstration of politics' overall importance in the study of innovation. This point will be elaborated in a minute. Putting that aside, the choice of R&D policy, and the specific focus that is placed upon governmental support funds, relies on two main points.

First, R&D support has become crucial for both business and the state during the 2000s. On the one hand, the competitive environment of export oriented industrialization (EOI) forced the private sector to become innovative and competitive. In the absence of protected markets that are akin to import substitution industrialization (ISI) era, firms have had no choice but to increase R&D efforts and innovativeness. In regards to this, government support has positively affected business R&D (OECD 2015). On the other hand, international trade agreements forbid governments to directly subsidize business –a policy tool that was available during the ISI. However, governments are being provided the opportunity to channel R&D funds to the private sector.[7] Therefore, *R&D funds have become an indispensable instrument of government intervention to ignite growth*.

In this context, the process of R&D policy-making, and the implementation of R&D policy, have become crucial. This has been true even more so for developing countries, where resources are already scarce in comparison to their developed counterparts. It should be noted that R&D is crucial *even though innovation cannot be equated to R&D*. Besides theory, the recent developments reveal this. During the 2000s, there has been a global increase in R&D intensity (gross domestic expenditure on R&D as a percentage of GDP). China doubled its R&D spending during 2008–2012 to become the main driver of global R&D (OECD 2014, 15). In fact, China's efforts to upgrade its innovation system, including the R&D sector, goes back to

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[7] As Taymaz (1997, 4) puts in the Turkish context, "it can be reasonably claimed that [SMEs] will be on the agenda of the Turkish governments [over the 2000s] because the new GATT (now, WTO), regulations forbid all industrial support policies with the exception of those for the promotion of SMEs, local development, and R&D activities."

1978 (Suttmeier and Yao 2004a, 13). In OECD era, many countries allocate more than 2 percent of their GDP to R&D. [8] Whereas Finland, Sweden, and Japan allocate more than 3 percent of their GDP to R&D, Israel and South Korea allocate more than 4 percent.[9] In Turkey, there has also been a noteworthy increase in R&D intensity during the 2000s. While the intensity was 0.48 percent at the turn of the century, it crossed the 1 percent threshold in 2014.[10]

The contribution of innovation and R&D to employment generation, productivity growth, trade balance, and other economic phenomena is well-known since the classical political economists (Goodacre 2010; Kurz 2010; Roth 2010). During the last two decades, the new growth theories and other approaches in economics have especially demonstrated the importance of innovation and R&D for growth and development (Grossman and Helpman 1994; Sengupta 2014). Political scientists also acknowledged the issue's significance long ago. As noted, "what government does to influence innovation is of interest because it affects such aspects of the nation's economic performance as productivity growth rates, trade deficits and unemployment levels" (Roessner 1988b, 5). With this in mind, it is no surprise that all 50 states in the US were directly concerned with technological innovation as early as 1983 (Lindsey 1988, 91). 22 states had actually pursued "dedicated" programs to promote high-tech industrial growth (Feller 1988, 105). For sure, the relationship between R&D, growth, and development is a complex one (Pianta 2005; Nelson 1993; Mohnen and Hall 2013). However, *R&D is quite important in the end*, and *governments play an important role in the R&D sector*.

It is important to highlight that this thesis *does not formally analyze* the impact of R&D policy. However, certain traits of the policy-making process, including (i) the quality of evidence-based policy-making, (ii) the relative strength of autonomous innovation agencies vis-à-vis political elites in agenda-setting, (iii) the private sector's involvement in the formulation

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[8] OECD (2016), Gross domestic spending on R&D (indicator). doi: 10.1787/d8b068b4-en (Accessed on 25 August 2016).
[9] Ibid.
[10] Ibid.

of R&D policy, and (iv) the political leadership's motivations in pursuing R&D fund allocation, have enormous implications on impact and outcome. Thus, even though this thesis *does not offer formal impact evaluation*, it has certain things to say about the potential impact of R&D policy-making on outcomes.

To sum up, this thesis *speaks* to NSI literature in two interrelated ways (table 1). First, it demonstrates the importance of political factors in the formulation and implementation of innovation policy (within the context of R&D policy) by following the footsteps of a growing body of work on the politics of innovation policy. Second, the thesis aims to further our understanding of the state's role in the innovation system, *although the goal is not to make a generalizable theoretical argument*. Each dimension of the analytical framework (technological nationalism, developmental state, and clientelism) sheds light on a different layer of R&D policy-making, and the state plays a different role in each of the layers.

1.3.2 A dialogue with the politics of innovation policy scholarship: Further scope conditions, implications, and potential contributions

Many factors varying from the ruling parties' 'ideological consistency' to the presence or absence of strong business interests are cited as political determinants of innovation policy (Section 1.2). Before passing to the discussion of how this thesis speaks to the politics of innovation policy scholarship, it is essential to highlight in what ways *it does not*. In other words, it is useful to discuss which dimensions of the political realm are less important within the context of this thesis, or have not been important in Turkey during the 2000s.

To begin with, this thesis *does not question under what political conditions the 'good economic institutions' that are outlined in the developmental state scholarship*, such as the state's 'autonomy' and 'embeddedness,' the state's extractive capacity, the Weberian bureaucracy, etc. *emerge*. However, the empirical analysis conducted throughout the chapters provide a fertile ground to assess *the Turkish state's developmentalist turn in the R&D sector*

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in the aftermath of the 2007-2008 global economic crisis (Chapter 7). Consequently, the analytical focus of this thesis *differs from the studies that concentrate on the origins of 'good economic institutions'* (Doner, Ritchie, and Slater 2005; Doner, Hicken, and Ritchie 2009; Doner and Schneider 2016).

On this note, once it is concluded that the institutions that characterize the developmental state *have not been in place in Turkey in the R&D sector* during the 2000s (Chapter 7), this finding becomes relevant for the above discussion. Doner, Ritchie, and Slater (2005) argue that 'good institutions' emerge when the 'systemic vulnerability' is high. In other words, politicians are incentivized to craft development-promoting institutions when they face (i) external threats, (ii) popular discontent at home, and (iii) insufficient resources to meet the two challenges (Doner, Hicken, and Ritchie 2009, 151–53). None of these constraints have been existent in Turkey during the 2000s (in comparison to South Korea in the 1950s). Thus, the 'systemic vulnerability' has been low. Furthermore, in line with the proposition of Doner, Hicken, and Ritchie (2009), the development-enhancing institutions have not been in place in Turkey. Once again, this finding is indicative, but it *does not constitute the essence of this dissertation*. This thesis focuses on *the political economy factors that influence R&D policy-making processes*.

Second, many political dynamics that are cited in the scholarship have been important within the Turkish context as well. *The AKP's pro-market ideological stance* (especially in the early years), *the absence of strong business interest in R&D and technological upgrading*, and *the absence of an effective veto player*, have all influenced innovation policy-making in different ways. All these factors are discussed as part of a broader concern throughout the chapters. For instance, the number of effective veto players is directly related to the nature of interaction between the political leadership and autonomous innovation agencies (Chapter 5). Likewise, the ruling party's ideological orientations is related to the party's broader agenda in

pursuing a specific variant of R&D policy (Chapter 6). Consequently, the holistic framework adopted in this dissertation captures many of the political dynamics cited above. This issue is discussed in Chapter 2, where the analytical framework is outlined in detail.

Under these scope conditions, and having the analytical focus briefly described, this thesis aims to contribute to the politics of innovation policy scholarship in three different ways (table 1). First, the growing body of work on the politics of innovation policy still argues against the apolitical readings of institutions and innovation policy. Thereby, one main goal of the scholarship *is still the demonstration of political dynamics' relevance and influence on innovation-related phenomena*. In this regard, the focus that is placed upon R&D policy in this thesis is indicative for the broad literature.

In this dissertation, R&D policy *refers to the distribution of R&D funds to business or entrepreneurs with the goal of enhancing R&D*. It represents a specific domain of innovation policy. In the scholarship, innovation policy is generally used as an umbrella term that cuts across many policy fields including science, technology, education, and R&D. Typically, these domains are examined together. For instance, Doner and Schneider (2016) focus on education and R&D policy (overall R&D spending in a country). The writers note that, "for brevity, we concentrate on education and [R&D], but the framework applies to a range of other policy areas, including legal and financial systems, which are similarly institution intensive" (Doner and Schneider 2016, 613). Within the context of their study, this might be a valid argument. However, without even passing to other policy domains, *there are crucial differences among the sub-domains of innovation policy in regards to the degree of political salience*.

To exemplify, debates on science and education policy are heavily ideological and can easily get on voters' and parties' nerves –like the theory of evolution and the role of religious teachings in national education. These domains also attract great media attention. In contrast, R&D policy (allocation of governmental resources to the private sector) is much less salient. In

some cases, factors that directly influence R&D policy arouse attention. The executive's intervention in autonomous innovation organizations is a case in point. However, the path of R&D policy *is not the issue that is being discussed even in those cases*. Thus, R&D policy-making either tends to be characterized as *technocratic in nature*, or is thought to *offer little to excite political scientists and political economists*. In this regard, the *seemingly above-politics* trait of R&D policy makes it a *least-likely-case* to study (Levy 2008, 12) –if political dynamics turn out to be important in this domain, then they would be crucial in all other innovation-related policy fields. In fact, this has been the case.

Second, this thesis argues that opposition parties' stance on innovation *may* also influence R&D policy significantly. *This has been the case in Turkey, and it might be the case in other contexts as well.* In the politics of innovation policy literature, the primary focus is tended to be placed upon the ruling party or the executive. While some studies concentrate on the ruling party or coalitions to see how a change in government influences innovation policy (O'Riain 2014, 68), some others question how political decisions that are taken during critical junctures affect innovation (Breznitz 2007). Opposition is considered only when the issue is heavily ideological –such as debates on religion and education. This lack of interest in opposition parties is particularly apparent in technological nationalism scholarship (Chapter 2).

In this regard, this thesis suggests that *the opposition's attitude may also matter in contexts where the policy in question is not politically salient and is considered as technical.* Furthermore, *it can also be important when the ruling party has the power to enact legislation on its own*. It might be the case that, as in Turkey, the opposition's ideational stance (technological nationalism) and institutional weakness hinder *the creation and deliberation of alternative policy choices* –an important element of politics.[11]

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[11] Chapter 3 demonstrates the fact that opposition parties have had significantly different views on R&D policy in Turkey during the 2000s. The CHP's views have contradicted that of the AKP's especially. Whereas the AKP has subscribed to a horizontal policy design and promoted relaxations in resource allocation criteria, the CHP has favored a sectoral approach and opted to concentrate resources on relatively developed regions. Both the CHP and

Last, the in-depth examination of the Turkish case is an empirical contribution. On the one hand, scholarly works that concentrate on the politics of innovation policy have examined many countries *except for Turkey*. These countries include, Ireland, Taiwan, and Israel (O'Riain 2004; Breznitz 2007), Thailand Singapore, Israel, and Brazil (Doner, Hicken, and Ritchie 2009), and the US (Roessner 1988a). Although the recent article of Doner and Schneider (2016) takes Turkey alongside Brazil, Mexico, Argentina, Colombia, Peru, Southeast Asia, Thailand, Malaysia, and South Africa, its level of abstraction is high, and the article primarily questions the origins of 'good institutions.' Accordingly, the article does not aim to, and does not, provide an in-depth analysis of the Turkish case. On the other hand, although all actors in Turkey acknowledge the significance of innovation for economic growth and development, *virtually no scholarly work has yet focused on the political dynamics of innovation policy in the country* (Section 1.5).[12] Therefore, the in-depth elaboration of Turkey in this thesis is an empirical contribution.

1.4 A comprehensive framework for the analysis of R&D policy-making processes

As noted in the previous sections, this thesis *primarily concentrates on R&D policy-making processes*. It aims to break-down the multi-layered nature of R&D policy-making by equipping itself with the toolkit of political economy. The essential goal is to explain *how different layers of R&D policy-making are affected by different pollical economy factors*. To this end, the thesis adopts a holistic framework by primarily relying on the ideas of technological nationalism, developmental state, and clientelism scholarships.

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the MHP suggested a legal framework that was significantly different from the one created by the AKP. Despite these differences, the opposition supported AKP on key legislation due to technological nationalism and institutional weaknesses in policy-making.

[12] My stand-alone paper that is forthcoming in the *Journal of Balkan and Near Eastern Studies* as part of a special issue on the AKP period in Turkey focuses on this issue. This article is based on the arguments presented in this dissertation.

The initial questions that are raised are *how do political economy actors perceive innovation and R&D, and how does this perception shape the formulation of R&D policy*. In more concrete terms, (i) how do parliamentary elites debate and elaborate R&D legislation, and (ii) how does elites' behavior shape R&D policy. These questions lead one to empirically observe (i) whether political parties have opposing views on R&D policy, and (ii) how political elites perceive, debate, and enact R&D legislation. The literature on technological nationalism offers essential theoretical arguments in regards to these issues (Chapter 2).

The second step is to ask *how does the political leadership or the executive pursue R&D policy on the ground*. Put differently, how does the executive's interaction with autonomous innovation agencies shape R&D policy? The developmental state scholarship provides useful concepts to trace these questions (Chapter 2). The last step is to inquire *the ruling party's motivations in pursuing a specific variant of R&D policy*. The essential question is: *Does the political leadership engage in clientelistic relations, behave as populists, or rely only on rational grounds in R&D fund allocation?* The re-visiting of scholarly works on clientelism and the related terms is required to answer this question, as definitional issues are quite important (Chapter 2).

Three points should be clarified at the outset in regards to the analytical framework. To begin with, what is meant by 'framework' *is not a formal theory*. Rather, it is *an attempt that combines the related arguments of different scholarships to carefully analyze the multi-dimensional character of R&D policy-making processes*. Each of the three scholarships (technological nationalism, developmental state, and clientelism) sheds light on an important, yet different, layer of R&D policy-making.

Second, one might wonder why the ruling elites' motivation in resource allocation is elaborated at the very last instead of at the beginning. The reason is, to be able to assess whether governmental support funds are being distributed in a clientelistic or populist fashion, *one needs*

to acquire various kinds of information prior, including *how the distribution is handled in practice*, the nature of the *interaction between the executive and the bureaucracy*, and the *quality of evidenced-based policy-making mechanisms*. Only after analyzing these, one can assess whether the distribution is being based on sound reasoning, clientelism, or populism.

Last, one might also wonder why the mentioned literatures, that are technological nationalism, developmental state, and clientelism, are specifically chosen for the analysis. On the one hand, all three literatures are highly relevant in the examination of R&D policy's development pattern. Each focus on a different dimension of R&D policy-making. On the other hand, this work equips itself with the toolkit of political economy, and all the three literatures are political economy approaches. Thus, some frameworks that could be potentially relied on, such as policy-cycle theory, are not elaborated in this study.

Furthermore, *although the primary interest of this thesis lies in the political economy factors that influence R&D policy-making processes*, the empirical evidence that is provided throughout the chapters *speak to the heart of the developmental state scholarship*. While Chapter 5 questions many elements of the Turkish state's internal and external capacities in the R&D sector, Chapter 6 questions the existence of clientelistic relations. The issue of clientelism is commonly discussed by developmental state scholars as well. Thus, Chapter 5 and Chapter 6 *accomplish an additional goal* of assessing the Turkish state's developmentalist turn in the R&D sector. Since the primary objective of the chapters *is not to discuss the Turkish developmental state*, but *to shed light on R&D policy-making processes*, the examination of the Turkish developmental state is conducted in the concluding chapter.

Consequently, although the three literatures are *equally important* since each sheds light on a *different layer of R&D policy-making*, the developmental state literature (encompassing clientelism) is relatively *more important* since the empirical chapters collectively assess the Turkish state's developmentalist turn in the R&D sector. Furthermore, although technological

nationalism is a crucial element of the framework, additional factors have also complemented technological nationalism (nationalistic views of the opposition on innovation) to turn down the opposition's voice in the parliament. This includes the opposition's institutional weakness and invisibility in R&D policy-making. Accordingly, Chapter 4 elaborates technological nationalism alongside these additional factors.

1.5 Central research question

The main research agenda of this thesis is related to the political economy of innovation. The broad question is, how do political economy factors influence innovation policy-making processes? In the light of this, the *central research question* is, *why did Turkish R&D policy change in the 2000s, and what political economy factors did affect the process?* Many considerations have motivated me to raise this central research question.

To begin with, the question *primarily* rests on an empirical observation –which is in fact one of the thesis' potential contributions. That is, there has been a shift in the logic of R&D fund allocation to the private sector in Turkey during the 2000s (Chapter 3). While the 1990s' dominant view opted to concentrate resources on relatively developed regions and places with a strategic focus (vertical allocation), the 2000s' dominant perspective favored a horizontal policy design that has been complemented by relaxations in resource allocation criteria. Thereby, the 2000s' approach has led to a more spatially-equal allocation of the resources. The question that this thesis raises is, what explains the shift in R&D policy?

A certain gap in the Turkish political economy scholarship has also attracted my attention. In Turkey, all actors acknowledge the significance of innovation and R&D for economic growth and development. They all consider R&D as a crucial factor of production and argue that only a well-functioning innovation system can pull Turkey out of the middle-income-trap. This includes the AKP's single party governments, opposition parties, civil

society organizations, think tank agencies, and academicians.[13] The following statement of Nihat Zeybekçi, the Turkish Minister of Economy, reflects this dominant view: "Today, the way of increasing competitiveness and of having a better corner in world trade is research and development, innovation and technology-based production and branding."[14] Based on this shared understanding, many scholars conducted impact evaluation of governmental support programs in Turkey (Erdil, Pamukçu, and Çetin 2013; Tandoğan and Pamukçu 2011; Wojciech et al. 2013; Akçomak and Taymaz 2007; Özçelik and Taymaz 2008), and many organizational documents assessed pros and cons of the Turkish innovation system (Elçi 2009, 2001; World Bank 2009; Çetin and Erdil 2014).

Despite this consensus, however, *virtually no scholarly work has yet examined the political dynamics of R&D policy in Turkey*. Put differently, no study has yet questioned how the opposition parties' stance on R&D, or the tug-of-war between the executive and autonomous innovation agencies, shaped R&D policy in the country. Even though the mentioned organizational documents identified problems in regards to evidence-based policy-making in the Turkish innovation system, they did not elaborate how those problems affected R&D policy. Likewise, although the executive's intervention in autonomous innovation agencies attracted attention, no inquiry has yet questioned in what ways interferences shaped R&D policy.[15] To the best of my knowledge, no study has even raised the question of whether political parties have divergent views on R&D policy in Turkey. This empirical gap attracted my attention, and motivated me to raise the central research question.

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[13] TÜSİAD (2008) *Bölgesel İnovasyon Merkezleri: Türkiye için Bir Model Önerisi*; MÜSİAD (2012) *Küresel Rekabet için AR-GE ve İnovasyon: Stratejik Dönüşüm Önerisi*; TEPAV (2012) *Teknolojik İlerleme ve Devletin Rolü İsrail, Tayvan ve İrlanda örneklerinden Türkiye için dersler*; Gökhan Yılmaz, 'Turkish Middle Income Trap and Less Skilled Human Capital, Central Bank of the Republic of Turkey,' Working Paper No: 14/30, 2014.
[14] Şeyma Eraz's interview with Nihat Zeybekçi, *Daily Sabah*, 13 April, 2015.
[15] Various writings of Aykut Göker (who assumed important roles at TÜBİTAK during the 1990s) that are published on a website labelled 'Bilim, Teknoloji, İnovasyon Politikaları Tartışma Platformu' (where experts on the Turkish innovation system share their ideas) elaborate the issue of policy-discontinuity in Turkey in the field of science, technology, and innovation policy (http://www.inovasyon.org/yazardetay.asp?YazarID=1).

In addition to Turkey-specific observations, the importance of R&D policy-making in contemporary world (Section 1.3.1), the apparent absence of the 'political' in NSI approach (Section 1.3.1), and the insights that can be derived from the in-depth elaboration of the Turkish case (Section 1.3.2 and Chapter 7), motivated me to inquire into the political economy factors that have influenced R&D policy-making processes in Turkey during the 2000s.

1.6 Research design and methodology

"Good social science is problem-driven and not methodology-driven, in the sense that it employs those methods which for a given problematic best help answer the research questions at hand" (Flyvbjerg 2006, 242). This is one crucial point on which there is a consensus in the discipline. For sure, scholars who have strong leanings towards one of qualitative or quantitative research designs engage in a lively debate about the appropriate stance that needs to be taken in a scientific research (Ragin 1987; King, Keohane, and Verba 1994; Gerring 2001; Brady and Collier 2004). Yet, both "qualitative and quantitative scholars share the overarching goal of producing valid descriptive and causal inferences [and they] pursue different specific research goals, which in turn produce different norms about research practices" (Mahoney and Goertz 2006, 228). Therefore, *appropriate research design follows from the research question.*

In political economy scholarship, studies that investigate a decision-making process, or a policy-making process in more concrete terms, *commonly opt for a qualitative research design*. Scholarly works that examine different aspects of state-business relationship, or the interplay between political elites and bureaucrats, also subscribe to such a research design (Evans 1995, 21–42). The questions at hand require an in-depth elaboration of the cases, whether single or multiple. Since this dissertation examines political economy factors that influence R&D policy-making processes, *including the tug-of-war between governing elites and bureaucrats*, it also opts for a *qualitative research design.*

1.6.1 Case selection

This dissertation focuses on *Turkey as a single-case study*. As the central research question reveals, the agenda is based on an empirical observation within the Turkish context (Section 1.5). However, this does not imply that the thesis offers context-dependent findings only. On the one hand, the investigation has implications on the politics of innovation policy scholarship as already discussed (Section 1.3.2). On the other hand, the examination speaks to the developmental state framework –with implications on the broad literature (Chapter 7). Therefore, *while the thesis primarily conveys the Turkish story and offers many context-dependent contributions (Chapter 7)*, it also aims to contribute to the innovation literature by offering *new insights on political economy factors that affect innovation policy-making processes* (Section 1.3.2). The thesis also *drives lessons for other developing countries via an elaboration of the Turkish state's developmentalist turn in the R&D sector* (Chapter 7).

Besides these main considerations, this dissertation takes side with Bent Flyvbjerg, who highlights that: "a scientific discipline without a large number of thoroughly executed case studies is a discipline without systematic production of exemplars, and that a discipline without exemplars is an ineffective one" (2006, 219).

1.6.2 Data sources

This thesis relies on various sources to conduct analysis, including (i) main governmental and organizational policy documents, (ii) laws and regulations, (iii) parties' election bulletins, (iv) parliamentary discussions, (v) descriptive statistics, (vi) secondary literature, and (vii) interviews. All these sources have been important in documenting the dissertation's main concerns, and demonstrating its arguments throughout the chapters.

Interview data have provided indispensable information that is related to almost all important issues that are taken up in this dissertation. Interview method is utilized for two main purposes –*as a preliminary research to the main study*, and *as a main data source and*

triangulation. Since interview method is central to the thesis, and many studies in the scholarship suffer from opaqueness *in regards to the way that the method is executed*, the elaboration of the interview method and its execution are in order.

1.6.3 Interview method

Interview method is an essential toolkit of scholarly research in social sciences (Campbell et al. 2013, 295). In political science, a number of classics primarily rely on interview data (Berry 2002, 679). In many cases, "interviews remain the only means of identifying or confirming the causal mechanisms that generate the outcomes we observe" (Mosley 2013, vii). In this regard, interview method is especially vital for political scientists and political economists whose aim is to investigate *a decision-making process*, and *examine the interplay between the political leadership and the bureaucracy*. As Peter Evans notes in his ground-breaking study, "interviews with dozens of current and former government officials were the primary source of…understanding of what was going on inside...states" (1995, 19).

In this dissertation, interview method is used for two primary purposes: as a *preliminary research to the main study*, and as a *main data source and triangulation*. To begin with, preliminary interviewing is one way to generate and test alternative hypothesis in a "rough-and-ready" manner (Lynch 2013, 34). This is proved to be useful within the context of this thesis, since there is virtually no scholarly work that questions the political dynamics of R&D policy in Turkey. One example illustrates the interview method's usefulness in this regard.

At the initial stages of the dissertation, the main hypothesis was related to the conservative economic elites' potential influence on R&D policy-making in Turkey. There were reasonable grounds to expect such an influence (Chapter 6). Since no prior study questioned this link before, a preliminary fieldwork was necessary. To this end, the elite-interviewing method was employed. During October-November 2014, six semi-structured face-to-face interviews were conducted with relevant stakeholders in Turkey. Short, and rather

informal, interviews were also conducted with technopark managers. Furthermore, a constant dialogue was kept open with experts who had valuable knowledge on the Turkish innovation system. During the fieldwork, it became clear that not only the conservative economic elites, but also the secular ones, did not effectively take part in R&D policy-making processes in Turkey (Chapter 6). This finding influenced the subsequent research greatly.

Interview method is also relied on as a *main data source* and it is utilized for the purposes of *triangulation*. In broad terms, triangulation can be defined as "the combination of two or more methodological approaches, theoretical perspectives, data sources, investigators and analysis methods to study the same phenomenon" (Hussein 2009, 2). The importance of triangulation is well-documented in the literature (Denzin 1978; Jick 1979; Mathison 1988; Hussein 2009). Different types of triangulation are also outlined varying from data triangulation to investigator triangulation (Hussein 2009, 3–4). In this thesis, interview method is used for the purposes of *data triangulation*, as interview data is relied on to *validate information that is obtained from other sources*.

In total, *26 interviews* were conducted between *October 2014 and June 2016* in different periods (appendix 1). Five of those were with technopark managers. Although the interviews with those managers reveal important information related to some issues mentioned in the thesis, they are not analytically connected to the main arguments. Two interviews were follow-up interviews. *Except for the one which was conducted over the phone, all interviews were semi-structured face-to-face interviews*.

Bureaucrats (previous and current), and individuals who have/had worked for main innovation governance agencies in Turkey constitute the sample frame. Whereas seven interviewees were affiliated with the Scientific and Technological Research Council of Turkey (TÜBİTAK), four were affiliated with the Small and Medium Sized Enterprises Development Organization (KOSGEB). The list included one interviewee each from the Ministry of

Development (MoD), the Ministry of Science, Industry, and Technology (MoSIT), the Technology Development Foundation of Turkey (TTGV), and one important consultant agency in Turkey. The list also included three technopark managers and three experts on the Turkish innovation system (appendix 1).

It should be noted that the affiliations *understate the diversity in the sample.* Almost all interviewees have/had worked for *more than one important agency* in the Turkish innovation system. In fact, if I count the number of interviewees by considering the different organizations that they have worked for, the number would double at the least. Therefore, the interviewees could provide information not only about their affiliated agency, but also about other organizations. To keep anonymity, I cannot reveal that information. The interview data is analyzed by using the *Qualitative Data Analysis software.*[16] The software provided invaluable practical assistance in handling more than 160 pages of interview notes.

In regards to the interview method's execution, non-random sampling in the form of "information-oriented selection" is employed as the main sampling strategy (Flyvbjerg 2006). The purpose of "information-oriented selection" is "to maximize the utility of information from small samples and single cases [where] cases are selected on the basis of expectations about their information content" (Flyvbjerg 2006, 230). Snowball sampling is also employed as a follow-up strategy (Atkinson and Flint 2001).

In the elite-interviewing, the common interview format is semi-structured face-to-face interviews. Semi-structured interview questions not only provide a "road map" for the researcher during the interviews, but they also allow interviewees to elaborate important issues that either escaped the researcher's notice or are not known to the researcher (Leech 2002, 665). Furthermore, semi-structured interview design with open-ended questions fit very well to the elite-interviewing. As noted, "elites especially—but other highly educated people as well—do

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[16] For more on the software see, http://provalisresearch.com/products/qualitative-data-analysis-software/freeware/

not like being put in the straightjacket of close-ended questions" (Aberbach and Rockman 2002, 674).

As a practitioner of the interview method, I strongly take side with studies which argue that essential information regarding the method's execution needs to be provided to reflect the methodological rigor of the analysis (Bleich and Pekkanen 2013, 84). This includes the number and date of the interviews, source of the interviews (sample frame or snowball), length of the interviews, and recording type of the interviews. Information in regards to these are provided via the 'interview methods table' (appendix 1).[17]

1.7 Main contributions

This thesis aims to contribute to the political economy scholarship in various ways, and they are elaborated at length in the concluding chapter (Chapter 7). In this section, the main contributions are briefly outlined, with the main purpose of *emphasizing the dissertation's main goals and agenda.*

1) A growing body of work on the politics of innovation policy still aims to demonstrate political factors' significance and influence on innovation-related phenomena. In this regard, the focus on R&D (allocation of governmental support funds to the private sector) as a sub-field of innovation policy is illustrative for the broad scholarship. As noted, the seemingly above-politics trait of R&D policy makes it a least-likely-case to study Levy (2008, 12) –if political dynamics turn out to be important in this domain, then they would be crucial in all other innovation-related policy fields (Section 1.3.2). In fact, this has been the case.

2) This dissertation claims that opposition parties' stance on innovation *may* also influence R&D policy in important ways besides the ruling party or the executive. *This has been the*

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[17] For the 'interview methods table' see Bleich and Pekkanen (2013).

case in Turkey, and it might be the case in other contexts. As noted, the primary focus is tended to be placed upon the ruling party or the executive in the politics of innovation policy literature, and the absence the opposition is particularly apparent in technological nationalism literature (Section 1.3.2). In this regard, this thesis argues that *the opposition's attitude may also matter in contexts where the policy in question is not politically salient, is considered as technical,* and *the ruling party has the power to enact legislation on its own.* The opposition's ideational stance (technological nationalism), and institutional weakness, *may* hinder *the creation and deliberation of alternative policy choices* (an important element of politics), as in Turkey.

3) As mentioned, although the primary focus of the dissertation is on R&D policy-making processes, the empirical chapters collectively suggest that the Turkish state *has yet to develop the institutions of the developmental state in the R&D sector.* Despite the positive steps undertaken, many problems that are related to the bureaucracy's absence of autonomy vis-à-vis the executive, the bureaucracy's lack of embeddedness, problems in regards to bureaucratic coordination, etc. have curtailed the Turkish state's developmentalist capacity in the R&D sector. On the one hand, this finding supports earlier works on the Turkish developmental state (Öniş and Riedel 1993; Bayar 1996; Biddle and Milor 1997; Luca 2016). On the other hand, it has further implications for the broad literature on the developmental state (Chapter 7).

4) The thesis offers various context-dependent empirical contributions, which are elaborated in the concluding sections of the empirical chapters. More importantly, the thesis speaks to an important debate on the Turkish political economy. This dissertation argues that rather than clientelistic relations, a neo-populist approach has been dominant in R&D fund

allocation in Turkey during the 2000s (Chapter 6).[18] This finding supports Buğra and Savaşkan (2014) on the point that *Turkey's growth trajectory was not based on the newly emerged business class' entrepreneurial spirit* during the AKP period. However, the thesis also contends that the main issue *has not been one of clientelism as in the construction sector or the media*, but it *has been one of neo-populism* (including a different form of clientelism) that is akin to the "controlled neo-populism" concept of Öniş (2012).

1.8 Road map of the thesis

The dissertation is structured as seven chapters including this introduction. Chapter 2 outlines the analytical framework by going through the scholarly works on technological nationalism, developmental state, and clientelism. The chapters from Chapter 3 to Chapter 6 undertake an in-depth examination of R&D policy-making processes in Turkey during the AKP period. While Chapter 3 demonstrates the political parties' divergent views on R&D policy, Chapter 4 examines how the opposition's ideational stance (technological nationalism), institutional weakness in R&D policy-making, and low priority assigned to R&D in contrast to the rhetoric, led it to support the AKP on key R&D legislation. This behavior also undermined the formulation and promotion of alternative policy choices in the context of R&D policy.

Chapter 5 turns a keen eye on the executive–bureaucracy interaction in the Turkish innovation system during the 2000s. The primary focus is placed upon the AKP-TÜBİTAK interaction, as TÜBİTAK is acting as the leading agency in the Turkish innovation system. The chapter documents how the executive's interventions undermined TÜBİTAK's autonomy, and how this situation led to a shift in TÜBİTAK's perspective on R&D policy in line with the

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[18] This is *not to* say that clientelistic relations *have not been existent* in the R&D sector. It means that *compared to other sectors* (construction, media, etc.), clientelism *has not been the main problem* in *R&D fund allocation*. The primary issue has been *neo-populism*, instead of *clientelism* (Chapter 2 and Chapter 6).

AKP's preferences. The chapter also documents the flexibilizations in resource allocation criteria in the R&D sector during the 2000s –this being one of the AKP's political choices.

Chapter 6 questions the AKP's rationale and motivation in R&D fund allocation to the private sector, and inquires whether the allocation has been handled based on sound reasoning, clientelistic relations, or populist behavior. As argued, neo-populist tendencies have mainly motivated the distribution. Chapter 7 concludes the dissertation by discussing the contributions in detail, putting forward the thesis' limitations, and offering a future research agenda.