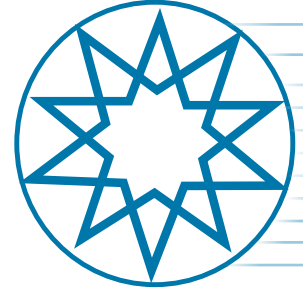


ISSN 2687-6256



# YILDIZ SOCIAL SCIENCE REVIEW

Volume 7  
Number 2  
Year 2021

**YTU**  
PRESS

[www.yssr.yildiz.edu.tr](http://www.yssr.yildiz.edu.tr)

**YILDIZ SOCIAL  
SCIENCE REVIEW  
(YSSR)**

**VOLUME: 7      YEAR: December 2021      NUMBER: 2**

**Available Online :** <http://dergipark.org.tr/tr/pub/yssr>

**ISSN** : 2149-4363

**ISSN (Online)** : 2687-6256

**Publisher:** On Behalf of Yıldız Technical University Faculty of Economics and Administrative Sciences Dean Prof. Halit KESKİN

**Communication:**

**Phone:** +90 212 383 6712

**Website:** <https://dergipark.org.tr/tr/pub/yssr>

**E-mail:** [donduran@yildiz.edu.tr](mailto:donduran@yildiz.edu.tr)

**Address:** Yıldız Teknik Üniversitesi İktisadi ve İdari Bilimler Fakültesi 34210  
Esenler/İstanbul/Turkey

**Printing Date:** December, 2021

**Printed by:** Yıldız Publishing Center Davutpaşa/İstanbul

**Front Page Designed by:** Mehtap Kul

**Cover Designed by:** Gündüz Altay Köklü

**Logo Designed by:** Hasan Öğretmen

**Typesetting by:** Murat Donduran

Yıldız Social Science Review is a refereed and international journal and published in May and November.

## **Editorial Board**

### **Honorary Editor**

Prof. Erdener KAYNAK (Pennsylvania State University, Harrisburg)

### **Editor in Chief**

Prof. Murat DONDURAN (Yıldız Technical University, Turkey)

### **Associate Editors**

Prof. Halil Emre AKBAŞ (Yıldız Technical University, Turkey)

Prof. Evren BALTA (Özyeğin University, Turkey)

Prof. Jürgen KAHLER (University Erlangen-Nuremberg, Germany)

Prof. Meral UZUNÖZ (Yıldız Technical University, Turkey)

Prof. Murat YILDIZOĞLU (Bordeaux University, France)

Assoc. Prof. Tolga AKSOY (Yıldız Technical University, Turkey)

Assoc. Prof. Burak ÜNVEREN (Yıldız Technical University, Turkey)

Asst. Prof. Antonio MASALA (Pisa University, Italy)

Asst. Prof. Tuğçe OZANSOY ÇADIRCI (Yıldız Technical University, Turkey)

Asst. Prof. Christoph WEBER (ESSCA School of Management, France)

Yiğit AYDOĞAN, PhD (Kırklareli University, Turkey)

### **Field Editors**

#### **Business Administration and Management**

Prof. Halil Emre AKBAŞ (Yıldız Technical University, Turkey)

Asst. Prof. Tuğçe OZANSOY ÇADIRCI (Yıldız Technical University, Turkey)

#### **Economics**

Prof. Meral UZUNÖZ (Yıldız Technical University, Turkey)

Assoc. Prof. Tolga AKSOY (Yıldız Technical University, Turkey)

#### **Political Science and International Relations**

Prof. Evren BALTA (Özyeğin University, Turkey)

Asst. Prof. Antonio MASALA (Pisa University, Italy)

#### **English Language Editor**

RA. Alaaddin TOK, PhD (Yıldız Technical University, Turkey)

#### **Turkish Language Editor**

RA. Sırrı Emrah ÜÇER, PhD (Yıldız Technical University, Turkey)

#### **Managing Editors**

RA. Halil ŞİMDİ, PhD (Sakarya University, Turkey)

RA. Alaaddin TOK, PhD (Yıldız Technical University, Turkey)

RA. Sırrı Emrah ÜÇER, PhD (Yıldız Technical University, Turkey)

RA. Ecem DOYGUN (Yıldız Technical University, Turkey)

RA. Selin ERDOĞAN (Yıldız Technical University, Turkey)

RA. Volkan GÜNGÖR (Yıldız Technical University, Turkey)

RA. Hikmet KAYA (Yıldız Technical University, Turkey)

RA. İbrahim Engin KILIÇ (Yıldız Technical University, Turkey)

RA. Özdemir TEKE (Yıldız Technical University, Turkey)

RA. Alican YILDIRIM (Yıldız Technical University, Turkey)

## **Advisory Editorial Board**

Prof. Remzi ALTUNIŞIK (Sakarya University)  
Prof. Coşkun BAYRAK (University of Arkansas at Little Rock, USA)  
Prof. Esin CAN (Yıldız Technical University, Turkey)  
Prof. Wendy CARLIN (University College London, UK)  
Prof. Nevin COŞAR (Yıldız Technical University, Turkey)  
Prof. Ayşe Betül ÇELİK (Sabancı University, Turkey)  
Prof. A. Suut DOĞRUEL (Emeritus, Turkey)  
Prof. Fatma DOĞRUEL (Marmara University, Turkey)  
Prof. Salih DURER (Yıldız Technical University, Turkey)  
Prof. Cumhuri ERDEM (Abant İzzet Baysal University, Turkey)  
Prof. Ercan EREN (Yıldız Technical University, Turkey)  
Prof. Ercan GEGEZ (İstanbul Arel University, Turkey)  
Prof. Cemal İBİŞ (Işık University, Turkey)  
Prof. İbrahim KIRCOVA (Yıldız Technical University, Turkey)  
Prof. Erdoğan KOÇ (Bahçeşehir University, Turkey)  
Prof. Mehmet Akif OKUR (Yıldız Technical University, Turkey)  
Prof. Gökhan ÖZER (Gebze Technical University)  
Prof. John ROEMER (Yale University, USA)  
Prof. Ayşegül SEVER (Marmara University, Turkey)  
Prof. Faruk SÖNMEZOĞLU (İstanbul University, Turkey)  
Prof. Yasir SULEIMAN (University of Cambridge, UK)  
Prof. Hüseyin TAŞTAN (Yıldız Technical University, Turkey)  
Prof. Gülsün YAY (Yıldız Technical University, Turkey)  
Prof. Cengiz YILMAZ (Middle East Technical University, Turkey)  
Prof. Tevfik YOLDEMİR (Marmara University, Turkey)  
Prof. Ming-Miin YU (National Taiwan Ocean University, Taiwan)  
Assoc. Prof. Massimo BAGARANI (University Guglielmo Marconi, Italy)  
Assoc. Prof. Selim GÜLEŞÇİ (Trinity College Dublin, Ireland)  
Asst. Prof. Güneş GÖKMEN (New School of Economics, Russia)  
Giuseppe ATTANASI, PhD (University of Strasbourg, France)  
Thomas R. MATTAIR, PhD (Middle East Policy Council, USA)  
Daniele SIENA, PhD (Banque de France, France)

**ARTICLES**

**Research Articles / Araştırma Makaleleri**

The Political Anatomy of Economic Crises – The Case of Turkey: 1945-2018 <i>Ekonomik Krizlerin Siyasal Anatomisi: Türkiye Örneği: 1945-2018</i> Hurşit Güneş .....	91
Knowledge Space, Relatedness and Complexity: A Regional Analysis in Turkey <i>Bilgi Alanı, İlişkililik ve Karmaşıklık: Türkiye İçin Bölgesel Bir Analiz</i> Sedef Akgüngör and Mert Abay .....	110
Spillovers Between Institutional Interactions Index, Market Risk and Return: Case of Turkey (2007-2020) <i>Kurumlarla İlişkiler Endeksi, Piyasa Getiri ve Riskleri Arasındaki Yayılma Etkisi: Türkiye Örneği (2007-2020)</i> Sadi Uzunoğlu, Caner Özdurak and Serap Dursun.....	123
Labor Underutilization in European Countries: Some Facts About Age and Gender* <i>Avrupa Ülkelerinde Atıl İş Gücü: Yaş ve Cinsiyet Hakkında Bazı Tespitler</i> Yasemin Özerkek and Fatma Didin Sönmez .....	137
Cooperation between Turkey and Libya on Maritime Transport <i>Libya ile Türkiye Arasında Deniz Ulaştırması Alanında İşbirliği</i> Ergün Demirel .....	147



Yıldız Social Science Review

Web site information: <https://yssr.yildiz.edu.tr>  
DOI: 10.51803/yssr.908331



Original Article / Orijinal Makale

**The Political Anatomy of Economic Crises – The Case of Turkey: 1945-2018**

***Ekonomik Krizlerin Siyasal Anatomisi: Türkiye Örneği: 1945-2018***

Hurşit GÜNEŞ<sup>a</sup>

<sup>a</sup>*Department of Economics, Marmara University, İstanbul, Turkey*

<sup>a</sup>*Marmara Üniversitesi, Ekonomi Bölümü, İstanbul, Türkiye*

**ARTICLE INFO**

*Article history*

Received: 2 April 2021

Accepted: 30 November 2021

**Key words:**

Democracy, economic crises, emerging market, political crises

**MAKALE BİLGİSİ**

*Makale Hakkında*

Geliş tarihi: 2 Nisan 2021

Kabul tarihi: 30 Kasım 2021

**Anahtar kelimeler:**

Demokrasi, ekonomik krizler, yükselen piyasalar, siyasal krizler

**ABSTRACT**

The foundations of economic and financial crises are conventionally attributed to the technicalities of macroeconomic fragilities. Yet political instability (caused by the deficiency of democracy and/or unfunctional political institutions) can also be considered as a major determinant of economic instability by deteriorating the debt dynamics through depreciation of the national currency or the ascent of interest rates. Analogously, political instability, for instance, disruption of cabinet durability, to a large extent depends on the economic performance of governments. Hence, though most economists conceive macroeconomic fragilities as *the mother of all* crises, the issue is rather complex and there is an intermingled relationship between political and economic crises.

Besides, as macroeconomic fragilities or structural imbalances are results of inappropriate policies, the political rationale and the social motives behind such misleading policies should also be well comprehended. For that purpose, a comprehensive elaboration will enable the negation of the prevalent argument that it is only economic factors that instigate crises.

This study investigates the political background of eight economic crises in Turkey, since 1946. In all of them, significant levels of devaluation and retraction of growth are observed. All of the devaluations were indispensable, except the first one in 1946 which was discretionary and precautionary. The crises of 1978/9, 1994 and 2001 ended with drastic austerity programmes, albeit the others, where governments eschewed them by macroeconomic adjustment through fiscal and monetary measures. The 2001 twin-crises was so peculiar, as it was to a large extent caused by the design-defection of the programme recommended by the IMF. Yet, since the attempt of financial liberalization, all of the other economic crises were prompted by capital flights. The 2008/9 crisis was due to global contagion and the 2018 crisis was caused by the tensions in the bilateral relations with the US, amid high private sector foreign debt. In all economic crises, the profligate fiscal stance of governments has played a prominent role, as well as the continuation of appreciated exchange rates, but such choices had a political rationale. Finally, in the background of all the economic crises in Turkey, we observe stern political instability.

Political instability not only restricts the rational decision-making capacity of the policy-maker, particularly if it converges into a political crisis, but also exacerbates economic sentiment, either by consumer confidence or by investor appetite, which subsequently results in economic decline. It also intensifies risks and causes exchange rate depreciation as well as interest rate hikes, both

\*Corresponding author / Sorumlu yazar

\*E-mail: [hursit@marmara.edu.tr](mailto:hursit@marmara.edu.tr)



Published by Yıldız Technical University Press, İstanbul, Turkey

Copyright 2021, Yıldız Technical University. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

of which degenerates debt dynamics. Since the financial liberalization attempt in Turkey, as portfolio investments have boosted, political stability has become imperative to sustain the stability of risk-sensitive financial markets. Both the experience of the 2008/9 and especially the 2018 financial crisis, have verified the importance of political instability as a determinant of economic crises. In short, economic crises cannot be analysed disregarding their political anatomy.

**Cite this article as:** Güneş, H. (2021). The Political Anatomy of Economic Crises – The Case of Turkey: 1945-2018. *Yıldız Social Science Review*, 7(2), 91–109.

## ÖZ

Genellikle ekonomik ve finansal krizlerin temelleri makroekonomik kırılmalara atfedilir. Oysa demokrasi noksanlığı ve/veya siyasal kurumların işlevselliğini yitirmesi de siyasal istikrarsızlığa yol açarak, ulusal paranın değerini yitirmesine veya faizlerin yükselmesine neden olabilir ve bu durum borç dinamiklerinin bozulması yoluyla ekonomik istikrarsızlığın temelini oluşturabilir. Tabii benzer biçimde, siyasal istikrarsızlık, örneğin hükümetin devamlılığı da iktidarların ekonomik performansına bağlıdır. Bu nedenle, birçok iktisatçı makroekonomik kırılmalıkların bütün krizlerin anası olarak görmesine rağmen, konu oldukça karmaşıktır, yani siyasal ve ekonomik krizler iç içe girmişlerdir.

Kaldı ki, makroekonomik kırılmalıklar veya yapısal dengesizlikler de hatalı politikaların sonucu olduğuna göre, bu politikaların ardındaki siyasal rasyoneli ve toplumsal güdülerini anlamaya doğrultusundaki ayrıntılı bir inceleme, aynı zamanda krizlerin sadece ekonomik faktörlerden kaynaklanmadığını da gösterecektir.

Bu çalışma 1946'dan bu yana sekiz ekonomik krizi ele almaktadır. Krizlerin hepsinde ciddi ölçüde devalüasyon ve büyüme daralması gözlenmektedir. İradî bir tedbir olarak ele alınan 1946 devalüasyonu hariç, bu olgu hepsinde kaçınılmaz olarak gelişmiştir. İktidarlar genellikle para ve maliye politikalarıyla makroekonomik uyumdan kaçınırsalar da, 1978/1979, 1994 ve 2001 krizleri sert kemer sıkma politikalarıyla sonuçlanmıştır. 2001 krizi ise bunların içinde en özgün olanıdır, çünkü büyük ölçüde IMF'nin tasarımı kusurlu istikrar programından kaynaklanmıştır. Bununla beraber, mali serbestleşme sonrası bütün ekonomik krizlerde kısa vadeli sermaye kaçıışı gözlenmiş ve etkili olmuştur. 2008/2009 krizi de bir anlamda farklıdır, çünkü küresel bulaşma ile oluşmuştur. 2018 krizi ise, özel kesimin çok yüksek dış borçları olduğu bir ortamda, ABD ile ikili ilişkilerin gerginleşmesinden kaynaklanmıştır. Bütün ekonomik krizlerin öncesinde, döviz kurundaki aşırı değerlilik ile maliye politikasındaki gevşekliğin önemli bir rolü olduğu gözlenmektedir. Kuşkusuz her iki olgunun da siyasal rasyoneli vardır. Ancak hepsinden öte, bütün bu ekonomik krizlerin öncesinde büyük çaplı siyasal istikrarsızlık gözlenmektedir.

Siyasal istikrarsızlık yalnızca politikacıların rasyonel karar verme kapasitesini sınırlamakla kalmaz, özellikle siyasal krize dönüşmesi halinde, tüketici güveni ve yatırımcı iştahı kötüleştirerek ekonomik eğilimleri baltalar ve ekonomik çöküşe neden olabilir. Kaldı ki, artan riskler hem döviz kurlarına, hem de faizlere yansıtacağı için borç dinamiklerini bozar. Özellikle mali serbestleşme girişimi sonrası portföy hareketlerinin ülkede bir hayli yoğunlaşması karşısında siyasal istikrarın sürdürülmesi risk-duyarlı mali piyasalar için adeta bir zorunluluk haline gelmiştir. Hem 2008/2009, hem de özellikle 2018 kriz deneyimleri siyasal istikrarın önemini ortaya çıkarmıştır. Kısacası, siyasal anatomi göz ardı edilerek ekonomik krizler irdelenemez.

**Atf için yazım şekli:** Güneş, H. (2021). The Political Anatomy of Economic Crises – The Case of Turkey: 1945-2018. *Yıldız Social Science Review*, 7(2), 91–109.

## 1. INTRODUCTION

Economic crises have political implications as well as political crises having economic foundations. Furthermore, crises cannot be conceived as simple or uniform phenomena. They are complex and they are also intermingled with each other. The economic foundations of political crises

have long been discussed in numerous academic studies, generally by political scientists. Yet the political implications of economic crises have seldom been analysed by economists<sup>1</sup>. Economists have rather focused on the macroeconomic fragilities as the principal causes of economic crises, disregarding all other factors as minutiae. The pur-

<sup>1</sup> This does not imply that this study has the aim of being the frontier study in exposing the political dimension behind economic crises. As discussed below, there are quite a number of contributions in this sense in the literature. Öniş (2010) analyses the political repercussions (in his terms transformations) of crises in Turkey whereas our study looks at the political background of those crises.



pose of this study is thus to challenge this conventional, and in a sense parochial approach and to elaborate the political and social implications of economic crises with a synopsis of the Turkish economy.

The political background of economic crises can be conceptualized within two dimensions. Firstly, if macroeconomic fragilities, that are incurred by *misleading policies*, are the principal causes of economic crises, then the social and political motives of those misleading policies should be comprehended. Secondly, there are also direct mechanisms through which adverse political structures, like political instability, may exacerbate economic crises. Below in Section 2 the first mechanism is discussed and in Section 3 the second mechanism is exposed. In Section 4 the political foundations of economic crises in Turkey are explored in a historical perspective and in Section 5 the paper is concluded.

## 2. THE POLITICAL FOUNDATIONS OF ECONOMIC CRISES AND THEIR CONSEQUENCES

The economic policies of countries exhibit considerable diversity and, according to Nelson (1990), this can be explained by social factors like the rate of population growth, the share of the urban population, the entity of agricultural population, life expectancy, infant mortality and the proportion of secondary education. Acemoglu et. al. (2003) attributes poor macroeconomic policies to weak (or extractive) institutions in the sense that they do not constrain politicians and political elites for the enforcement of property rights for investors, combat widespread corruption, and finally alleviate the high degree of political instability. Furthermore, they contend that macroeconomic problems, just like volatility and the disappointing macroeconomic performance of several countries, are symptoms of deeper institutional causes. Van Rijckeghem and Weder (2008) refer to the importance of political institutions concerning debt crises. Their empirical analysis concludes that political institutions matter in defaults on both external and domestic debt obligations. In democracies where there is a parliamentary system with sufficient checks and balances, there is a guarantee against the risk of default on external debt due to the sufficiently strong economic fundamentals or liquidity. In dictatorships, however, this only rests on high stability and tenure.

The relationship between economic crises and democracy as a political structure has been analysed earlier by Remmer (1990) vis-à-vis the Latin American experience. Remmer mainly questions whether democracies with appropriate policies are less likely than other regimes to address economic crises or tend to aggravate, rather than

ameliorate, economic challenges for their survival. He especially examines the characteristics of the political regimes for explaining policy responses to common economic difficulties and concludes that debt crises establish no basis for asserting that authoritarian regimes outperform democracies in the management of economic crises. Remmer, confirming the position of Rijckeghem and Weder, contends that the supposedly delicate new Latin democracies perform as effective as their authoritarian counterparts in managing the debt crises.

A very recent challenging empirical study is held by Lipsy (2018) where he argues that democratic countries are more susceptible to financial crises. Indeed, he argues that democracies are about twice as likely to experience a crisis as autocracies. Lipsy undertakes an empirical study that covers two centuries of world data and although democracy as a regime is characterized by constraints on executive authority, accountability through free and fair elections, protection for civil liberties and large winning coalitions, such characteristics can also have unintended consequences that increase the likelihood of financial instability and crisis<sup>2</sup>.

Concerning the experiences of Peru and Chile, Dornbusch and Edwards (1991) argued that macroeconomic populism emphasizes growth and income redistribution but de-emphasizes deficit finance, the risks of inflation and external constraints and the reaction of economic agents to aggressive non-market policies. Needless to mention that the preference of growth and income distribution to that of inflation and external balance is rather a political choice issue than a stark economic matter.

The comparative analysis of the macroeconomic performance of democracies is also analysed by Gasiorowski (1995), by the use of a data set of 75 countries through the 1950s and the 1980s and has found that although inflationary crises inhibited democratization from the 1950s through the early 1970s, they rather facilitated democratization in the late 1980s. Recessionary crises, on the other hand, facilitated democratic breakdown but did not affect democratic transition throughout this period. Thus, Gasiorowski concludes that economic crises do not simply undermine the legitimacy of whatever type of political regime is present in a country, but they incur a regime change in either direction. He later (2000) suggests that more democratic countries have higher inflation and slower growth, and ascribes this phenomenon to fiscal deficits and faster growth of wages. On the other hand, he observes no significant differences between the rates of growth and inflation of the new and mature democracies.

It is not just the types of political regimes that infer policy differences, but also the political dispositions of policy-makers and/or the behaviour of certain social classes.

<sup>2</sup> Truly, the world is getting more democratic since the industrial revolution and the frequency of financial crises are rising since World War I. Yet, to associate financial crises with democracies is rather a contentious issue as we observe such crises generally in developing countries with deficient democratic regimes, i.e. Latin American and some Asian countries.

For example, Weyland (1996) explores the “unexpected affinity” between neo-populism and neo-liberalism which emerged in the 1980s under President Menem of Argentina, President Collor of Brazil and President Fujimori of Peru. He observes that in Argentina, unlike the classical populists like Peron during the 1960s and 1970s (who attracted political support from the urban workers and provincial middle class), neo-populism during the 1970s and 1980s has attracted the political support of the urban informal sector and the rural poor, which have been politically uncommitted, alongside the preceding social groups. According to Weyland, it was democratic politics that stimulated the revival of populism, despite the economic constraints which appeared to condemn it to death. In other words, while democracy paved the way to populism, economic crises which were exacerbated by populist leaders could threaten democracy itself.

However, contrary to Dornbusch and Edwards or Weyland, De Castro (2007) by referring to both the Latin American economic crises of the 1970s and 1980s, and the Asian financial crisis of the 1990s, argues that populism/neo-populism as a political aspiration has not been the *cause* of economic crises but has emerged as a *consequence* of economic and political instabilities or crises. Nevertheless, such an argument naturally underrates the importance of the non-economic factors or the social background of populism.

Concerning the Asian crisis, Haggard (2000) argues that domestic political factors such as crony capitalism, weak leadership or autocratic governments have played significant roles at the onset of financial crises. By focusing on two countries, namely Thailand and Korea, Haggard contends that the institutional arrangements of these two countries rendered them vulnerable to public policy. In Thailand, for example, those peculiar and chronic problems which were ingrained in their parliamentary system had generated non-cohesive political parties and fragile coalition governments.

Similar to the line of Haggard, Feng (2003) argues that financial crises can be associated with political factors such as public governance, the relationship between bureaucracy and the business world. He then engages in a theoretical and empirical examination of three features of countries; political life, political freedom (which involves democratic institutions), and political stability (which is related to the likelihood of the survival of the government) and thus policy certainty (which concerns the shift of policies concerning the degree of income equality). Nevertheless, his main conclusion, in contrast to Weyland, is that democracy has no direct effect on the variables which are found to be associated with growth, but rather it appears as a contributor to political stability, human capital formation, income equali-

ty, economic freedom, etc.

Throughout the last century, economic crises have presented a dynamic nature concerning their motives and their progress. There has been a consensus that certain inappropriate policy choices are observed at the onset of crises, but once the crisis breaks, it engenders a chaotic milieu with massive uncertainty which impedes policy effectiveness. Finally, all economic crises have social and political consequences in a distinct manner.

Regarding economic crises, first-generation models, for example, indicate that unstable monetary and fiscal policies violate or contradict the basic principles of economics, particularly regarding the fixed exchange rate regime, and pave the way to economic crises. Second-generation models are those that explain multiple equilibria crises that are caused by a shift in the exchange rate and self-fulfilling expectations. The third-generation crisis models are developed as a result of the 1997 Asian Crisis. These recent models have examined the vulnerabilities or the new maladies of the financial sector such as moral hazard, balance sheet imbalances and financial contagion. Indeed, the rise of third-generation models of economic crises can rather be ascribed to the phenomenon of the globalization of short-term capital flows.

On the other hand, there are political factors that play a key role in the choice of policy.<sup>3</sup> For example, governments favour fixed exchange rate systems, at least in the short-run, since they aspire to economic growth alongside price stability. Besides, many governments perceive exchange rate volatility as a factor of instability and hence refrain from floating exchange rate regimes.<sup>4</sup> Truly, the volatility of the exchange rates that rise during the floating exchange rate regimes can pause political severities especially when political stability is very delicate. Thus, fixed exchange rates are favoured not only in cases where political stability is weaker but also when inflation is likely to be imported.<sup>5</sup>

Another noteworthy issue is the type of fiscal policy maintained by different types of governments. For example, first-generation models of economic crises focus on the public sector deficits and many authors ascribe such a policy choice to the populist or neo-populist political aspirations that surged in the developing world. It is also contended that weak governments cannot venture fiscal discipline or flexible exchange rates, both of which can generate the fundamentals of the first-generation model of economic crises.

The inability to finance the rapidly increasing public expenditures in industrialized economies and hence the subsequent budget constraints are attributed to the advance and spread of the social welfare state. Nevertheless, in developing countries, the motivation for high public expenditure is rather a different matter. The rapid demographic change (in terms of growing population and urbanization)

<sup>3</sup> Persson and Tabellini (2000) explain in detail the political economy of policy choice in their novel book. Again, Acemoglu et. Al (2003) elaborate on this issue historically by an empirical approach and address the fact that weak (extractive) institutions can even deteriorate the performance of appropriate macroeconomic policies.

<sup>4</sup> See Fischer (2001), McKinnon & Schnabl (2004) for a detailed elaboration of the fear of floating exchange rates

<sup>5</sup> Svensson (1994), Williamson (2000), Fischer (2001), Goldfajn and Olivares (2001) and McKinnon and Schabl (2004).

has urged excessive increases in public expenditures despite the limitations of public revenue. Moreover, in democratic regimes, the demand for social justice has also opted for increases in public expenditures. Once these social factors are considered, envisaging the excessive public expenditure patterns in developing countries as mere populism can hardly be justified.<sup>6</sup>

There are also domestic and foreign factors that improve or exacerbate the performance of economic policies. The domestic factors are either peculiar to the policy-makers or to the policy itself. The sociopolitical environment, for example, is particularly important as a domestic factor in the determination of policy performance.

The behavioural pattern of the policy-executor is also one of the principal factors in overcoming potential economic crises, in the sense that the incumbent government should have the *political will* to tackle the social and economic problems that the country encounters. If politicians in a country are indifferent or irresponsible against emerging social problems, in time, these problems may become so acute that may even culminate in economic crises. Such an apathetic behavioural pattern can be termed *lethargy* which is exactly what economists refer to as the inner policy-lag of stabilization policies. Even when politicians feel responsible and act, any delay will reduce the effectiveness of the allocated public resources (just like the delayed medication of an oncological patient). Consequently, the political system or the democratic process may culminate in a complete deadlock. Thus, lethargy is not only the peril of economic stability but also a threat to democratic stability.

The *expertise* of the policy-maker is another imperative in the performance of economic policy as incompetence may instigate or contribute to crises. That is why international organizations, which provide financial support to countries, also require credible actors with technical expertise, alongside the bureaucratic quality, especially about the conditionalities of the macroeconomic policy design.

Analogously, the *credibility* of the government is an important factor in policy implementation. Many governments that face economic crises suffer from credibility losses and the most commonly addressed factor that causes such credibility losses is the existence of cronyism as an extreme version of nepotism. As Haggard (2000) notes, the Asian Crisis has shifted to become as much political as economic, either through policy predictability or through policy decisiveness. Haggard (2000) and McIntyre (1999) both address this issue that in the case of the Indonesian financial crisis the major political effect was those crony investments coupled with the authoritarian regime of President Suharto. The most conspicuous nepotism case was about the son of Suharto when some of the projects undertaken by him were

cancelled for the sake of austerity but reinstated later. This reversion amplified the already existing policy unpredictability and overwhelmed the investor confidence. On the contrary in the case of Thailand, although an authoritarian government did not exist, the problem was the weakness of governments, due to political fragmentation. It was followed by several resignations which subsequent coalition governments intensified policy indecisiveness. Hence, the case of Thailand substantiated the institutionalist approach to macroeconomics, due to the inefficiencies in policy-making by the lack of autonomy, capacity and strength.

The case of the Asian financial crisis is so particular as it has shown political stability as a prerequisite of an appropriate and successful stabilization policy. In other words, political instability ensues economic instability which may even accrue an economic crisis. Although political instability is analogously a consequence of economic instabilities, this relation is dependent on the existence of social cohesion and cooperation within the society. In countries where democracy is advanced and social cooperation is high, economic crises may not ensue political instability. Analogously, it is very difficult to pursue a successful stabilization policy in the absence of social cohesion.

The nuisance of the Asian crisis showed us that, once a crisis emerges in a particular country, it spreads akin to another what is termed as *contagion*, due to the herded outflow of portfolio investments. This kinship naturally depends on the similarities of economic fragilities -regionally or even globally. Furthermore, the foreign politico-economic environment of a country also appears to be a critical factor of economic stability. As there is a need for foreign support -not only of international organizations but also of creditors, disregarding the importance of such support would imply the impulsion of the already problematic country to a prospective crisis.

### 3. THE RELATIONSHIP BETWEEN POLITICAL INSTABILITY AND ECONOMIC CRISES: INEXTRICABLE TIES BETWEEN CRISES

First of all, we should distinguish the difference between political instability and political crisis. Political instability is the changing nature of political power distribution and subsequently the weakening of government. Political crises, on the other hand, are the climax of political instability where there is total ambiguity about the destiny of the government, let alone the degradation of its governing capacity. According to Bussière and Mulder (1999), political instability is caused by electoral indecision and thus political fragmentation, political polarization and loss of cohesion within the government.<sup>7</sup> Political

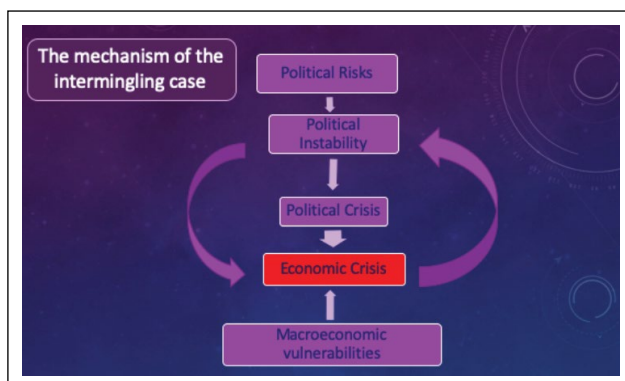
<sup>6</sup> Roubini and Sachs (1989) contribute to the explanation of political and economic determinants of budget deficits in industrial democracies.

<sup>7</sup> A seminal empirical study is undertaken by Bussière and Mulder which measures the impact of the causes of political instability on the economic vulnerabilities of 23 countries.

crises can have several social outcomes; including unrest, tensions and even disorder within the society. Analogously, there may be various political repercussions such as the reshuffling of the cabinet, resignation and change of the incumbent government or call for early elections. In immature democratic regimes, if the prevailing government insists upon staying in power, despite the loss of public support, this may pave the way for a (military or civil) coup. Naturally, the deterioration in the macroeconomic conditions also plays a key role in causing political crises. That is why we contend that political and economic crises are very much intermingled.<sup>8</sup>

As seen in Figure 1, political instability is a function of political risks. The acuteness of political instability may cause a political crisis and political crises are one of the main two determinants of economic crises, especially when the other predominant cause, *macroeconomic vulnerabilities*, are prevalent. Thus, there is a self-fulfilling and reciprocal relationship between economic crises and political instability.

Such a dual relationship or simultaneous determination is also confirmed by Chang (2003) where he addresses his axiomatic exercise by referring to the crisis experiences of Indonesia in 1998 and Argentina in 2001. Yet Chang strongly refutes the arguments that political disequilibria can cause financial crises per se. He argues that social uprising in Indonesia and Argentina appeared due to widespread anger about the adjustment measures to overcome financial difficulties. He maintains that arguing the unidirectional effect that political crises causing financial crises are a denial of the existing theories of crises. Chang stems his analysis on two factors; firstly, the self-fulfilling expectations of foreign lenders as any change in these would not only lead to a financial crisis but also the collapse of the government, and secondly on the information asymmetry between the gov-



**Figure 1.** The mechanism of the intermingling case between political and economic crises.

ernment and the public concerning the public debt. Chang marks the issue of multiple equilibrium arguing that if foreign lenders are pessimistic about the country's stability, they demand a high interest rate on the debt and exacerbate distortions which might even lead to a political crisis<sup>9</sup>, and if foreign investors are optimistic, it may rule out political crises vice versa.

Financial and political crises are also related to social psychology. In the narrow sense, political or economic crises are *unexpected* or *unforeseeable events*. The main characteristics of political crises are the loss of governmental power and subsequently the loss of social credibility. Likewise, the most important feature of economic crises is that markets come to a cessation. This loss of functionality of either markets or governments is the main mechanism that intertwines political and economic crises. When markets do not function, governments cannot perform, and when the governmental system is in a crisis, markets soon oblique towards instability.

There are two main determinants of this intermingled relationship between crises; the first, as noted above, is uncertainty, and the second is the higher costs due to higher risks. Uncertainty is the foremost feature of crises, whether economic or political. Accordingly, when a political crisis outbreaks, it may generate an economic crisis through deteriorated expectations of market agents (firms and consumers). Once expectations deteriorate, the subsequent uncertainty due to higher risks causes the faltering of both the investor appetite and consumer confidence. Foreign capital starts to exit and domestic investors revert or at least postpone their investment plans. Similarly, consumers postpone their expenditure especially on durable goods which are not among their immediate needs.

The second mechanism of political uncertainty that instigates an economic crisis is again through escalated risks. Higher risks, as economic theory predicts, causes domestic interest rates to rise and thus not only discourage investment but also pose a major threat to public debt dynamics. Moreover, most developing countries, suffer from current account imbalances and chronic inflation which entail currency substitution as a precautionary instrument. Higher risks also hasten such a substitution mechanism and cause the exchange rate to rise further. This would not only cause a pass-through to consumer prices but also impose a serious threat on the foreign debt dynamics.

Jianping (1999) has undertaken an empirical study to test the role of political uncertainty on financial crises with the usage of a combination of probit and switching regression analysis where he incorporates 22 emerging countries for the period 1994–1997 (panel data). He mainly looked at

<sup>8</sup> Leblang & Satyanath (2008) in their extensive empirical analysis where they test political factors in three separate baseline models of Frankel & Rose; Kamin, Schindler & Samuel; and Bussi re & Fratzscher, conclude that political economy models predict currency crises much more accurately. Their political economy model includes two major parameters; recent turnover in government (time left for elections) and the dividedness of the government (parliamentary majority).

<sup>9</sup> One can hardly understand why such a state would not cause any economic instability but only cause political instability. Besides, political instability could easily accrue economic instability, if not a crisis.

the political election cycles and witnessed that 8 out of 9 financial crises happened during periods of political election and transition.

He argues that the main causal mechanism between political instability and financial crises was increased market volatility.

#### **4. THE POLITICAL FOUNDATIONS OF ECONOMIC CRISES IN TURKEY: A HISTORICAL PERSPECTIVE**

Although political instability has always existed as a key factor in affecting economic crises, it has gained prominence since financial liberalization, when the economy became more prone to foreign capital, especially since the rise of the public debt ratio. Öniş (2010) in his seminal study explores the political repercussions of financial crises in Turkey. Our present study is the reverse, although not contrary, that we attempt to explore the political background of these economic crises.

##### **4.1. The Political Background Of The Devaluations During The Period 1946-1971**

From 1945 until 1970 there had been three major devaluations which can be considered as major economic instabilities. The first one occurred on September 7<sup>th</sup>, 1946, 2.5 months after the general elections of July 21<sup>st</sup>, 1946. The election results were quite surprising, besides being contentious. Nonetheless, despite the spectacular performance of the opposition during the elections, there was no governmental change. The immediacy of this devaluation (as it was right after the elections) shows that the government had long necessitated and planned such an action but had postponed it until the elections. At the first sight, this devaluation might seem unnecessary as the trade balance did not need any amelioration. This is because until 1947 there were repetitive trade surpluses throughout the war years and there was no vital shortage of foreign reserves. Nonetheless, due to consecutive inflation rates averaging about 58 per cent between 1940 and 1944, there was an accumulated real appreciation of TL. Furthermore, during the War years, there was an accumulated stock of goods that could only be cleared by exports, if a devaluation stimulus could be provided. There was also an augmented level of public debt alongside some gold reserves. It was conceived that a devaluation would make better use of gold reserves in the repayment of public debt. Finally, the country was at the doorstep of the membership of the IMF which would restrict its capacity to devalue and curb imports. Hence it aspired to undertake a contingency devaluation in advance.

The resultant devaluation rate was enormous; (116 per cent from 1.30 TL/\$ to 2.80 TL/\$), but surprisingly, let alone increasing the trade surplus, it resulted in a trade deficit. Imports were doubled immediately and the rise in exports was not only limited but also temporary.

The devastating effects of this devaluation (particularly

higher inflation) amplified the already existing social grievances from the one-party government, especially due to the agonies of World War II, which altogether caused a change in government in 1950.

The second major devaluation happened in 1958. The timely elections were in 1958, yet the incumbent government of the Democrat Party called for early elections on September 27<sup>th</sup>, 1957 to hinder the possible electoral losses that would be caused by the adverse economic conditions and subsequently rising political instability. This time devaluation was postponed to August 4<sup>th</sup>, 1958, 10 months after the general election.

The period of 1954-1960 is quite peculiar as it shows the intermingled relationship between economics and politics very vividly. There was an economic necessity for the devaluation of 1946 due to the global economic conditions of World War II, although its timing was politically arranged. The 1958 devaluation case was also of economic necessity but (unlike the previous one which had been a result of global economic conditions) it had stemmed from the socio-political implications of those policies pursued by the Democrat Party. In other words, those economic policies (which consequently led to a devaluation) had certain political implications.

When DP came to power, peasants constituted a large majority of the Turkish population (75 per cent) and agriculture had contributed to 41 per cent of national income. Low cereal prices and the inevitable drought during World War II had caused an enormous agony of the peasantry alongside the shortages of basic goods. Despite these stringencies, due to the maintenance of fiscal discipline, external balances and gold reserves were enhanced and, in this sense, DP was quite fortunate. While worldwide agricultural prices started rising, Turkey was receiving excessive precipitation. Thus, the DP government in its early years was able to respond to the peasantry gust in two ways. Firstly, a high pricing policy was implemented in agriculture and farmers became better off. Secondly, investments in infrastructure were accelerated which encouraged urbanization.

The year 1954, however, marked a milestone, as the sudden drought caused a 20 per cent fall in agricultural output at a time when world prices began to falter. As a result, Turkey started to import wheat. When the purchased tractors broke down due to lack of maintenance, and soil erosion emerged to be a serious issue in the new arable areas, the deficit started rising, but more importantly, the external deficit started to spin out of control causing gold reserves to wane remarkably. Thereupon, sugar was rationed in 1955. Most importantly, national income declined by 3 per cent in 1954. The external deficit surged from 373 million US dollars in 1950 to 579 million US dollars in 1957. Social reactions spread rapidly and consequently, the political choices of the government started shifting. DP, amid the economic slowdown, called for early elections in 1957 to retain its power. Despite the very problematic elections, DP

was successful in winning. After the elections, it recanted resisting an agreement with the IMF and (in 1958) initiated an IMF-supported stabilization programme which included a devaluation of TL from 1 US = 2.80 TL to 9.00 TL.

In sum, the IMF-backed devaluation of 1958 should be conceived as a result of exaggerated infrastructure investments and excessive support of the peasantry at a time of drought and declining world prices. During, 1950-1953, the average annual inflation rate was 5.4 per cent, but during 1954-1957 it surged to an average of 13.7 per cent. At the same time, the trade deficit almost doubled during 1952-1957 compared to its previous averages.

At this point, one would naturally inquire about the socio-political motives of those policies that incurred economic instability and thus devaluations. Firstly, as noted above, the peasantry was the main political base of DP. The DP government conceived *populism* as the “provision of the welfare demands of peasants” and *nepotism* as “political loyalty” to its political clientele. Moreover, the failure of the DP government to contemplate an urgent strategy against forthcoming economic problems ascertained its *lethargy* as it postponed the stabilization programme for more than 10 months, after the elections.

Following the spectacular economic performance of the period 1963-1968, the devaluation attempt of August 10th, 1970 is a rather intricate matter, in the sense that, at the first glance, there seems no urgent necessity for such an action. The average rate of inflation between 1965-1970 was 6.6 per cent. The budget deficit was less than 1 per cent of GDP in 1969 and almost insignificant in 1970. The growth rate was positive and moderate, 4.1 per cent in 1969 and 3.2 per cent in 1970. Furthermore, although the trade deficit had soared from 264 million dollars to 360 million US dollars in 1970, the current account deficit was still less than 1 per cent of GDP.

Yet, of course, such an action was not pointless. There were some anxieties besides some particular expectancies in the country. The first anxiety was the continued faltering of export performance in 1968, mounting the chronic trade deficit due to the import substitution strategy of the 1960s. Moreover, the persistent inflation rate had accrued an appreciation of the exchange rate in real terms which was evident from the shadow exchange rates<sup>10</sup>. As a result, the government was in the pursuit of encouraging exports by the readjustment of the real exchange rate. Furthermore, there was anxiety about the transition to the Common Market which might deteriorate the trade deficit. To offset such an effect, the government intended a certain level of devaluation in advance. Yet, this expectancy was over-optimistic

as the structure of the economy did not have the competitive capacity due to the import substitution strategy. One other expectation was to foster workers' remittances by a depreciated TL. Despite the high trade deficit, the current account of the country, for a long time, was much lower due to these remittances, which were thus of vital importance.

Nonetheless, the prominent reason for the 1970 devaluation was again the pressures of the IMF as the foreign indebtedness queries had mounted once again. The government eventually consented and implemented a drastic devaluation by depreciating TL against USD from 9 TL to 14.85 TL. Since a major part of the year had already bygone, the impact of this devaluation was not felt in 1970. Moreover, the trade deficit neither declined in 1971 nor 1972.

The period between 1970 and 1972 was one of the most challenging periods of modern Turkish political history. Just 7 months after the devaluation, the memorandum given to the government declared the explicit desire of the Army to seize political power once again. Although there was *some* deterioration in the macroeconomic balances, especially due to the inconclusive drastic devaluation, the memorandum did not refer to such economic issues, but solely to law and order. However, the social tension and disorder were to a large extent due to the devastation of the devaluation which was forced by the IMF.

In sum, the 1946 devaluation was due to a presumed economic necessity of accumulated real exchange rate appreciation, the 1957 devaluation can be conceived as an obligation to restore the trade deficit which was caused by the fiscal consequences of agrarian populism and the 1971 devaluation was undertaken at a time when the foreign debt had surged. Both of the last two devaluations were by the conviction of the IMF.

#### 4.2. The Crises Years of 1978/9: Oil Prices, The Failure Of Import Substitution Strategy Or Political Polarization?

The 1970s have been years of stagflation globally due to sharp rises in the oil prices provided by the new international cartel; OPEC. Import dependent countries, such as Turkey, were immensely affected by these rises, as the price of oil rose from \$1.26 per barrel in 1970 to \$9.40 per barrel in 1974 and then further to \$24 per barrel in 1979.

During the period between 1968-1973, the average annual trade deficit of Turkey was 471 million USD, but since the first phase of the Oil Crisis in 1974, this deficit immediately soared and during 1974-1976 it reached an average of 2.9 billion USD. Then onwards, during 1977-1980 the trade deficit widened to a level of 3.5 billion USD on average.<sup>11</sup> The Oil Crisis came into effect at a time when there was a coalition government of two dissimilar parties (CHP

<sup>10</sup> There was a large discrepancy between the official and the black-market rates exchange rates.

<sup>11</sup> As a result of the higher burden of oil imports, throughout the 1970's the trade deficit rose; in 1973 it was 769 million USD, in 1976 it was 3.2 billion, in 1977 it exceeded 4 billion USD and then declined back to 2.3 billion in 1978 due to the stabilization attempt. But it started rising again to 2.8 billion in 1979 and almost to 5 billion USD in 1980. Consequently, while the foreign debt of the country was equivalent to the total exports in 1976, that ratio rose to 232 per cent in 1979.

and MHP). Both political parties had come to power by an aspiration to raise the public spending for farmers and low-income families to expand their electoral bases. In other words, there was the inherent populist tendency of the coalition partners despite the unfortunate economic environment in the world.

At the start of the oil price escalation, the government was unable to recognize the imminent risk of external deficit due to two fortunate factors; firstly, at that time foreign exchange reserves were relatively strong, and secondly, workers' remittances in foreign currencies had boosted (almost to 5 per cent of GNP) levelling the export performance.

During the period 1971-1976, the average growth rate was 8.1 per cent, budget deficits were restricted and inflation was on average 18.3 per cent. Due to all of these economic advantages, the macroeconomic balances did not deteriorate right away, albeit the limited resilience of the economic structure to external shocks which were incurred by the import substitution strategy of the 1960s. With the relief of the two advantages, the government was reluctant to reflect the higher costs of imported oil to consumers. Similarly, excessive price supports were provided to farmers, particularly in cereals and tobacco, which accrued to higher budget deficits.

One can naturally inquire about the policy prospect of a presumed single-party government after the general elections of 1973. If such a government had longer durability<sup>12</sup>, would it be similarly populist or would it venture fiscal prudence which might avoid the imminent crisis? Our immediate answer would be that, although the profligate policy aspirations could be moderated, the rapid urbanization process of the 1960s and 1970s had stipulated higher public expenditure, alongside the redistribution policy of the social democratic CHP -which was the major partner of the coalition. Besides, macroeconomic balances had deteriorated particularly by the second phase of the Oil Crisis in 1979.<sup>13</sup>

The budget deficit suddenly peaked at 4.6 per cent of GNP in 1977, but since an IMF-led stabilization policy was introduced in 1978 by the CHP government, it was reduced to 1.7 per cent in 1978 and was maintained at 2.7 per cent in 1979. This stabilization policy had included a significant devaluation, adjustment of public enterprise prices and restructuring of short-term debts. Yet, such an effort was not rewarded as the government was soon replaced by a patched coalition of 4 political parties. In other words, political instability became the principal trait of the period. However, this new right-wing coalition government, in less than 2.5 months announced the most radical economic transformation decree of the Turkish economy on January 24<sup>th</sup>, 1980.

The decree had two major dimensions: The first dimension was the austerity measures towards price stabilization, and the second dimension was the departure from the long-standing import-substitution industrialization strategy towards an export-orientation development strategy.

For price stabilization; subsidies to public enterprises, fertilizers, energy consumption and transportation were abandoned, agricultural support was restricted and the Central Bank advances to the Treasury was controlled. On the other hand, for export orientation foreign trade was liberalized, daily determination of the exchange rate was put in effect following a 33 per cent devaluation.

The instability of the macroeconomic structure since 1977, which ended up in an economic crisis in 1979, can be attributed to several social, political, economic and even foreign factors. First and foremost, the energy crisis has been the principal factor that dilapidated the macroeconomic balances, especially through higher costs and widened trade deficit. The longstanding import substitution strategy had failed to provide an efficient industrial structure that could be competitive in international markets and with the occurrence of the Oil Crisis, the import-substitution development strategy has become almost obsolete.

In the meantime, political fragmentation hampered the establishment of a government with sufficient duration which could be committed to undertaking several reforms regarding the restructuring of the economy. Consequently, prescriptions changed from one government to another creating inconsistencies and invoking unpredictability. Furthermore, coalition governments required arduous reconciliation efforts on the policy choice, but many times, these efforts were inconclusive. Due to the prevalent public disorder, there was also a lack of social cohesion or social support for the stabilization efforts.

The adverse foreign environment was not solely confined to the Oil Crisis. As noted above, the military sanctions imposed on Turkey due to the Cyprus Intervention, the politically hostile treatment of foreign investments in the country alongside the reluctance of governments to collaborate with the IMF, exacerbated the economic instability and subsequently paved the way to the economic crisis of 1978/9.

It is no coincidence that the coups of May 27<sup>th</sup> 1960, March 12<sup>th</sup> 1971 and September 12<sup>th</sup> 1980 were all followed by massive devaluations.<sup>14</sup> The common economic cause of these devaluations was the foreign debt-service problem whilst massive foreign deficits. These deficits were caused by both the lax nature of fiscal and monetary policies, and the real appreciation of the exchange rate. Naturally, all those policies had a socio-political rationale; the pursuit of real exchange rate appreciation and the populist trait in

<sup>12</sup> Lijphart (1984) attempts to measure those political and economic factors which determine cabinet durability

<sup>13</sup> Needless to add that the Cyprus Peace Operation of Turkey met fierce international reaction and some economic, as well as military, sanctions were imposed against Turkey. Furthermore, the intensity of domestic political instability supplemented all these detrimental factors.

<sup>14</sup> Öniş (2010) analyses the political results of these early economic crises as well as the others.

public spending were political choices and without comprehending the motives of these choices, an analysis of the 1978/1979 economic crisis could not be complete.

#### 4.3. The 1994 Economic Crisis: Hasty Financial Liberalization Or Contra-Market Intervention?

Since the implementation of trade and financial liberalization, the first major economic crisis broke up in 1994. To a large extent, this crisis can be attributed to the failures of the liberalization attempts. Some scholars have also marked this crisis as a result of high public deficit and mismanagement of the public debt. Although both explanations carry validity, for a better understanding of the background of this crisis, the social and political background of those economic policies should be explored.

In 1989 (August 11<sup>th</sup>) Turkey initiated its financial liberalization attempt amid an inconvenient economic environment where there was a lax fiscal stance with high public sector borrowing requirement (in 1987 PSBR was 5.7 per cent of GNP). As a result, a high level of public debt (23 per cent of GNP) was accrued, albeit moderately high price inflation of 38.9 per cent. By the liberalization challenge, average nominal interest rates immediately hiked to 83.9 per cent from 58 per cent, whilst the price inflation surged from 38.9 per cent to 73.7 per cent, and then the growth rate slumped from 9.8 per cent to 1.5 per cent in 1989.

Hence under such inconvenient economic conditions (high PSBR, high public debt with short maturity, alongside high and volatile inflation rates and consequently very high-interest rates), one can hardly justify the rationale behind such an attempt, as it would naturally encounter excessive rises in interest rates. For example, whilst the interest payments of domestic debt had made 10 per cent of budgetary expenses in 1987, in 1988 it surged to 15.1 per cent and at the onset of the crisis, in 1993, the ratio had reached 18.8 percent!<sup>15</sup>

Although the 1994 economic crisis cannot be entirely attributed to the hasty and thus misleading financial liberalization endeavour<sup>16</sup>, it certainly constituted the main economic backdrop of the crisis. It is contended that financial liberalization is the complementary stage of trade liberalization and thus the government was in a sort of obligation to undertake such an endeavour. Another alleged explanation is the influence of the market-led liberal policies which had become widespread globally, including financial markets. It is also suggested that the economic counsels around Prime Minister Özal, who had strong ideological convictions for market-led liberal policies, might have convinced him to undertake this audacious change. However, if a one-party government had not prevailed while enjoying a solid par-

liamentary majority, such an audacious attempt would be beyond imagination. Besides, the economic results of the financial liberalization were sounfavourable and costly for the incumbent ANAP government that it lost most of the major municipalities in the 1989 local elections.

Alongside the inanity and hastiness of financial liberalization, there were major economic and political influences that contributed to the emergence of the crisis. First of all, the Gulf Crisis of 1990 should be mentioned as the major geopolitical instability factor in the region. On August 2nd Iraq invaded Kuwait and as a result, 37 countries initiated a military intervention on January 17<sup>th</sup>, led by the US, which took more than 6 weeks. Although Turkey refrained from this military operation, its markets were distressed.

A consensus argument<sup>17</sup> for the occurrence of economic crises during the 1990s is the existing political instability due to incoherent coalition governments which suffered short duration. Such governments, let alone tackling a prospective fiscal discipline, on the contrary, created profligate behaviour in the pursuit of fiscal policy.

A political example is the incidence of the 1987 general elections. When the votes of ANAP declined to 36 per cent, (from its previous level of 45 per cent) it was alarmed by the impending political risks of the next elections. The Prime Minister reacted immediately unleashing the fiscal discipline to such an extent that the ratio of public expenditures in GDP surged from 17.1 per cent in 1987 to 20.9 per cent in 1991. This expansion was mainly due to the excessive pay rises (wages and salaries within the budget had soared from 23.4 per cent in 1987 to 37.1 per cent in 1991). Hence, the profligate attitude of the ANAP government was incurred by its political anxieties since the 1987 elections. Unfortunately, this policy coincided with the financial liberalization attempt and put the budget in a dual strain: On the one hand, there was the burden of rising interest payments caused by financial liberalization, and on the other hand, there was the populist behaviour of the government. Needless to remind that considering its timing, neither the political structure nor the fiscal structure was appropriate for this immature financial liberalization.<sup>18</sup>

In 1987 PSBR was 5.7 per cent of GDP, but had surged to 7.3 per cent in 1990 and then further to 10 per cent in 1991. In 1991 a new government was established by a coalition between centre-right (DYP) and centre-left (SHP) political parties. Yet, the pace of populist spending policy did not change due to the fragmented structure of the political system. The new government did nothing to curb this borrowing and maintained its level until 1993. This huge deficit naturally distorted the budgetary composition to such an

<sup>15</sup> One can imagine the immense income distribution repercussion (from taxpayers to interest-earning rentiers) of this budgetary deformation.

<sup>16</sup> Rodrik (1990) qualifies this liberalization attempt as disastrous for inflation and macroeconomic stability. He furthermore notes that the external finance which was due to this attempt, replaced domestic borrowing at times highly disadvantageous for the public sector.

<sup>17</sup> See Cömert and Yeldan (2018) and Öniş (2010). Largely, coalition governments that have been largely unsuccessful should not necessarily imply that they are always prone to economic and political instability. During 1961-1965 three separate coalition governments were maintained with political difficulties but without incurring any consequential economic instability.

<sup>18</sup> Rodrik (1990) a similar argument is held in this article



extent that interest payments, on their own, comprised 25.8 per cent of public expenditure. At that time, Prime Minister Çiller, who was an economics professor, aspired to reduce this burden by discretion. She attempted to intervene in the auctions of the Treasury by limiting its borrowing requirement and replacing it with Central bank advances. The financial markets were so exasperated by this intervention that a currency attack became inevitable immediately in January 1994 which resulted in repetitive and massive devaluations, despite the efforts of the Central Bank to defend the exchange rate until exhausting its foreign reserves. Eventually, the Decrees of April 5 was announced as an austerity policy prescription which included the temporary floating of the exchange rate, fixing the wages and adjusting the public enterprise prices concerning the targeted (future) inflation. Some further steps were also taken regarding the Central Bank autonomy, the restructuring of the public funds by reducing their number and allocating more resources to the Treasury. Despite the painful social cost aspects of these decrees, they were inconclusive due to the lack of political stability.

In the case of the 1994 economic crisis, the inexistence of fiscal discipline can be attributed to durability problems of governments and the profligate fiscal stance can be attributed to political fragmentation. Yet, the regional geopolitical instability and the frequency of domestic terrorist activities should also be reminded as significant non-economic contributors to the crisis.<sup>19</sup> In this sense, Prime Minister Çiller's contra-market intervention can only be considered as the triggering of the crisis.<sup>20</sup> This incidence also demonstrates, as was noted above, that the expertise of the policy operator is imperative in the pursuit of economic stability. It was senseless, if not incompetence, to attempt reducing the market interest rates by discretion and with manipulative efforts in the borrowing auctions of the Treasury, especially since financial liberalization. Interest rates could only be reduced by fiscal discipline, reduction of the foreign deficit and improvement in country risks especially by higher foreign reserves, of which none had been ameliorated during that period.

#### 4.4. The Economic Crisis Of 2001: The Result Of The Political Crisis Or The Design Flaw Of The IMF Programme?

##### 4.4.1. The Background

The 1994 economic crisis had serious political impacts: firstly, although the timely general elections were in 1996, the current DYP-CHP coalition agreed on calling for early

elections in December 1995, as there were too many frictions within the government. Secondly, the economic crisis had cost a substantial level of electoral losses for the ruling political parties in the local elections of 1994 and consequently, most municipalities had been won by the fundamentalist Welfare Party, albeit by small margins. Thirdly, the electoral results were quite stern, in the sense that the political outcome was so fragmented, making it very problematic to form a new coalition government. Finally, the first runner, though by a small margin, was the fundamentalist Welfare Party which traumatized, even exasperated some social quarters and institutions, including the Army. Under such taut conditions, a coalition was established between RP and DYP, but it was under the immense strain of annulation demands by these social sectors (i.e. main NGOs declared such a demand publicly). The strain was so excessive that it provoked a post-modern coup of the Army on February 28<sup>th</sup>, 1997, delegating the President to announce their request.<sup>22</sup> After the collapse of this coalition, by the resignation of the Prime Minister, several other coalition attempts were undertaken but all of them were inconclusive. Political instability in this period (due to short cabinet durability) was so elevated that since the general elections of 1995, four separate coalition governments were formed until the timely elections of 1999.

In 1997 the Asian financial crisis broke out. Although the Asian crisis was rather regional, it had some contagious effects on the Turkish economy as well as other emerging economies.<sup>22</sup> For example, the growth rate in the Turkish economy declined from 7.6 per cent in 1997 to 3.2 per cent in 1998. Needless to mention that this decline was, to a large extent, due to political instabilities and distortions in the macroeconomic fundamentals. In 1999, the growth performance of the Turkish economy continued to deter by a decline from 3.2 per cent to a contraction of - 4.7 per cent. To reiterate, there may be two effects in the background of this contraction: firstly, as we keep emphasizing, political instability not only hindered fiscal frugality but also, caused a profligate fiscal stance, deterring macroeconomic balances. Indeed, there was not even a mention of *stabilization strategy* in any of the coalition protocols. Secondly, it was quite unfortunate that the Russian economic crisis broke out in August 1998, following the Asian crisis.<sup>23</sup>

After the post-modern coup of 1997, a three-party coalition government was attempted, which had a limited duration, due to its inherent incoherence. By the failure of this last attempt, a minority government was established by Prime

<sup>19</sup> Cömert and Yeldan also remind the coincidence of the rise of the FED funds rate that constituted an unfortunate major disadvantage for foreign debt balances.

<sup>20</sup> Özatay (2007) contends that the Turkish episode of 1994 had little relations to models of self-fulfilling crises as it was a case of a policy mistake. We would agree with this argument if only such the policy mistake of auction manipulation was conceived as the triggering effect of the crisis, as the budgetary structure was already in a serious mess. Celasun (1998) objects to the sole contribution of the crisis to mistakes at the monetary front, suggesting that if several steps had been taken, as some had argued, the crisis could not be hindered. She argues that the fragilities in the fundamentals, especially fiscal discipline, were the main reasons of the crisis.

<sup>21</sup> Celasun (2002) shows substantial influences of the Asian crisis that contributed to the economic background for the 2001 crisis.

<sup>22</sup> Although the negative impact of the 1999 earthquake also contributed to this economic contraction, its role had been relatively limited on the annual figures, since the earthquake occurred in the third quarter of the year.

<sup>23</sup> Indeed, when the Financial Crisis of 2000/2001 broke-out, the interest payments ratio also peaked at almost 47 percent of the budget. Cömert and Yeldan (2018) qualified this crisis as finance-led and finance-driven similar to that of 1994.

Minister Ecevit in January 1999. Right at the beginning of this government, Ecevit was aided by the arrest of Öcalan (leader of the terrorist organization, PKK) in February 1999 and instead of holding the elections in December 2000, he called for early general elections in April 1999. This time his party, DSP became the first, albeit another fragmented political outcome. A new three-party coalition was formed again, led by Ecevit, but this time, the government was quite unfortunate, due to the occurrence of a calamitous earthquake in Gölçük in August 1999 which not only destructed thousands of buildings and caused 18,400 lives to be lost, but also dilapidated the economy via regressed sentiments. As a result of this multidimensional devastation, the government was enforced to send a letter of intent to the IMF, within 4 months, requiring a stabilization programme.

IMF, then, recommended an innovative architecture for stabilizing the price inflation in Turkey. The essence of this stabilization strategy was primarily to restrain the *price expectations* with the presumption that the public sector deficit, the balance of payments problems and even the instability of growth performance were all by-products of this phenomenon. In other words, the new strategy conceived inflationary expectations (inertia) as the core of all macro-economic problems and considered this phenomenon very much dependent on the exchange rate changes. Thus, if the Central Bank had declared the range of exchange rates in advance, it could also manage price expectations as they would converge into these declared values. Consequently, if price inflation could be controlled, interest rates could be expected to decline and as a result, the fiscal deficit would drop too. The fiscal deficit would contract because interest payments had become the main determinant of the public expenditure. For example, in 1999, interest payments of the public domestic debt had become 35 per cent of the budget.<sup>24</sup> The programme also assumed that once inflation was controlled, not only economic growth could be boosted, but also the balance of payments problems could be relieved due to the restoration of export competitiveness. Before the implementation of the programme, a partial devaluation was undertaken to cushion the possible real appreciation of the national currency. The programme also required the attainment of a primary surplus in the budget as well as certain monetary targets for the Central Bank which were anchored to the level of international reserves.

#### 4.4.2. The Crisis

Such a policy design of the IMF had major political and economic fault lines: First of all, an exchange-rate based stabilization programme was design-defective due to the very

existence of the fragile coalition government. Under such conditions of political instability, technically a perseverant stability programme could not be instigated or pursued. In other words, the political assumptions of the programme on the onset were erroneous. The second fault-line was on the impacts of the designed exchange rate regime. One should bear in mind that pegging the future exchange rates at predetermined levels, would not only lure enormous amounts of portfolio investments but also induce imports excessively. Considering the negative growth rate of 1999, the natural rebound of growth would also cause the current account deficit to surge to higher levels.

Thirdly, such an exchange-rate based stabilization programme would require full-flexibility of interest rates, and in a country where domestic public debt is too high, this would entail the further rise of interest rates and deter the public sector financial accounts.

The 2000/2001 economic crisis occurred as a full-fledged financial crisis.<sup>25</sup> As it is briefed above, both political and economic risks were effective in the instigation of this crisis. The programme had accrued an excess current account deficit beyond the calculations of the IMF. (In 1999 the current account deficit was 0.4 per cent of GNP. In 2000 the deficit rose to 3.7 per cent of GNP) Secondly, an immediate structural accommodation was expected, but such an adjustment did not follow. At first, the certainty on the future exchange rates accompanied by high real interest rates attracted portfolio capital, but when investors were distressed by the political crisis, they hurried to exit in herd behaviour. The programme also presumed that the banking system was prudent. Nonetheless, this presumption was completely unfounded as public banks were in duty-losses, and private banks were both in high exchange-rate risks due to their short FX positions and in interest rate risks due to the high allocation of long-term Treasury bills in their assets.

2000/2001 was a typical twin-crises case as the crisis in the banking system was coupled with a currency attack.<sup>26</sup> The first stage occurred in November 2000 as a banking commotion. One major bank suddenly ceased its provision of excess liquidity in the overnight market. Another medium-sized bank, with its assets loaded with fixed interest Treasury bills, was addictively financing these bills by borrowing from the overnight market, showing a huge maturity mismatch. When this bank failed to meet its liquidity obligations from the money market, it applied to the lender-of-the-last resort mechanism or the discount window of the Central Bank. The Central Bank intervened accordingly, despite its limitation of net foreign assets<sup>27</sup> required by the targets of the IMF programme, but the intervention was

<sup>24</sup> Cömert and Yeldan (2018) qualifies this crisis as finance-led and finance-driven similar to that of 1994. Öniş (2010), on the other hand, contends that the 2001 incidence was a fiscal and balance of payments crisis coupled with major structural problems in the banking sector.

<sup>25</sup> Kaminsky and Reinhart (1999) qualify the coexistence of banking and currency crises as twin crises.

<sup>26</sup> The Central Bank could only inject liquidity into the system within the limits of foreign reserves. That is why the system in operation resembled that of a currency board.

<sup>27</sup> Alper (2001) in his article published right after the crisis contends that policies in maintaining the stream of good news were necessary to sustain capital inflows. He also argues that there was inadequate backing for the programme by the IMF, especially to ensure the exchange rate. Nevertheless, we doubt if such an assurance could be justified. Finally, he asserts that there was a design flaw in the sense that there was no sterilization rule to alleviate the interest rate undershooting at the start. Besides these factors, he also considers the fragile banking system and unfavourable external conditions as major causes of the crisis.

far from being satisfactory to extinguish the furore in markets. As a result, the problematic bank had to be seized by the banking authority (Savings Account Insurance Fund). Furthermore, the IMF moved, in return for a new letter of intent by the government, enhancing the foreign reserves with an amount of SDR 5,8 billion under its Supplemental Reserve Facility. This new financial support was of utmost vitality because at this first stage the foreign reserves of the Central Bank had plummeted by 5.2 billion USD. Although most scholars generally focus on the problems of the banking sector of the first stage, the subsequent capital flight was no less important in the instigation of the twin crises.<sup>28</sup>

The most interesting stage of this twin-crises nuisance is the second stage. On February 19<sup>th</sup>, Prime Minister Ecevit at the exit of the National Security Council declared that there was a *state crisis* between the President and himself. The reaction of the market was horrific, and on that day, there was a capital flight of 7.6 billion USD. Although the Central bank intervened in the money markets, the repo rates hiked to 315.9 per cent. The next day the Central Bank altered some of its monetary obligations as there were funding problems in the interbank money market due to a secondary capital outflow of 6.1 billion USD. The repo rates this time soared to 1107 per cent overnight. The capital flight continued on February 21<sup>st</sup> (4 billion USD) and repo rates hiked to 4474 per cent overnight. By then, there were no exchange rate quotations in the market as the forex market operations had come to a halt. On the 22<sup>nd</sup> there were rumours about the float of the exchange rates, though the exchange rate had already depreciated considerably in the secondary markets. On the 23<sup>rd</sup>, the money markets halted completely and by the beginning of the next week rumours spread about the resignation of the chairman of the Central Bank. In short, the second stage is a conspicuous currency attack case triggered by a political crisis announced straight by the Prime Minister! At a time when macroeconomic fragilities were at their apex and the banking crisis was already recent, such an announcement was more than enough to trigger the currency attack.

There is a criticism that IMF preferred banking crisis against currency crisis and insisted on the seizure of troubled banks. This criticism can hardly be justified because the first stage of the crisis was truly due to the weakness of the financial system. The plausible criticism against the IMF should be on its advice of an exchange-rate based stabilization policy under the conditional weaknesses of the political and economic system. As noted above, such a stabilization strategy could not be undertaken during political instability, particularly in the presence of a fragile and inconsistent coalition government. Furthermore, there was no dedicated political will behind the programme. Again,

there was no social support or any kind of coordination, as such a strategy was particularly dependent on expectations. Secondly, although limited, there existed a current account deficit (almost 1 per cent of GDP) before the enactment of the programme and it would naturally deteriorate by the managed exchange rates. (The current account deficit soared to almost 10 per cent of GDP in 2000) Besides the foreign debt of the country was already quite high; 41 per cent of its GDP. Thirdly, despite the experience of the Asian crisis, IMF failed to inspect the prudence of the banking sector in advance. Thus, in the first stage, it was the fragile banking system that drove the economy into a crisis. Last but not least, the programme was designed for interest rates to conform with reduced price expectations, but on the contrary high public debt and the strain on the exchange rate was drifting real interest rates.

Even though the 2001 crisis was mainly caused by the design error of the IMF stabilization strategy<sup>29</sup>, the blame of the crisis was laid solely on the government, mounting the degree of its disreputability. Some economists, by then, even argued that if a conflict had not occurred between the prime minister and the president, the crisis would not occur. Although a simple logical exercise might contemplate such a conclusion, the macroeconomic fragilities, which have been neglected by the IMF, cannot be disregarded. If macroeconomic vulnerabilities had not existed and if the stabilization strategy of the IMF was appropriate, the quarrel between the president and the prime minister would not cause a financial crisis *per se*.

Ironically, though the IMF was largely responsible for the crisis, it was encountered as a saviour and a new IMF programme was put into effect with the support of the media and the business world. This time, a different exchange rate regime was implemented and the political coordination of the programme was commissioned to a non-political figure Kemal Derviş, who was a senior officer of the World Bank. The new programme received the support of the media and the business world and contained some important structural reforms as well as measures of macroeconomic adjustment. The prominent structural reform was the abandonment of the losses of the public banks by a prolonged monetization process alongside budgetary constraints to restrain its inflationary impacts. In short, the 2000/2001 program had stemmed on false political grounds and was inappropriate for the macroeconomic fundamentals of the Turkish economy.

#### 4.5. The 2008/2009 Crisis: The First Crisis Without Domestic Implications

The economic crisis of 2008/2009 was distinct by its causes.<sup>30</sup> First and foremost, unlike its predecessors, it was,

<sup>28</sup> The design flaw of the stabilization programme recommended by the IMF was so obvious that since then the IMF never recommended such a programme to any other country.

<sup>29</sup> This crisis had salient political consequences rather than political effects. Besides, the political milieu was rather stable until the 2008/2009 crisis.

<sup>30</sup> In all past crises of the Turkish economy, there was a period of current account surplus due to the contraction of import demand and the rise of exports induced by currency depreciation. Yet, in this crisis, such a surplus never appeared.

to a large extent, a globally-induced economic crisis.

The global liquidity crisis in 2008 which was ignited from the US economy is a commonly known incidence. The high capital account surpluses of the US inferred immense capital inflows which also reduced domestic interest rates and enhanced the suitability of credit conditions, and subsequently caused the rise of asset bubbles especially in the real estate market. This enhanced suitable credit condition had also been accompanied by the massive liquidity injection and reduction of the borrowing rate of the FED since 9/11. Mortgage lenders issued 1 trillion USD of new mortgages each year in 2002 and 2003, and they increased by 40 per cent in 2004. Investment in the residential estate as a share of GDP rose from 26 percent in 2000 to 37 per cent in 2007. Consequently, prices surged by 60 per cent. About 1/3 of these funds were provided with complex financial instruments, like mortgage-backed securities and collateralized debtobligations. Thus, creditors were able to take more risks as they possessed securities at their disposal anyway. Nonetheless, these instruments did not cover the risk of falling housing prices; and housing prices fell by 25 per cent during 2007-2008. Eventually, when they declined to pre-bubble levels, asset-backed securities had lost most of their value. As those institutions that had these securities were highly leveraged, this created a debt-service problem. This is the synopsis of the global crisis in 2008/2009. Meanwhile, before the crisis, the economic climate in Turkey had two major features: On the one hand, the labour-intensive exports, like textiles, had started to falter, especially due to the Chinese competition, and secondly, monetary policy had been tightened due to the inflationary hike in 2006. (The inflationary hike was stimulated by higher food prices and the depreciation of the exchange rate) The average growth rate of the economy during 2002-2005 was 7.3 per cent but had moderated to 4.7 per cent in 2007 before the global crisis.

The global crisis spread to the Turkish economy through two main channels: Firstly, there were net financial outflows for at least 3 quarters, and secondly, there were export shocks due to the slump in the foreign demand albeit the exchange-rate depreciation. Considering the fall in domestic consumer confidence, this implied a more dramatic decline in aggregate demand.<sup>31</sup> When the crisis hit the Turkish economy through these channels, the exchange rate reacted immediately, with depreciation from 1.24 TL/\$ to 1.69 TL within a month in October 2008.<sup>32</sup>

The Bloomberg-HT Consumer Confidence Index slumped to 54.5 in April 2008 from a level of 105 in August 2008 and did not recover until the end of the year. (It retrieved back to its original level by June 2009) This decline was caused by several factors: there was the roll-over risk of private sector foreign debt, especially during the li-

quidity squeeze (credit crunch) caused by the falling risk appetite and overcautious banks. There were also concerns about fiscal discipline since the IMF Stand-By agreement was due to expire by May 2008. Finally, the memories of past crises were still fresh and vivid reviving anxieties. In sum, the main impacts of the global economic crisis on the Turkish economy should be attributed to the global shock and subsequent uncertainties, and the deterioration of domestic confidence. No doubt, the Turkish economy was hit very severely by the global crisis. Nevertheless, except for the Asian economies, most emerging economies were hit worse than Turkey. The Turkish economy, unlike its peers, showed negligible growth performance in 2008 (0.65 per cent) but slumped relatively less (-4.7 per cent) in 2009.

The major disadvantage of the Turkish economy unlike those of previous crises was the very high private sector foreign debt. The total private sector foreign debt was 29.2 billion USD (8.3 % of GDP) in 2002 but it doubled in 2008 to 741.8 billion USD (19 % of GDP). That is why Öniş (2010) terms the 2008/2009 crisis as the *crisis of the real sector*.<sup>33</sup>

The relatively limited contraction of the Turkish economy was due to some resiliencies. First of all, this time the ratio of public debt to GDP was much lower than in the past; below 40 per cent. Furthermore, in 2007 consumer price inflation was at a moderate one-digit level, 8.4 per cent and unlike its predecessors, interest rates did not surge upwards as the floating exchange rate regime had replaced the role of offsetting. The global crisis was quickly ameliorated, by the US Federal Reserve and other major central banks, through lavish quantitative easing measures. Many emerging countries, including Turkey, benefited from this policy choice of the advanced economies by increased foreign investments. Another, important advantage of the Turkish economy was the immediacy of its counter-cyclical policies, both by fiscal and monetary expansion. On the other hand, the banking sector had become prudent due to strict financial regulations and the macroeconomic balances were already relatively healthier due to sound monetary and fiscal policies and most importantly due to political stability.

Although it is mentioned that the emergence of the 2008/2009 crisis cannot be ascribed to political instability per se, this does not imply that financial markets were insusceptible to political events. First of all, on April 27<sup>th</sup>, 2007 there was an e-memorandum that was declared by the Army through its official website which called for attentiveness about secularism especially in electing the new president. Despite this political event, the results of the general elections of 2007 enhanced the political power of the governing AKP, and soon after, the president was elected in the parliament. Nevertheless, there were certain ramifications of the e-memorandum in 2008, i.e. a legal case for closure was filed against the ruling AKP with the allegation of *misconduct against the secular nature of the state*.

<sup>31</sup> In March 2009, TL was as low as 1.80 TL/\$, but then onwards it appreciated back to 1.50 TL/\$

<sup>32</sup> Öniş also argues that there had been frequent political crises before the 2008/9 economic crisis but they had no role in its creation.

<sup>33</sup> Relations with the EU and US was rather amicable by then, and tensions in the region had not started. Furthermore, the government very wisely applied to the IMF (for SDR) in 2009 and received an equivalent of 1.5 billion USD as a cushion to offset the reserve losses of the Central Bank.

Similarly, some members of the intelligentsia and army officers were arrested in 2007, by allegations of attempting to overthrow the democratic government. (These arrests intensified in 2009 April.) Although these events were so prominent in creating severe political instability, which might lead to an economic crisis, the 2008/2009 crisis was predominantly incurred by global influences. This is obvious because the economic crisis terminated by the end of 2010, despite the continuation of adverse political conditions. Nonetheless, it must be reiterated that despite these adverse political conditions during the 2008/9 economic crisis, the existence of the one-party (and being recently re-elected) government provided the overriding favourable political factor which procured the resilience of the Turkish economy.

As for economic fortunes, the role of foreign support<sup>34</sup> and the abundance of international liquidity should not be disregarded in the comprehension of quick recovery. Furthermore, the low public debt ratio and the moderate rate of inflation provided the opportunity for fiscal and monetary expansion. Finally, and perhaps most importantly, the prevalence of flexible exchange rates was the main economic advantage when compared to the past economic crises.

#### 4.6. The 2018 Economic Crisis: Tension In Foreign Relations, Domestic Political Instability Or Contra-Market Intervention Again?

The instigation of the 2018 economic crisis is a contentious issue. Although there was no net negative growth in 2018 or 2019, when figures are examined on an annual basis, the substantial economic decline can be detected by quarterly observation. The economic decline started in Q3 of 2018 (2.5 per cent) and turned into a net contraction in Q4 of 2018 (-2.7 per cent). The negative growth continued through Q1 (-2.6 per cent) and Q2 of 2019 (-1.7 per cent). As the recovery in Q3 of 2019 was lean (1 per cent) and as there was a continuous contraction for 3 consecutive quarters, the performance of the economy can be specified as a recession. In 2017, the aggregate demand was quite buoyant which provoked the rise of inflation from 8.5 per cent to 11.9 per cent and imports from 192.6 billion USD to 222.8 billion USD. As a result, the current account deficit surged from 26.9 billion to 40.8 billion USD. Yet, due to the immense exchange rate shock in 2018, consumer inflation hiked to 20.3 per cent by a significant pass-through and the current account deficit contracted to 20.7 billion USD.<sup>35</sup>

Foreign debt was one of the major burdens of the 2018 crisis. As a ratio of national income, it was 47.5 percent in 2016, but increased to 53.5 per cent in 2017 and then further to 56.7 per cent in 2018. This debt was primarily due to the private sector. Whilst portfolio investments were flow-

ing in and repressing the exchange rate, the private sector (both financial and non-financial), kept borrowing from foreign markets.

The private sector external debt was 18.1 per cent of GDP in 2002. At the onset of 2008, this ratio reached 23.5 per cent, and in 2017 it hiked to 36.8 per cent of GDP.

The second but more important economic issue in the background of the 2018 economic crisis was the rapid and dramatic deterioration of the fiscal discipline. Although the ratio of public debt to GDP (by the EU standard) was rather stable (27.4 per cent in 2015 and 28 per cent both in 2016 and 2017), the primary surplus declined very rapidly since 2015. It dropped from 2.2 per cent in 2015 to 0.63 per cent and almost diminished to less than 0.1 per cent in 2017.<sup>36</sup> In short, the *twin deficits* were effective in the economic background of the crisis.

The political aspect of the 2018 economic crisis dates back to the general elections of June 7<sup>th</sup>, 2015. As there was no parliamentary majority to form a one-party government, the two major parties AKP and CHP looked for the prospect of a coalition. Yet, soon it was recognized that such a coalition was impossible and the newly elected President Erdoğan called for the repeat of elections on November, 1<sup>st</sup>. Nonetheless, the coalition pursuit caused more than 5 months of uncertainty, and hence incurred significant political instability, which indicated that the absolute political power of AKP was eroding. Moreover, the terrorist activities in the South-East of the country had already exacerbated political instability. On July 15<sup>th</sup> 2016, a coup was attempted by an iniquitous faction within the Army to overthrow the incumbent and democratically elected government but failed due to civil resistance of all political parties. This incident was the turning point of political stability as consumer confidence started to falter from then onwards. The exchange rate did not respond immediately, but by the second half of the year, it depreciated by 34 per cent. Despite some temporary political stability in 2017, the referendum for constitutional change from parliamentary to presidential system created a divided society and polarized the political system. On April 19<sup>th</sup>, 2018 the US officials demanded the release of a US citizen and consulate officer Pastor Brunson who was convicted of being involved in the coup attempt. By the plea of the court order, the Turkish government at first rejected such a demand. Yet, the consequent diplomatic tension was so fierce and devastating that it triggered a currency attack<sup>37</sup> (impacted by portfolio capital flight and domestic demand for foreign currency) and subsequently the exchange rate escalated from 3.81 TL/\$ until 6.69 TL/\$ by September 2018 (76 per cent depreciation).<sup>38</sup> The immense demand for foreign currency and short-term

<sup>34</sup> Once the crisis broke out, the current account deficit retracted to 21.7 billion USD in 2019, similar to past economic crises.

<sup>35</sup> In 2018, there was a net primary deficit of 0.25 per cent of GDP.

<sup>36</sup> On August 10th, 2018 US President posted a tweet 'I have just authorized a doubling of Tariffs on Steel and Aluminum with respect to Turkey as their currency, the Turkish Lira, slides rapidly downward against our very strong Dollar! Aluminium will now be 20% and Steel 50%. Our relations with Turkey are not good at this time!' By next Friday, he posted a second tweet 'We will pay nothing for the release of an innocent man, but we are cutting back on Turkey!'

<sup>37</sup> Boratav (2018) showed that in August 2018 the total foreign exchange demand of foreign investors and domestic residents was equivalent to 14 billion USD which was financed by Central Bank reserves and the current account surplus of 2.6 billion USD procured by the drastic economic contraction.

<sup>38</sup> The weekly repo rate of the Central Bank policy rate is considered as the policy rate.

**Table 1.** Presidential intrusion in the determination of the CB Policy Rate

Dates	CB O/N Borrowing	CB O/N Lending	1-Week Repo	T-Bill Compound
25 Jan. 2017	7.25	9.25	8.00	11.00
1 June 2017	15.00	16.50	8.00	11.25
1 June 2018	16.25	19.25	16.50	16.60
8 June 2018	22.50	24.00	17.75	19.00
14 Sept. 2018	22.50	25.50	24.00	25.00
21 Sept. 2018	18.25	21.25	19.75	25.00
26 July 2019	15.00	18.00	16.50	20.30
25 Oct. 2019	12.50	15.50	14.00	14.18
13 Dec. 2019	10.50	13.50	12.00	11.64

capital flight caused gross international reserves of the Central Bank to be drained from 116.1 billion down to 84.4 billion USD within 8 months since February 2018. Consumer confidence also collapsed by 39 per cent (from a level of 87.5 in January to 57.6 in September) regarding the rapid depreciation of the exchange rate.

As a result of this crisis, the government called for early elections on June 24<sup>th</sup>, 2018. The results of the elections did not provide a parliamentary majority for AKP on its own, but it was in an alliance with the nationalist MHP. Besides Erdoğan was elected as president anyway. Although the economic crisis did not ease until the elections, two factors contributed to the de-escalation of the crisis: firstly, three weeks before the elections the president gave his consent to the increase of policy rate of the Central Bank (which had long been obstructed by him) from 8.0 per cent to 16.5 per cent (a rise of 850 basis points). As this rise was insufficient to impede the depreciation of the TL, within a week the policy rate was raised again by 125 basis points to 17.75 per cent. Nonetheless, the new level of interest rates was still inadequate to extinguish the furore in the financial markets. Thus, this time the Central Bank raised its policy rate<sup>39</sup> by 625 basis points to 24 per cent. The second factor was rather a political change; the Turkish government recanted from its insistence to retain Pastor Brunson in prison, and first extricated and then extradited him.

The above table contains crucial data that depicts President Erdoğan's intrusion into the independent determination of the Central Bank (CB) to determine its policy rate independently. The first column of Table 1. shows those meeting dates of the Monetary Policy Committee for policy rate changes. The second and third columns show the overnight (O/N) borrowing and lending rates of the CB. The fourth column displays the one-weekly repo rates of the CB, which is also accepted as its policy rate. In the last column, the compound interest rates of the corresponding auctions

of Treasury bills are shown. They correspond to the values of the nearest auction date before the policy-rate change, to show the market interest rate level. It is so obvious that for one year (from June 1<sup>st</sup>, 2017 until June 1<sup>st</sup>, 2018) the CB was under an immense political strain to refrain from adjusting its policy rate, despite the escalation of interest rates in the market. Eventually, the CB on June 1<sup>st</sup> 2018 raised its lending rate by 725 basis points but kept its weekly repo rate (policy rate) intact. Indeed, the CB had effectively raised its interest rate but officially it was still indicating a lower policy rate to markets (and to the President!). Analogously, the interest rates in the bond markets had risen in line with the CB O/N lending rate (lender-of-the last resort window) showing that due to the intrusion and pressure of the President, the official policy rates of the CB had derailed from markets. This disruption remained and the CB had to raise interest rates twice again for the realignment of market and policy rates. Yet such a loss of policy transparency and the complication of the use of policy instruments naturally resulted in the loss of confidence and the erosion of consumer sentiment in markets.

Whichever is overriding, the 2018 crisis is incurred by three factors; the long political instability due to polarization, the tensions between the US and Turkey due to Pastor Brunson and the obstruction of the President of the Central Bank for changing its policy rates.<sup>40</sup>

As noted above, since the financial liberalization attempt in 1989, the Turkish economy has been confronted with four financial crises. In all of them, capital flight or currency attack was effective. In all of these crises, interest rates hiked and the exchange rate depreciated, but each of them had different features. In 1994, both the exchange rate and interest rates hiked. In 2001 the interest rate effect was enormous due to the fixed exchange rate regime. Although in the 2008/9 crisis, consumer confidence plunged drastically by 91 per cent from its peak level in 2007, its impacts on the interest

<sup>39</sup> On October 7th, 2019 when there was a conflict over Northern Syria between the US and Turkey, President Trump threatened again to inflict the Turkish economy by posting a tweet 'As I have stated strongly before, and just to reiterate, if Turkey does anything that I, in my great and unmatched wisdom, consider to be off-limits, I will totally destroy and obliterate the Economy of Turkey (I've done before!). They must, with Europe and others, watch over.. But this time effects of this threat on the financial markets were limited due to the attentiveness of the Central Bank.

<sup>40</sup> Peak figures are shown. In August 2018 there was another wave of capital flight of 1.5 billion USD mostly from the stock market.

rates were limited, thanks to fiscal discipline, IMF aid and flexible exchange rates. In the 2018 crisis, consumer confidence declined by 52 per cent, but interest rates were almost doubled and the national currency depreciated by 66.5 per cent despite the heavy losses of international reserves. Our explanation for this difference is the loss of political instability amid the rapid escalation of private foreign debt.

## 5. CONCLUSION

Economic crises in Turkey have been changing concerning their origin and nature. The devaluation of 1946 was distinct amongst all of the early devaluations, as it was held by the discretion of the government as a contingency against an imminent external deficit. Since then, all devaluations have involved some degree of political instability and were technically unavoidable. For example, though the incumbent political party, DP, was in favour of extending the welfare of the farmers by excessive public spending, it lost most of its credibility during 1955-1957 due to the inflationary pressures and the upsurge of political tension. The 1958 devaluation was an inevitable obligation due to the external deficit. The 1970 devaluation, like its predecessors, followed rising political instability (this time the anarchic environment) albeit a debilitated one-party government. All of these devaluations had political consequences, in the sense that in the first two the incumbent governments lost elections but in the final one, it was pulled down by a military coup.

The 1978/9 crisis was the first foreign-induced crisis that was engendered by the surge in oil prices. Yet, one must bear in mind that it was not just the subsequent external deficit that incurred the 1978/9 crisis. The prevalent political instability, which was affected by the fragmented political structure and political polarization, not only had an impact on the short-living coalition governments but also played a major role in the instigation of crises.

The 1994 economic crisis was also distinct. First of all, there was a mistake in the policy strategy, as the crisis rested on an immature financial liberalization attempt, which mounted the interest burden on the budget. The second mistake was in macroeconomic management. The crisis

was indeed triggered by the contra-market intervention of the Prime Minister in financial markets and was the first where there was a portfolio capital flight.

Although in the aftermath of this crisis, fragmentation of the political system deteriorated further, the 2001 economic crisis should primarily be attributed to the design-defective of the stabilization policy of the IMF. This is because an exchange-rate based stabilization policy, through the management of expectations, cannot be implemented during political instability or within a fragmented political system. According to Öniş (2010), poor governance was effective in all crises as they were products of populist cycles. As noted above, the incompetence in public debt management in 1994, the design-defect of the IMF programme in 2001 and the stubborn and inane political obstruction of the Central Bank to raise its policy rate in 2018 contributed to the instigation of crises. The only exception was the 2008/9 crisis, where relative macroeconomic prudence and expertise in countercyclical policy procured quick recovery. In all economic crises, we observe the loss of fiscal discipline and subsequently higher external deficit as common features. The longstanding foreign deficit has caused an accumulation of foreign debt of the private sector, and this has constituted the conventional economic background of crises. Nevertheless, as explained above, the populist tendencies in fiscal policy have social and political motives.

Since financial liberalization, but especially in the last decade, foreign debt dynamics have become essential due to the high risk of a sudden capital flight or a currency attack. Though political instability on its own has a limited role to impair financial stability, since financial liberalization it has become an imperative. By the potential to affect both the consumer sentiment and the investor appetite adversely, political instability can have detrimental effects on macroeconomic balances through the interest rates (domestic debt dynamics) and the exchange rates (foreign debt dynamics).

In this sense, the Asian crisis has been a very illuminating example for the comprehension of the role of political instability, besides other political factors, in the emergence of economic crises. Our analysis here is naturally confined to the Turkish experience. We tried to show *that some po-*

**Table 2.** The Comparison of the processes of the 2008/9 and 2018 crises

	Consumer Confidence (Bloomberg)	Exchange Rate (\$/TL)	Commercial Lending rate	Treasury Bill rates	Intern. Reserves	Capital Flight <sup>41</sup>	% Change in Total Investment <sup>42</sup>
Sept. 2007	105.2	1.25	21.9	20.0	108.3	2008(6)	2009 (Q1)
Nov. 2008	55.09	1.61	24.4	22.8	112.3	= \$ -3 bn.	= -35.1
Jan. 2018	87.5	3.76	20.1	13.5	116.1	2018 (3)	2019 (Q2)
Sept. 2018	57.6	6.26	38.5	25.1	84.2	= \$ -2.3 bn.	= -21.0

<sup>41</sup> Peak figures are presented with their corresponding dates.



litical instabilities (although *not all*) have led to macroeconomic imbalances. We also showed that all political crises led to macroeconomic imbalances whilst *some* of them have even instigated economic crises.

The influence of political instability on macroeconomic balances depends on the existence and extent of macroeconomic fragilities. Depending on the types of policies pursued, these fragilities differ from one country to another, such as; the entity of current account deficit and subsequently the extent of foreign debt, and/or the entity of budget deficit and subsequently the size of the public debt and/or the shortage of international reserves. Once these fragilities become dominant, political instability becomes instrumental in instigating an economic crisis. Finally, it must be contended that those macroeconomic fragilities caused by the *flawed* policy preferences of governments have certain socio-political implications.

**Ethics:** There are no ethical issues with the publication of this manuscript.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

- Akçay, Ü., & Güngen A. R. (2019) The Making of Turkey's 2018-2019 Economic Crisis *Hochschule für Wirtschaft und Recht*, Institute for International Political Economy, Berlin. *Working Paper*, No. 120, 1-23
- Akyüz, Y. & Boratav, K. (2003) The Making of the Turkish Financial Crisis *World Development*, Vol.31, issue 9, 1549-1566 [CrossRef]
- Alper, C. E. (2001) The Turkish Liquidity Crisis of 2000 -what went wrong *Russian and East European Finance and Trade*, Vol.37, No. 6, 51-71
- Alper, E., & Öniş, Z. (2003). Financial globalization, the democratic deficit, and recurrent crises in emerging markets: the Turkish experience in the aftermath of capital account liberalization. *Emerging Markets, Finance and Trade*, Vol.39 (3), 5-26. [CrossRef]
- Acemoglu, D., Johnson, S., Robinson, R., & Thaicharoen, Y. (2003). Institutional causes, macroeconomic symptoms; volatility, crisis and growth. *Journal of Monetary Economics*, Vol. 50, 49-123. [CrossRef]
- Acemoglu, D., & Robinson, J. A. (2008). *Economic origins of dictatorship and democracy*. Palgrave.
- Boratav, K. (2018) March-August 2018: capital movements that triggered the crisis (neo-liberalism creates crises in the South) (*in Turkish*) 19 October 2018, SOL
- Bussière, M. & Mulder, C. (2000) Political Instability and Economic vulnerability *International Journal of Finance and Economics*, Nov. Vol.5, 309-330 [CrossRef]
- Celasun, M. (2002) Before and After the 2001 Crisis: a macroeconomic and financial evaluation (*in Turkish, unpublished*)
- Celasun, O. (1999) The 1994 Crisis in Turkey *The World Bank, Policy Research Working Papers*, No: 1913. [CrossRef]
- Chang, R. (2005) Financial Crises and Political Crises *NBER Working Paper*, No. 11779 [CrossRef]
- Cömert, H. & Yeldan E. (2018) A Tale of Three Crises in Turkey: 1994, 2002, 2008-2009 *ERC Working Papers in Economics*, 18/09, June. [CrossRef]
- De Castro, R.C. (2007) The 1997 Asian Financial Crisis and the revival of populism/neopopulism in the 21st century Philippines politics *Asian Survey*, Vol. 47 (6), 262-289
- Dornbusch, R., & Edwards S. (1991). The macroeconomics of populism. in: Dornbusch, R., & Edwards S. (Eds.). *The macroeconomics of populism in Latin America*. University of Chicago Press, Chicago, IL. 7-13 [CrossRef]
- Ertuğrul, A. & Selçuk, F. (2001) A Brief Account of the Turkish Economy -1980-2000 *East European Finance and Trade*, November, Vol.37 (6), 6-30
- Feng, Y. (2003). *Democracy, Governance and Economic Performance: theory and evidence*. MIT Press, Cambridge, MA. [CrossRef]
- Fischer, S. (2001). Exchange rate regimes: is the bipolar view correct? *Journal of Economic Perspectives*, Vol. 15, 3-24.
- Gasiorowski, M. J. (1995). Economic crisis and political regime change: an event history analysis. *American Political Science Review*, Vol 89, 882-97. [CrossRef]
- Gasiorowski, M.J. (2000) Democracy and macroeconomic performance in underdeveloped countries: an empirical analysis. *Comparative Political Studies*, Vol.33, 319-49.
- Goldfajn, I., & Olivares, G. (2001). Can flexible exchange rates still “work” in financially open economies? *G-24 Discussion Paper*, No. 8. UNCTAD
- Güneş, H. (2013) The Political Foundations of Economic Crises and the Economic Foundations of Political Crises: the intermingling case, *Atlantic Economic Journal*, Vol. 41(1), 29-49 [CrossRef]
- Haggard, S. (2000). The Politics of Asian financial crisis. *Journal of Democracy*, Vol. 11(2), 130-44. [CrossRef]
- Haggard, S. & McIntyre A. (2000) The Political Economy of the Asian Financial crisis: Korea and Thailand compared in Noble G.W. & Ravenhill J. (Eds.) *The Asian Financial Crisis and the Architecture of Global Finance* Cambridge University Press, 2000 57-80 [CrossRef]
- Kaminsky, G. L. and Reinhart, C. M. (1999). The Twin Crises: The Causes of Banking and Balance of Payments Problems. *American Economic Review*, Vol. 89(3), 473–500. [CrossRef]
- Kuyucu, T. (2017) Two Crises, Two trajectories: the impact of 2001 and 2008: economic crises on urban governance in Turkey in Adaman, F., Akbulut B. & Arsel, M. (Eds)



- Neoliberal Turkey and its discontents: economic policy and the environment under Erdoğan Tauris, London. 44-64 [CrossRef]
- Leblang, D. & Satyanath S. (2008) Politically generated uncertainty and currency crises: theory, test and forecasts *Journal of International Money and Finance*, Vol.27(3), 480-497 [CrossRef]
- Lijphart, A. (1984) Measures of cabinet durability: a conceptual and empirical evaluation *Comparative Political Studies*, Vol.17(2) 265-279 [CrossRef]
- Lipsky, P. Y. (2018) Democracy and Financial Crisis *International Organization*, Vol 72 (Fall), 937-968 [CrossRef]
- Macpherson, C. B. (1973). *Democratic Theory*, Clarendon Press.
- McIntyre, A. (1999) Political Institutions and the economic crisis in Thailand and Indonesia. in Pempel T.J. (Ed.) *The Politics of Asian Financial Crisis*. Cornell University Press. 143-162 [CrossRef]
- McKinnon, R., & Schnabl G. (2004). The Asian dollar, standard, fear of floating and original sin. *Review of Development Economics*, Vol. 8, 331-60. [CrossRef]
- Mei, Jianping (1999) Political risk, financial crisis and market volatility *NYU Working Paper. Department of Finance*,
- Nelson, J. M. (Ed.) (1990). *Economic crisis and policy choice: the politics of adjustment in the Third world*, Princeton University Press, Princeton, NJ.
- Öniş, Z. (2003) Domestic Politics versus Global Dynamics: Towards a Political Economy of the 2000 and 2001 Financial Crises in Turkey in Öniş, Z. & Rubin B. (Eds.) *The Turkish Economy in Crisis*. Cass. London, [CrossRef]
- Öniş, Z (2010) Crisis and Transformation in Turkish Political Economy *Turkish Political Quarterly*, Vol.5, No:3, 45-61
- Öniş, Z (2019) Turkey under the Challenge of State Capitalism: the political economy of the late AKP era *Southeast European and Black Sea Studies*, Vol. 19(2), 201-225
- Özatay, F. (2007) The 1994 Currency Crisis in Turkey. *The Journal of Policy Reform* Vol. 3(4), 327-351 [CrossRef]
- Özatay, F. (2020) Paving the way for an economic crisis with high leverage and currency mismatches: 2018-2019 crisis in Turkey *Working Paper Series*, No: 202003, TEPAV
- Pamper, T. J. (1999) *The Politics of Asian Economic Crisis* Cornell University Press
- Persson, T. & Tabellini G. (2000) *Political Economics: explaining economic policy* Cambridge, MIT Press
- Porhel, N. (2008) The economic consequences of political crises. *The East African Review*, No.38, 231-258. [CrossRef]
- Powell, A. (2002) Argentina's avoidable crisis: bad luck, bad economics, bad politics, bad advice *Brookings Trade Conference*, Washington [CrossRef]
- Rawdanowicz, L. (2010) 2008-2009 Crisis in Turkey: performance, policy responses and challenges for sustaining recovery *OECD Economics Department Working Paper* No. 819.
- Remmer, K. L. (1990). Democracy and economic crisis: the Latin American experience *World Politics*, 42, 315-35.
- Remmer, K.L. (1991) The Political Impact of Economic Crises in Latin America in the 1980s *American Political Science Review*. Vol.85(3), 777-800 [CrossRef]
- Rodrik, D. (1990) Premature Liberalization, Incomplete Stabilization: The Özal decade *NBER Working Paper*, No: 3300; Massachusetts [CrossRef]
- Roubini, N. & Sachs J.D. (1989) Political and Economic determinants budget deficit in industrial democracies *European Economic Review*, Vol.33, 903-933 [CrossRef]
- Şahinöz, S. & Erdoğan Coşar E. (2018) Economic Policy Uncertainty and Economic Activity in Turkey *Applied Economic Letters*, Vol 25(21), 1517-1520 [CrossRef]
- Svensson, L. (1994). Fixed exchange rates as a means to price stability: what have we learned? *European Economic Review*, 38, 447-68. [CrossRef]
- Uygur, E. (2010) The Global Crisis and the Turkish Economy *Turkish Economic Association. Discussion Paper* No. 2010/3 1-41
- Van Rijckegem, C. & Weder B. (2008) Political Institutions and debt crises *Public Choice*, Vol.138 (3-4), 387-408
- Weyland, K. (1996). Neo-populism and liberalism in Latin America: unexpected affinities. *Studies in Comparative International Development*, 31, 3-31. [CrossRef]
- Williamson, J. (2000). Exchange-rate regimes for emerging markets: reviving the intermediate option. *Peterson Institute for International Economics*, No. 60, Washington D.C.



## Yıldız Social Science Review

Web site information: <https://yssr.yildiz.edu.tr>  
DOI: 10.51803/yssr.869824



### Original Article / Orijinal Makale

# Knowledge Space, Relatedness and Complexity: A Regional Analysis in Turkey

## Bilgi Alanı, İlişkililik ve Karmaşıklık: Türkiye İçin Bölgesel Bir Analiz

Sedef AKGÜNGÖR<sup>a</sup>, Mert ABAY<sup>b</sup>

<sup>a</sup>Department of Economics, Dokuz Eylül University, Faculty of Business, İzmir, Turkey

<sup>b</sup>Department of Economics, College of Europe, European Economic Studies, Bruges, Belgium and Dokuz Eylül University, Faculty of Business, İzmir, Turkey

<sup>a</sup>Dokuz Eylül Üniversitesi, İşletme Fakültesi, İktisat Bölümü, İzmir, Türkiye

<sup>b</sup>Avrupa Koleji, Avrupa Ekonomik Çalışmaları, Ekonomi Bölümü, Bruges, Belçika ve Dokuz Eylül Üniversitesi, İşletme Fakültesi, İzmir, Türkiye

### ARTICLE INFO

#### Article history

Received: 28 January 2021

Accepted: 30 November 2021

#### Key words:

Branching, relatedness density, knowledge space, regional diversification, regional development, smart specialization, patents, Turkey; JEL Classification: R10, R11 R58

### MAKALE BİLGİSİ

#### Makale Hakkında

Geliş tarihi: 28 Ocak 2021

Kabul tarihi: 30 Kasım 2021

#### Anahtar kelimeler:

Bilgi alanı, dallanma, ilişkililik yoğunluğu, bölgesel çeşitlenme, bölgesel gelişme, akıllı uzmanlaşma, patent, Türkiye JEL Sınıflaması: R10, R11 R58

### ABSTRACT

Regional development policies based on regions' core strengths are key for innovation. For sustainable growth, regions would discover their own growth paths grounded on their core knowledge base. Although there are studies focused on regional clustering of economic activity in Turkey, little is known related to regions' potential to attract new technologies based on their core strengths. The first objective of the paper is to map *knowledge space* in Turkey for 2010 and 2017. The second objective of the paper is to understand *relatedness and knowledge complexity* in Turkey's NUTS3 regions. The third objective is to demonstrate the relationship of *regional innovativeness* with *relatedness and knowledge complexity* across Turkey's regions. *Relatedness* of the regions is operationalized by relatedness density. *Knowledge complexity* is operationalized by knowledge complexity index. We use regression analysis to understand the correlation of patent applications with regions' relatedness density and knowledge complexity. As a control variable, diversity variable is used. The analysis demonstrates that knowledge space in Turkey became denser between 2010 and 2017 and there are variations across regions with respect to relatedness and knowledge complexity. Diversity and relatedness density are positively correlated with patent applications while complexity does not have a correlation with regional innovativeness.

**Cite this article as:** Akgüngör, S., & Abay, M. (2021). Knowledge Space, Relatedness and Complexity: A Regional Analysis in Turkey. *Yıldız Social Science Review*, 7(2), 110–122.

#### \*Sorumlu yazar / Corresponding author

\*E-mail: [sedef.akgungor@deu.edu.tr](mailto:sedef.akgungor@deu.edu.tr)

The authors would like to thank Gamze Öztürk (PhD candidate, Dokuz Eylül University Faculty of Business, Department of Economics) for her valuable contributions on econometric analysis.



Published by Yıldız Technical University Press, İstanbul, Turkey

Copyright 2021, Yıldız Technical University. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

**ÖZ**

Bölgelerin güçlü yönlerine dayalı bölgesel kalkınma politikaları, yenilikçilik için anahtar niteliğindedir. Sürdürülebilir büyüme için her bölge kendi öz bilgi havuzu üzerinde temellendirilmiş büyüme yollarını keşfetmelidir. Türkiye'deki ekonomik faaliyetin bölgesel kümelenmesi konusuna odaklanan çalışmalar bulunmasına rağmen, bölgelerin güçlü yönlerine dayalı yeni teknolojileri çekme potansiyelleri konusunda kısıtlı bilgi bulunmaktadır. Bu makalenin ilk hedefi, Türkiye'nin 2010 ve 2017 yıllarına ait *bilgi alanının* haritasını çizmektir. Makalenin ikinci hedefi, Türkiye'deki NUTS3 bölgelerinin 2010 ve 2017 yıllarındaki *ilişkili ve bilgi karmaşıklığı* anlamaktır. Üçüncü hedef, Türkiye'deki bölgelerin *bölgesel yenilikçiliği (patent başvuruları)* ile *ilişkili ve bilgi karmaşıklığı* arasındaki ilişkiyi göstermektir. Bölgelerin *ilişkili ve bilgi karmaşıklığı* yoğunluğu değişkeni ile ölçülmektedir. *Bilgi karmaşıklığı* ise bilgi karmaşıklığı endeksi ile ölçülmüştür. Patent başvurularının bölgelerin ilişkili ve bilgi karmaşıklığı ile korelasyonunu anlamak için regresyon analizi kullanılmıştır. Kontrol değişkeni olarak, *çeşitlenme* değişkeni kullanılmıştır. Analizler, Türkiye'deki bilgi alanının 2010 ve 2017 arasında daha yoğun bir hale geldiğini ve ilişkili ve bilgi karmaşıklığı bakımından bölgeler arasında farklılıklar olduğunu göstermektedir. Çeşitlenme ve ilişkili ve bilgi karmaşıklığı patent başvuruları ile pozitif yönde bir korelasyona sahipken, karmaşıklığın bölgesel yenilikçilikle ilişkili olmadığı görülmüştür.

**Atf için yazım şekli:** Akgüngör, S., & Abay., M. (2021). Knowledge Space, Relatedness and Complexity: A Regional Analysis in Turkey. *Yıldız Social Science Review*, 7(2), 110–122.

**1. INTRODUCTION**

Unlike the “one size fits all” approach to regional development, it is well known that enabling each region to have a distinct focus on its unique characteristics is key to sustainable competitive advantage (European Commission, 2020a). In 2011, Smart Specialisation Strategy was identified as the main programme by the European Union for reaching its smart, sustainable, and inclusive growth objectives. It has also been described as a supporting tool for its Territorial Cohesion Policy which is essential for eliminating differences between regions by ensuring a balanced development. It is defined as an innovative perspective based on integrated and place-based economic transformation by focusing on each region's strengths, competitive advantages, and potential for excellence (Foray et al., 2012). The role of conducting place-based innovation strategies also comes to the forefront in creating clusters for high-value added and innovative investments that require high amount of cumulative knowledge (Widuto, 2019). Smart innovation strategies make it possible to create interregional clusters by linking regions with similar knowledge and enable the accumulation of knowledge required for progress. Therefore, the focus on regional specialization policies should be on region's competencies where each region discovers its own growth path.

Potential economic activities of a region should be determined by taking into account the relatedness of the industries in the region (the extent to which a new technology/occupation/industry is related to pre-existing skills and capabilities in the region) and technological complexity of the industries (potential socio-economic impact of diversifying into specific activities) (Hidalgo and Hausmann, 2009; Hidalgo et al., 2018; Balland et al., 2019). This concept

is fundamental in smart specialization policies. Balland et al., (2019) propose that regions should develop on sectors that are technologically related to the regions' core strengths and are difficult to replicate outside the region. Relatedness and complexity are two key dimensions in choosing sectors for regional smart specialization.

In Turkey, early studies with a distinct focus on regional specialization are on cluster formation in Turkey (see, Çelik et al., 2019 for a review). The studies demonstrate geographical distribution of economic activity. There are also studies with special focus on technological composition of clusters. Kaygalak (2013) propose that none of the identified clusters include high-tech sectors. Kaygalak and Reid (2016) and Gezici et al., (2017) further demonstrate that increases in sectoral agglomerations tend to be within the medium-low and medium-high technology sectors. In general, existing studies confirm that Turkey's industrial activities contain medium and low technologies.

In relation to the diversity of economic activities and knowledge bases and, indicators of regions' core strengths, Kuştepe et al., (2013) explore the impact of related variety on economic performance of the regions. Following the regional innovation policy model, based on the idea of constructing regional advantage (Asheim et al., 2011), Gülcan et al., (2011) demonstrate differentiated knowledge bases in Turkish textile industry.

Although existing studies in Turkey reveal evidence on differences in spatial distribution, technology composition and knowledge of economic activities, little is known on how different technology classes are connected to each other as well as how relatedness and knowledge complexity of the regions have impact on regional innovativeness. Relatedness shows potential for regions' branching opportuni-

ties into new and related technologies. Related technologies could be source of creating and developing innovations. Similarly, complexity of knowledge indicates that regional capabilities are unique and hard to imitate in other regions, thus creating source of regional competitiveness.

Building upon the smart and inclusive growth priorities defined by the EU, the paper focuses on the role of knowledge for strengthening innovation in individual regions. Knowledge-based economy dimension of the Smart Specialization framework can be regarded as an approach that will help regions to identify and develop their own competitive advantages, and as a result boost growth and jobs across regions (European Commission, 2020b). Thus, this paper aims to contribute designing policies for regional development based on regions' local competitive assets and own competitive advantages by tracing undiscovered opportunities within regions.

There are three aims of the paper: The first aim is to map *relatedness between technology classes* in Turkey for 2010 and 2017. The second aim is to understand relatedness (*branching opportunities*) and *knowledge complexity* in Turkey's regions for 2010 and 2017. The third aim is to demonstrate *how relatedness and knowledge complexity are related to regions' innovativeness*.

The paper proceeds as follows. In section 2, theoretical background of the regional diversification and economic complexity concepts is explained. In section 3, the data and analysis methods used in the study are presented. In section 4, findings on knowledge space, and relatedness and complexity estimations as well as the econometric analysis are shown. In section 5, a conclusion based on our findings is provided.

## 2. THEORETICAL BACKGROUND

The theory is based on the view that regional competitive advantage depends on the conditions on the use of regions' core knowledge and competencies. This idea has grounds on the stream of literature on regional innovation systems (Freeman, 1995; Cooke et al., 1997) and learning regions (Morgan, 1997; Lundvall and Johnson, 1994). The work on constructing regional advantage brings together the concepts like related variety, knowledge bases and policy platforms (Asheim et al., 2011). As suggested by Balland and Rigby (2017), geography has a significant role in determining the emergence and evolution of knowledge.

The literature on regional accumulation of economic activities starts with the work of Marshall (1890) on agglomeration externalities. The central idea is that economic performance of regions is related to regional specialization and co-location of economic activities. Jacobs (1969) further proposed that different industries where there is variety of economic activities causes diversification externalities. Jacobian externalities cause knowledge spillovers between different industries and diversification leads to more in-

novative regions. The evolutionary discourse (Nelson and Winter, 1982; Frenken et al., 2007; Boschma and Frenken, 2006) focuses on evolutionary principles to explore how firms, industries, regions change over time. Regional growth is a dynamic process and path dependent (Kogler et al., 2013; Martin and Sunley, 2015). Central to sustainable long run growth is the influence of the capacity to produce economically valuable knowledge and innovativeness (Schumpeter, 1939; Nelson and Winter, 1982). However, it is also well documented and argued that distribution of knowledge is uneven across geographies thus causing differences in economic growth and development (Whittle and Kogler, 2019). Production of knowledge and innovativeness explain differences in economic performance of the regions (Schumpeter, 1942; Solow, 1956; Nelson and Winter, 1982; Romer, 1990).

In their work on smart specialization, Balland et al., (2019) combine regional diversification literature (Hidalgo et al., 2018; Neffke et al., 2011) and economic complexity literature (Hidalgo and Hausmann, 2009) and argue that relatedness and knowledge complexity are key concepts for a place-based policy (Boschma, 2014). Relatedness concept is related to the idea that knowledge creation is the combination of existing ideas. Foundations of knowledge and innovation are related to re-construction of the components of core ideas and therefore an evolutionary process. Frenken and Boschma (2007) propose that diversification of the economic activities is a branching process and the emergence of new technologies is not random and rather dependent on past knowledge. Innovations and new technologies are based on existing set of capabilities (Boschma, 2017).

In addition to the significance of relatedness (as operationalized by relatedness density) for branching opportunities, regions tend to have competitive advantage when the technologies are unique and hard to copy. What is highly valuable for sustainable regional growth is the ability to create knowledge that tends to be complex. Knowledge complexity resulting from valuable and tacit knowledge is difficult to imitate and access by others (Hidalgo and Hausmann, 2009). Balland and Rigby (2017) demonstrate that complexity correlates with the long run patterns of economic performance and regions develop based on their existing knowledge cores.

Following the regional diversification literature and economic complexity literature summarized above the paper aims to test the hypothesis that regional innovativeness is positively correlated with regions' relatedness density and knowledge complexity. Relatedness proposes a relationship between specialization of a new activity and the presence of related activities in that location (Hidalgo et al., 2018). Similarly, complexity as measured by the presence of complex (hard to imitate) activities in the regions results with valuable economic outcomes coupled with tacit knowledge (Rigby et al., 2019; Maskell & Malmberg, 1999).

### 3. METHODS

#### 3.1. Data

To identify technological fields and compute measures of relatedness and knowledge complexity, we use OECD-REGPAT database January 2020 Edition (OECD, 2020). OECD-REGPAT contains patent data that are linked to the regions utilizing the addresses of the applicants and inventors. Regional patent data covers more than 5500 regions across OECD countries<sup>1</sup>. In this study, we use patent data for the years 2010 and 2017<sup>2</sup>. The patent data is aggregated at NUTS3 level. The data is cleaned and grouped according to World Intellectual Property Organization (WIPO) technology classification “New concept of technology classification, update: May 2008” (Schmoch, 2008). According to May 2008 classification, IPC codes are grouped according to 5 technology classes and 35 sub-technology classes. We use the latest version (July 2019) of WIPO IPC-Technology Concordance Table to group IPC codes of the patents into WIPO technology classes.

#### 3.2. Analysis Methods

##### 3.2.1. Measuring Relatedness

*Relatedness* is measured by the method following Boschma et al., (2015) and Rigby (2015). The method is based on counting the number of patent claims for a given period that contains a co-class pair of technologies  $i$  and  $j$  and standardizing this count by the total number of patents that contain  $i$  and  $j$ . Relatedness between technology  $i$  and  $j$  ( $\varphi_{ij}$ ) is a standardized measure of the frequency with which two IPC classes appear on the same patent. This paper follows the method outlined in Balland et al., (2019). The analysis is completed with EconGeo R package (Balland, 2017). Using relevant directions outlined in EconGeo R, we develop the *knowledge space*, which is a formal demonstration of relatedness between technologies.

Relatedness across space is demonstrated by the knowledge structure of Turkey’s NUTS3 regions. Following the method demonstrated in Balland et al., (2019) and use of EconGeo R package, we calculate the density of technology production in the vicinity of individual technologies  $i$  for each NUTS3 region ( $r$ ) in Turkey for 2010 and 2017. Relatedness of the regions is operationalized by relatedness density.

As specified in Balland et al., (2019), the relatedness density of industry  $i$ , in region  $r$  at time  $t$  is presented below:

$$RD_{i,r,t} = \frac{\sum_{j \in r, j \neq i} \varphi_{ij}}{\sum_{j \neq i} \varphi_{ij}} * 100 \quad (1)$$

$RD_{i,r,t}$  is the relatedness density of technology  $i$  to all other technologies  $j$  where the region  $r$  has relative technological advantage (RTA) at time  $t$ . It is estimated by using the Equa-

tion (1).  $\varphi_{ij}$  is technological relatedness of technology  $i$  with technology  $j$ . RTA is a binary variable that takes the value 1 when the region has higher share of patents in technology  $i$  in comparison to the share of patents in technology  $i$  in the country; and 0 otherwise (similar to the notion of location quotient). Relatedness density is therefore the technological relatedness of technology  $i$  to all other technologies  $j$  in which the region has relative technological advantage (RTA), divided by the sum of the technological relatedness of technology  $i$  to all other technologies in Turkey at time  $t$ .

We use *average relatedness density* variable to measure regions’ potential for branching into new and related technologies. Average relatedness density of regions represents technological flexibility (the structure of the knowledge base) of the regions as demonstrated in Balland et al., (2015) with calculation procedures outlined in EconGeo Package (Balland, 2017). Average relatedness density (technological flexibility) represents the average relatedness of the technologies present in the region to all technological classes that are not yet in the city. Using average relatedness density variable, it is possible to reveal the branching opportunities and potential to diversify into new and related technologies in Turkey’s NUTS3 regions.

##### 3.2.2. Measuring Complexity

Quality of the knowledge created in the region is measured by complexity. Knowledge is valuable if it is difficult to replicate outside the geography. Knowledge that is tacit and sticky in the field is a source for competitive advantage in regions.

This paper follows the method proposed by Hidalgo and Hausmann (2009) using export data. Balland et al., (2019) demonstrates the use of the method with patent data. The method connects the regions to technologies in which they have RTA. The complexity is determined by the range and ubiquity of the technologies that the regions use. The variable that measures complexity of knowledge in regions is knowledge complexity index (KCI).

KCI has two components. Diversity is the number of technology classes in which the region ( $r$ ) has relative technological advantage. Ubiquity is the number of regions that exhibit revealed technological advantage in a given technology (Balland and Rigby, 2017). Diversity and ubiquity are estimated with Equation (2) and Equation (3), respectively.

$$\text{Diversity} = K_{r,0} = \sum_i M_{r,i} \quad (2)$$

Where  $M_{r,i}$  is a binary variable that represents whether the region  $r$  has RTA in the production of technology  $i$ .

$$\text{Ubiquity} = K_{i,0} = \sum_r M_{r,i} \quad (3)$$

Where  $M_{r,i}$  is a binary variable that represents the number of regions with RTA in the production of technology  $i$ .

<sup>1</sup> The database was produced by counting patent applications rather than an approval-based approach. Since it takes long time (generally two to ten years) for patents to be approved in some cases, it is possible that approval-based counts do not reflect the conjuncture at the relevant period. Therefore, the data consist of application-based patent counts, in line with the more common approach (Maraut et al., 2008).

<sup>2</sup> 2017 was the latest complete data available for Turkey in the REGPAT database during the time of data download.



The KCI combines the information obtained from the diversity and ubiquity variables following the iterations outlined in Hidalgo and Hausmann (2009). The method includes sequentially combining the diversity of regions and ubiquity of technological classes and simultaneously computes Equation (4) and Equation (5) over a series of  $n$  iterations:

$$\text{KCI}(\text{regions}) = K_{r,n} = \frac{1}{K_{r,0}} \sum_i M_{r,i} K_{i,n-1} \quad (4)$$

$$\text{KCI}(\text{technologies}) = K_{i,n} = \frac{1}{K_{i,0}} \sum_r M_{r,i} K_{r,n-1} \quad (5)$$

### 3.2.3. Exploring Correlation of Relatedness Density and Complexity on Regional Innovativeness

We use regression analysis to find the correlation of relatedness density and complexity with regions' innovativeness. Innovativeness variable measures the number or patent applications in a region at time  $t$  (PAT). The independent variables in the model are, average relatedness density (ARD) and regions' knowledge complexity index (KCI) for 2010 and 2017. In order to control for the impact of diversification of industries on patent applications, diversity variable (DIV) (measure of the number of technology classes in which the region has competitive advantage) is added. Data for the two time periods (2010 and 2017) is analyzed.

## 4. FINDINGS

### 4.1. Turkey's Knowledge Space (2010 and 2017)

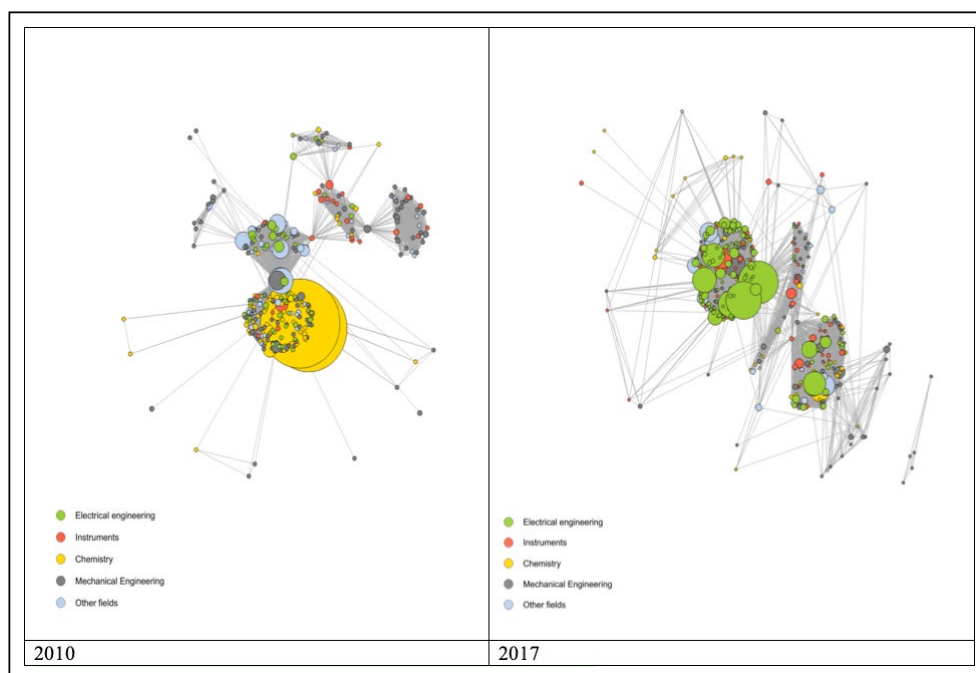
Figure 1 demonstrates relatedness between technology fields in Turkey for the years 2010 and 2017. The size of

the circles shows number of patents in each field and the colors indicate broad technology classes as demonstrated in Schmoch (2008). Comparison of two knowledge spaces demonstrates denser network ties among technologies in 2017 in contrast to 2010. Although chemistry has more patent applications in 2010, there is a visible decline in the number of patent applications in the chemistry field in 2017. In 2017, we see higher number of patent applications in electrical engineering where there are also stronger network ties across electrical engineering field with other technology fields, such as mechanical engineering, instruments and other fields.

### 4.2. Relatedness and Complexity (2010 and 2017)

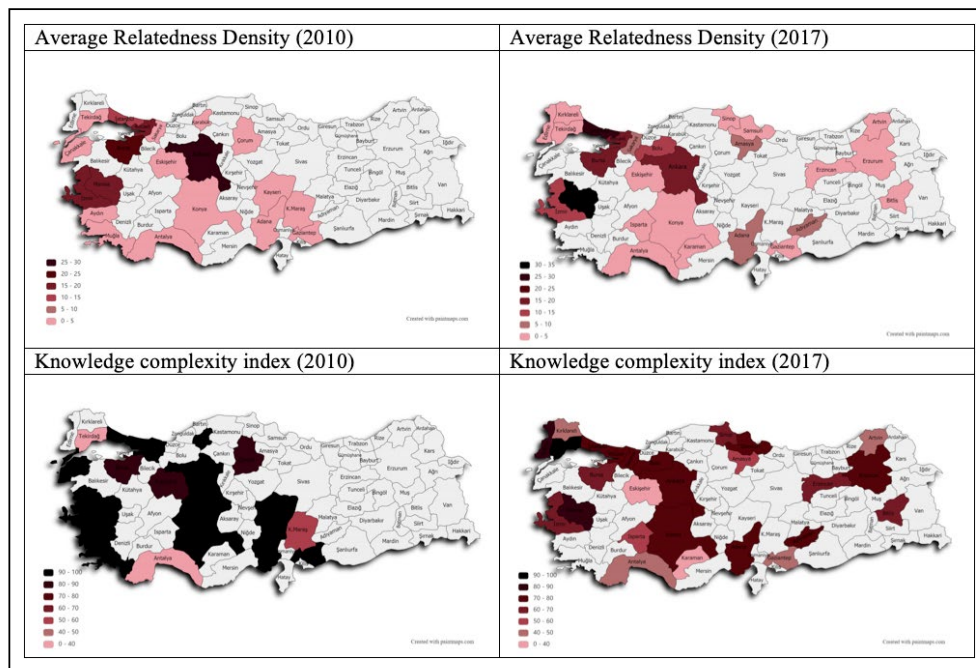
Geographical distribution of relatedness density demonstrates region's potential for branching. The upper portion of Figure 2 shows regional branching opportunities in Turkey for 2010 and 2017. The map shows that average relatedness density is higher for the western regions. Limited number of years for observations (2010 and 2017 only) does not allow us to capture patent applications in eastern parts of the country, since there are no patent applications in some regions during the two years. However, a rough interpretation of the two maps tells that western regions and Ankara demonstrate higher branching opportunities when compared to other regions.

Knowledge complexity (lower portion of Figure 2) as a measure of uniqueness of technologies for the regions shows that 2010 demonstrates high knowledge complexity index for most of the regions. The idea of complexity is that more complex regions produce more exclusive and



**Figure 1.** Knowledge Space (2010 and 2017).

Source: OECD REGPAT database (OECD, 2020), own calculation.



**Figure 2.** Average Relatedness Density and Technological Complexity Index (2010 and 2017).

Source: OECD REGPAT database (OECD, 2020), own calculation.

non-ubiquitous commodities that are produced in relatively few regions (Balland and Rigby, 2017). In 2017, the value of the knowledge complexity index shows more variation across regions, in comparison to 2010. In 2017, it is possible to see complex technologies in the eastern parts of the country as well. More complex technologies are still in the western regions while southern Anatolia has the least complex technologies.

Table 1 shows knowledge complexity index of the technologies in Turkey for 2017. The table shows that the most complex technologies are related to chemistry followed by electrical engineering. The least complex ones are related to mechanical engineering and food chemistry. The classification is according to WIPO classification as proposed by Schmoch (2008)

#### 4.3. Relatedness, Diversity, Complexity and Regional Innovations

While Table 2 presents the summary statistics, Table 3 and Figure 3 show bivariate correlations of the variables. There is a positive and significant correlation between average relatedness density (ARD) and regional diversity (DIV); patent applications (PAT) and regional diversity in 2010. For 2017, the correlation coefficients between ARD and PAT, KDI, DIV are positive and significant. There is a positive correlation between PAT and KCI, as well as low but significant correlation between KCI and DIV.

Regression analysis allows us to perform multivariate analysis to see how average relatedness density and knowledge complexity index correlate with innovativeness. In order to see whether multicollinearity will be a problem in

regression estimation, we perform a multicollinearity test using variance inflation factor (VIF). Table 4 presents the results of the VIF values of the independent variables both in linear forms and logarithmic forms

The ARD and DIV variables are highly correlated (see, Table 2 above), and both variables have almost the same VIF value (Table 4). In general, the VIF values are moderately high but they are all smaller than 10. The smallest possible value for VIF is 1 where the value of 1 indicates an absence of collinearity. As a rule of thumb, a VIF value that exceeds 5 or 10 indicates a problematic amount of collinearity (James et al., 2017). All VIF values of the dependent variables are smaller than 10.

Initially we run a linear model with PAT as dependent variable and ARD, DIV and KCI as independent variables, under the assumption of no multicollinearity (VIF value less than 10). Diagnostic tests reveal presence of heteroskedasticity and autocorrelation in the linear model. The linear model is estimated using clustered standard errors to obtain robust estimates in the presence of heteroscedasticity and serial correlation. The model is also estimated using log-linear model with logarithmic transformation of the variables. The log-linear model revealed no presence of serial correlation but the model has heteroskedasticity.

Additionally, in order to compare the pooled OLS with panel model, the model is estimated by using fixed effects and random effects. The results of F-test show that individual effects are insignificant. We also test for individual year effects and conclude that year effects are also insignificant. Even though availability of region and year fixed effects is

**Table 1.** Knowledge Complexity of Technological Fields 2017

Technological sub field (2 digit)	Technological field (1 digit)	Knowledge Complexity Index
Surface technology, coating	Chemistry	100
Audio-visual technology	Electrical engineering	87.62908518
Telecommunications	Electrical engineering	87.62908518
Digital communication	Electrical engineering	87.62908518
Basic communication processes	Electrical engineering	87.62908518
IT methods for management	Electrical engineering	87.62908518
Machine tools	Mechanical engineering	87.62908518
Pharmaceuticals	Chemistry	84.6247748
Control	Instruments	84.09547457
Micro-structure and nano-technology	Chemistry	84.09547457
Optics	Instruments	83.94625479
Furniture, games	Other fields	82.81812452
Semiconductors	Electrical engineering	82.39059832
Macromolecular chemistry, polymers	Chemistry	80.56186397
Basic materials chemistry	Chemistry	80.41264419
Chemical engineering	Chemistry	79.37985846
Electrical machinery, apparatus, energy	Electrical engineering	78.82646201
Computer technology	Electrical engineering	78.10775104
Handling	Mechanical engineering	77.71417383
Other special machines	Mechanical engineering	77.34334124
Mechanical elements	Mechanical engineering	75.73063929
Materials, metallurgy	Chemistry	74.57414043
Transport	Mechanical engineering	74.16325195
Civil engineering	Other fields	73.86095896
Measurement	Instruments	73.4263042
Environmental technology	Chemistry	71.13063173
Other consumer goods	Other fields	69.89602711
Medical technology	Instruments	69.54993856
Biotechnology	Chemistry	68.50921095
Analysis of biological materials	Instruments	67.19850056
Engines, pumps, turbines	Mechanical engineering	66.76296864
Thermal processes and apparatus	Mechanical engineering	58.61050825
Textile and paper machines	Mechanical engineering	41.94576646
Food chemistry	Chemistry	0

**Table 2.** Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
PAT	46	42.93478	143.7203	1	780
ARD	46	8.26087	8.365099	0	31
KCI	46	72.2462	24.2324	0	100
DIV	46	3.543478	3.874168	1	17

Since there are no patent applications in some regions during the two years, we get 46 observations in total. In 2010, 20 regions applied for patents while this number was 26 in 2017.

rejected, results of the fixed effects model are provided in Table 5 for demonstration purposes. The result of Breusch and Pagan Lagrangian multiplier test for random effects also shows that (random) individual effects are all insignificant.

Overall, the results indicate that both fixed and random effects are insignificant and pooled OLS method is appropriate to estimate the econometric model. Table 6 presents results of the linear and log-linear model with pooled OLS method.

Robust estimates of both linear model and log linear model confirm statistical significant correlation between ARD and PAT as well as between DIV and PAT. The coefficient estimate of the KCI variable is not significant in both models. The adjusted R-square value and F statistics are higher for the log linear model. Therefore, for the rest of the paper the analysis will be performed using the log linear model. However, the high degree of correlation between DIV and ARD, as well as VIF value being greater than 5



**Table 3.** Correlation coefficients between average relatedness density, regional diversity and knowledge complexity index with patent applications (2010 and 2017)

	ARD	PAT	KCI	DIV
2010				
ARD	1			
PAT	0.242242 (0.303474)	1		
KCI	0.255847 (0.276261)	0.139947 (0.556217)	1	
DIV	0.894058 (1.08E-07)***	0.603824 (0.004814)***	0.203198 (0.390213)	1
2017				
ARD	1			
PAT	0.662002 (0.00023)***	1		
KCI	0.405549 (0.039833)*	0.215073 (0.291363)	1	
DIV	0.95364 (5.13E-14)***	0.79224 (1.41E-06)***	0.330189 (0.099473)*	1

causes a suspicion that the DIV variable captures the impact of ARD and that the coefficient of the ARD variable is negative, while it is expected that patent applications will be positively correlated with average relatedness density of the regions.

We therefore re-estimate the panel OLS model using the two variables independently: One with ln(ARD) and ln(KCI) as independent variables (Model 1) and the other with ln(DIV) and ln(KCI) as independent variables (Model 2).

**Table 4.** Checking for Multicollinearity using VIF

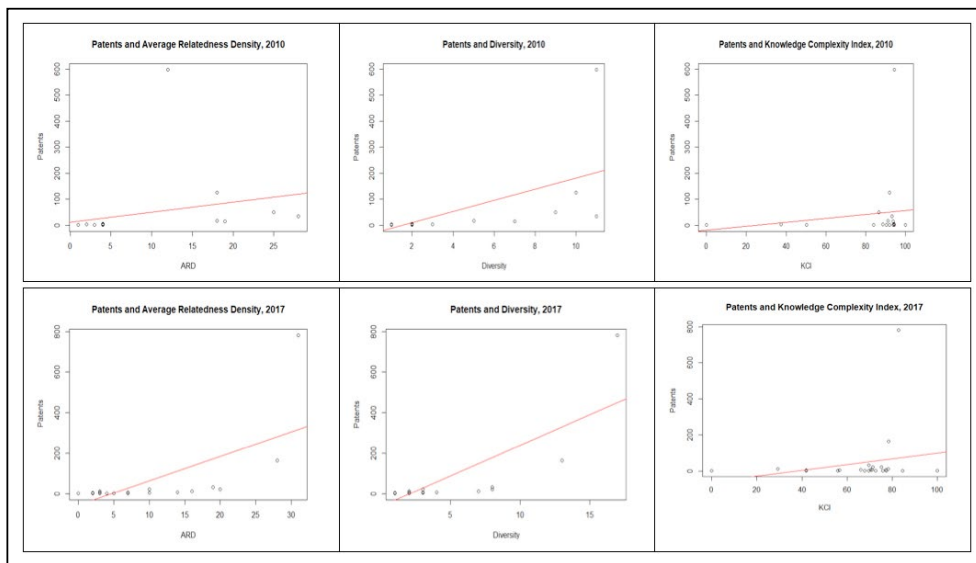
Variable	VIF	1/VIF	Variable	VIF	1/VIF
ARD	7.490	0.134	ln(ARD)	8.100	0.123
DIV	7.260	0.138	ln(DIV)	7.660	0.131
KCI	1.110	0.901	ln(KCI)	1.170	0.855
Mean VIF	5.290		Mean VIF	5.640	

**Table 5.** Fixed Effects Model

Dependent variable: PAT	Coefficient	Std. Err.	t-stat	p
ARD	-25.8696	11.99867	-2.16	0.056
KCI	0.451482	1.267211	0.36	0.729
DIV	90.40205	29.9886	3.01	0.013
Constant	-96.31539	113.7538	-0.85	0.417
Number of Obs.	= 46			
F-Stat (3, 10)	= 3.09			
Prob > F	= 0.0764			
R-Squared				
Within	= 0.4814			
Between	= 0.8700			
Overall	= 0.7362			
Diagnostic tests for model specification:	Significance test statistic: F (32, 10)=0.15 Probability: 1.000			
F-test for fixed effects				

The results are presented in Table 7.

Table 7 shows that when evaluated independently, ARD and DIV have a positive and significant effect on innovation. A 1% increase in ARD increases patent applications by



**Figure 3.** Relationship between average relatedness density, regional diversity and knowledge complexity index with patent applications (2010 and 2017) (2010 and 2017).

Source: OECD REGPAT database (OECD, 2020), own calculation.

**Table 6.** Panel OLS Estimation (Pooled OLS) with linear and log-linear models with clustered standard errors

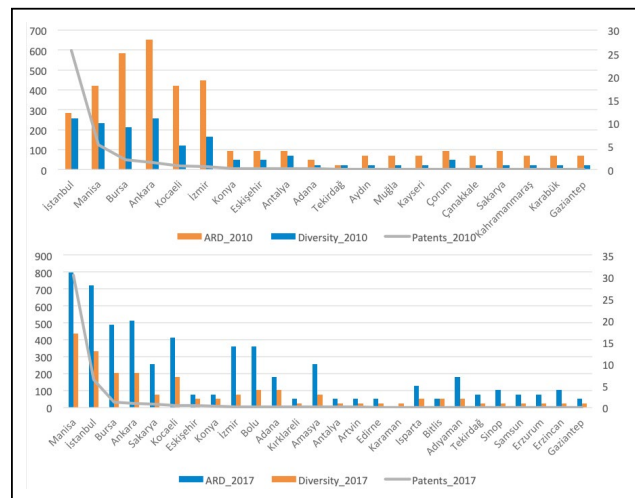
LINEAR MODEL (Dependent variable: PAT)	Coefficient	Robust Std. Err.	t-stat	p
ARD	-22.327	4.690	-4.760	0.000
KCI	0.470	0.294	1.600	0.120
DIV	70.705	10.973	6.440	0.000
Constant	-57.105	15.395	-3.710	0.001
Number of Obs.	= 46			
F-Stat (3, 32)	= 23.29			
Prob > F	= 0.000			
R-Squared	= 0.7442			
LOG-LINEAR MODEL (Dependent variable: ln (PAT))	Coefficient	Robust Std. Err.	t-stat	p
ln(ARD)	-0.816	0.470	-1.740	0.090
ln(KCI)	0.123	0.411	0.300	0.767
ln(DIV)	2.433	0.467	5.210	0.000
Constant	0.542	1.671	0.320	0.747
Number of Obs.	= 44			
F-Stat (3, 40)	= 55.44			
Prob > F	= 0.000			
R-Squared	= 0.8432			

**Table 7.** Panel OLS Estimation (Pooled OLS) log-linear models with clustered standard errors

MODEL 1:	Coefficient	Robust Std. Err.	t-stat	p
ln(ARD)	1.565673	0.24803	6.31	0.000
ln(KCI)	-0.61723	0.454296	-1.36	0.184
Constant	1.629731	1.9748	0.83	0.416
Number of Obs.	= 44			
F-Stat (2, 31)	= 21.24			
Prob > F	= 0.000			
R-Squared	= 0.6241			
MODEL 2:	Coefficient	Robust Std. Err.	t-stat	p
ln(DIV)	1.712	0.154	11.090	0.000
ln(KCI)	-0.192	0.391	-0.490	0.626
Constant	1.083	1.710	0.630	0.530
Number of Obs.	= 44			
F-Stat (2, 41)	= 62.99			
Prob > F	= 0.000			
R-Squared	= 0.8209			

1.5%. Similarly, a 1% increase in diversity increases patent applications by 1.7%. There is no relationship between complexity and patent applications. Overall, regions with high number of patents are also high with respect to diversity and relatedness (Fig. 4).

In addition to our baseline model using the pooled OLS regression analysis shared in the previous section, further econometric analyses are added to be able to control for



**Figure 4.** Patent applications, relatedness density and diversity of regions (2010 and 2017).

Source: OECD REGPAT database (OECD, 2020), own calculation.

the effects of other variables as well as regional and year fixed-effects on the patent numbers (log). Logarithms of GDP per capita (PCGDP) and human capital (HC) are added as control variables. The PCGDP variable was measured by using Turkey Regional Economic Dataset (Karaca, 2018). It shows the per capita GDP of regions by NUTS3 level at constant prices (2009 TL). The HC variable was measured by using “attained education level by provinces of population 15 years of age and over” data set (TUIK, 2019). The variable shows the share of people with an advanced level of education (graduates of universities, other higher

educational institution, master, and doctorate) to the regional population with 15 years of age and over.

The results of the additional regression models are provided in the Table 8. In the first model, which includes only ARD as independent variable, a positive and significant impact of relatedness on regional innovation is indicated. The second model, whose results (Table 5) and interpretation had been previously provided, includes both ARD and KCI as independent variables. The model 3 only includes the control variables PCGDP and HC and shows a positive and significant effect of PCGDP on regional innovation. In the fourth and fifth models, all variables are included. The model 4 was estimated with a pooled OLS and indicates a positive and significant sign for the coefficient of the ARD variable. On the other hand, in the model 5 with regional and year fixed-effects, none of the variables has a significant impact on the patent applications.

To sum up, in all models, except for the fifth model, average relatedness density has a positive and significant effect on regional innovation. Accordingly, a 1% increase in the average relatedness density increases the number of patent applications by 1.39-1.56%. As far as the knowledge complexity is concerned, the coefficients are negative but insignificant in all models.

While there are changes in number of patent applications for individual cities, the ranking from highest to lowest number of patent applications did not change between 2010 and 2017. The highest number of patent applications in 2010 was in Istanbul, Manisa, Bursa, Ankara, Kocaeli

and İzmir. In 2017, the cities with highest number of patent applications are, Manisa, İstanbul, Bursa, Ankara, Sakarya and Kocaeli. With the exception of İzmir and Sakarya, the five cities (İstanbul, Manisa, Bursa, Ankara and Kocaeli) are the cities with highest number of patent applications. Diversity in 2010 and 2017 show a similar ranking across cities. Cities with highest diversity in 2010 is Istanbul, Ankara, Manisa, Bursa, İzmir and Kocaeli and while in 2017 the list includes Manisa, İstanbul, Bursa, Ankara, Kocaeli and Bolu. With regards to average relatedness density, 2010 top list includes Ankara, Bursa, İzmir, Manisa, Kocaeli and İstanbul and 2017 top list includes Manisa, İstanbul, Ankara, Bursa, Kocaeli and İzmir.

## 5. CONCLUSION

In this paper we examine the knowledge space, average relatedness density and knowledge complexity of the regions and their correlations with regional innovativeness as measured by number of patent applications in Turkey for two different years: 2010 and 2017. Our aim is to map out the technology space by exploring proximity between technology pairs as well as understanding spatial distribution of relatedness density and knowledge complexity of technologies and correlation with patent applications. The results can be summarized under two subheadings:

### *Knowledge Space*

Investigation of the knowledge space, we see that network ties across individual technology classes became dens-

**Table 8.** Models with additional control variables

Dependent variable: ln(PAT)	ARD (1)	ARD and KCI (2)	Control variables (3)	Full model (4)	Full model (FE) (5)
Constant	-0.7521952** (0.3499067) [0.039]	1.62989 (1.974665) [0.415]	-34.485** (13.71012) [0.017]	-13.40406 (11.99596) [0.272]	39.49395 (24.07537) [0.111]
lnARD	1.432958*** (0.2451715) [0.000]	1.56568*** (0.2480293) [0.000]		1.390832*** (0.3179437) [0.000]	0.7160408 (0.6249297) [0.261]
lnKCI		-0.6172716 (0.4542636) [0.184]		-0.6711447 (0.5747012) [0.252]	-0.6318612 (0.8581473) [0.467]
lnPCGDP			3.451049*** (1.239516) [0.009]	1.389935 (1.03274) [0.188]	-2.154569 (1.703156) [0.215]
lnHC			-1.252101 (0.987872) [0.214]	-0.9953898 (0.7155756) [0.174]	6.555681 (4.023366) [0.113]
Region Fixed Effects	No	No	No	No	Yes
Time Fixed Effects	No	No	No	No	Yes

Clustered standard errors are shown in parentheses (); P-values are shown in square brackets [ ]; Coefficients are statistically \*significant at the  $\alpha \leq 0.1$  level, \*\*significant at the  $\alpha \leq 0.05$  level and \*\*\* significant at the  $\alpha \leq 0.01$  level.

er over time and higher number of patent applications are within the denser part of the knowledge space map. Knowledge space of 2010 and 2017 indicates a movement into new technologies, leaving of the old ones, possibly making a conclusion that it is possible to make projections for future technological paths in Turkey. The results reveal that the number of patents and intensity of technology connections changed between 2010 and 2017 away from chemistry to electrical engineering, a more complex technology class. In 2017, complexity index of fields in electrical engineering was high, particularly for audio-visual technology, telecommunications, digital communication, basic communication processes and IT methods for management.

#### ***Patent Applications, Relatedness Density and Knowledge Complexity***

In Turkey, we see considerable heterogeneity across the cities in relation to patent applications, relatedness density and knowledge complexity. Regression results reveal that diversity and relatedness positively affect regional innovativeness as measured by patent applications. Knowledge space reveals that there is a shift of patents to more complex technologies. Findings propose that it is reasonable to support diversity and relatedness.

The study is only a preliminary attempt to explore the distribution of knowledge across Turkey's regions and its connection with innovativeness. First, it is not possible to reach to strong conclusions with only two years of observations, 2010 and 2017. Furthermore, the unit of spatial analysis of this study was 81 NUTS3 regions in Turkey, representing cities. Relatively smaller geographical areas might be a problem with moderately low frequency of patent applications where there is a threat of losing observations in econometric estimates. Further studies should redefine space where it would be possible to assemble the data according to Turkey's 26 NUTS2 regions.

Second, what further studies should consider is to add more years, and additionally work with three to five year windows to capture larger number of patent applications. The problem of this paper is that we only use 2 years of patent data. Since the number of patent applications varies from year to year, it is suggested that further studies include more years and work with aggregated data with time windows.

Third, working with more years of patent data and grouping the data in time windows would likely to have significant implications for the knowledge space. In the current analysis, there is a considerable change in the knowledge space between 2010 and 2017. This difference between years may be due to the fact that in some technology classes there are hardly any patents or that some technologies may be present in one year and not available in the other year, which may make it difficult to observe the relatedness between technologies. This is also why there is a large fluctuation in KCI across the regions between the two years, where we do not expect such dramatic change in the complexity of

an economy between two years within a same decade. Another drawback of working with two years is that it restricts the possibility of working with time lags and our ability of testing the hypothesis that lagged values of ARD and DIV would have impact on the patent applications. We would expect that ARD and DIV will only have an effect with a time lag, and not having an influence on innovation in the same year. Additionally, due to low patenting activity at regional scale, when measuring ARD, further studies can include not only the technologies in which a region is specialized (with RTA >1), but also include those with lower RTAs, such as RTA > 0.5.

In summary, the results of the study should be interpreted with caveat due to limited number of observations. More data and aggregated time periods and regions are needed for further studies. Nevertheless, the paper reveals preliminary results that regional policies should focus on increasing diversity of industries and enabling conditions that potential new technologies in the region be close to the existing technological portfolio of the region. The paper supports the idea that smart specialization policy based on the relatedness framework is not a one size fits all policy and all regions ought to focus on their existing portfolios to draw new economic activities.

**Ethics:** There are no ethical issues with the publication of this manuscript.

**Peer-review:** Externally peer-reviewed.

**Authorship Contributions:** Concept: S.A., M.A.; Design: S.A., M.A.; Supervision: S.A.; Resources – S.A., M.A.; Data collection and/or processing: S.A., M.A.; Analysis and/or interpretation: S.A., M.A.; Literature search: S.A., M.A.; Writing Manuscript: S.A., M.A.; Critical review: S.A., M.A.

**Conflict of Interest:** The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

- Asheim, B. T., Boschma, R., & Cooke, P. (2011). Constructing regional advantage: Platform policies based on related variety and differentiated knowledge bases. *Regional studies*, 45(7), 893-904. doi:10.1080/00343404.2010.543126 [CrossRef]
- Balland, P. A. (2017). Economic Geography in R: Introduction to the EconGeo Package. *Papers in Evolutionary Economic Geography*, 17(09), 1-75. [CrossRef]
- Balland, P. A., & Rigby, D. (2017). The geography of complex knowledge. *Economic Geography*, 93(1), 1-23. doi:10.1080/00130095.2016.1205947 [CrossRef]
- Balland, P. A., Boschma, R., Crespo, J., & Rigby, D. (2019). Smart specialization policy in the European Union: relatedness, knowledge complexity and regional diversifi-

- cation. *Regional Studies*, 53(9), 1252-1268. doi:10.1080/00343404.2018.1437900 [CrossRef]
- Balland, P. A., Rigby, D., & Boschma, R. (2015). The technological resilience of US cities. *Cambridge Journal of Regions, Economy and Society*, 8(2), 167-184. [CrossRef]
- Boschma, R. (2014). Constructing regional advantage and smart specialisation: Comparison of two European policy concepts. *Italian Journal of Regional Science (Scienze Regionali)*, 13(1), 51-68. [CrossRef]
- Boschma, R. (2017). Relatedness as a driver of regional diversification: A research agenda. *Regional Studies* 51(3), 351-364. [CrossRef]
- Boschma, R., & Frenken, K. (2006). Why is economic geography not an evolutionary science? Towards an evolutionary economic geography. *Journal of economic geography*, 6(3), 273-302. [CrossRef]
- Boschma, R., Balland, P. A., & Kogler, D. F. (2015). Relatedness and technological change in cities: the rise and fall of technological knowledge in US metropolitan areas from 1981 to 2010. *Industrial and corporate change*, 24(1), 223-250. doi:10.1093/icc/dtu012 [CrossRef]
- Çelik, N., Akgüngör, S., & Kumral, N. (2019). An assessment of the technology level and knowledge intensity of regions in Turkey. *European Planning Studies*, 27(5), 952-973. doi:10.1080/09654313.2019.1579301 [CrossRef]
- Cooke, P., Uranga, M. G., & Etzebarria, G. (1997). Regional innovation systems: Institutional and organisational dimensions. *Research policy*, 26(4-5), 475-491. doi:10.1016/S0048-7333(97)00025-5 [CrossRef]
- European Commission. (2020a). *Smart Specialization Platform*. Retrieved from <https://s3platform.jrc.ec.europa.eu/>
- European Commission. (2020b). *Smart Specialisation: Strengthening Innovation in Europe's Regions*. Factsheet, Smart Specialisation Platform, Regional and Urban Policy.
- Foray, D., Goddard, J., Beldarrain, X. G., Landabaso, M., McCann, P., Morgan, K., . . . Ortega-Argilés, R. (2012). *Guide to Research and Innovation Strategies for Smart Specialisations (RIS 3)*. Smart Specialisation Platform, Regional Policy. European Commission.
- Freeman, C. (1995). The 'national system of innovation' in historical perspective. *Cambridge Journal of Economics*, 19(1), 5-24.
- Frenken, K., & Boschma, R. A. (2007). A theoretical framework for evolutionary economic geography: Industrial dynamics and urban growth as a branching process. *Journal of economic geography*, 7(5), 635-649. [CrossRef]
- Frenken, K., Van Oort, F., & Verburg, T. (2007). Related variety, unrelated variety and regional economic growth. *Regional studies*, 41(5), 685-697. doi:10.1080/00343400601120296 [CrossRef]
- Gezici, F., Yazgı-Walsh, B., & Kacar, S. (2017). Regional and structural analysis of the manufacturing industry in Turkey. *Annals of Regional Science*, 1(59), 209–230. doi:10.1007/s00168-017-0827-4 [CrossRef]
- Gülcan, Y., Akgüngör, S., & Kuştepelı, Y. (2011). Knowledge generation and innovativeness in Turkish textile industry: Comparison of Istanbul and Denizli. *European Planning Studies*, 19(7), 1229-1243. doi:10.1080/09654313.2011.573134
- Hidalgo, C. A., & Hausmann, R. (2009). The building blocks of economic complexity. *Proceedings of the National Academy of Sciences*, 106(26), 10570-10575. [CrossRef]
- Hidalgo, C., Balland, P. A., Boschma, R., Delgado, M., Feldman, M., Frenken, K., . . . Zho, S. (2018). The principle of relatedness. In A. J. Morales, & et al. (EDS), *Unifying Themes in Complex Systems IX* (pp. 451-457). Cham: Springer Nature. [CrossRef]
- Jacobs, J. (1969). *The Economy of Cities*. New York: Vintage Books.
- James, G., Witten, D., Hastie, T., & Tibshirani, R. (2017). *An Introduction to Statistical Learning with Applications in R* (8 ed.). Springer Texts in Statistics.
- Karaca, O. (2018). 50 Years of Regional Convergence in Turkey: New Data Set and Analysis for the Period 1960-2010. *Sosyoekonomi*, 26(35), 207-228. [CrossRef]
- Kaygalak, İ. (2013). Türkiye sanayi coğrafyasında endüstriyel kümelenme ve bölgesel yoğunlaşma eğilimi. *Beşeri Coğrafya Dergisi*, 1(1), 67-81.
- Kaygalak, İ., & Reid, N. (2016). The geographical evolution of manufacturing and industrial policies in Turkey. *Applied Geography*, 70, 37-48. [CrossRef]
- Kogler, D. F., Rigby, D. L., & Tucker, I. (2013). Mapping knowledge space and technological relatedness in US cities. *European Planning Studies*, 21(9), 1374-1391. [CrossRef]
- Kuştepelı, Y., Gülcan, Y., & Akgüngör, S. (2013). The innovativeness of the Turkish textile industry within similar knowledge bases across different regional innovation systems. *European Urban and Regional Studies*, 20(2), 227-242. [CrossRef]
- Lundvall, B. Å., & Johnson, B. (1994). The learning economy. *Journal of industry Studies*, 1(2), 23-42. doi:10.1080/13662719400000002 [CrossRef]
- Maraut, S., Dernis, H., Webb, C., Spiezia, V., & Guellec, D. (2008). The OECD REGPAT Database: A Presentation. *OECD Science, Technology and Industry Working Papers*(2008/02).
- Marshall, A. (1890). *Principles of Economics*. 1 (First ed.). London: Macmillan.
- Martin, R., & Sunley, P. (2015). On the notion of regional economic resilience: conceptualization and explanation. *Journal of Economic Geography*, 15(1), 1-42. [CrossRef]
- Maskell, P., & Malmberg, A. (1999). Localised learning and industrial competitiveness. *Cambridge journal of economics*, 23(2), 167-185.
- Morgan, K. (1997). The learning region: institutions, innovation and regional renewal. *Regional Studies*, 31(5),



- 491-503. [CrossRef]
- Neffke, F., Henning, M., & Boschma, R. (2011). How do regions diversify over time? Industry relatedness and the development of new growth paths in regions. *Economic geography*, 87(3), 237-265. [CrossRef]
- Nelson, R. R., & Winter, S. G. (1982). An evolutionary theory of economic change. Cambridge, Mass.: Harvard University Press.
- OECD. (2020). REGPAT database, January 2020.
- Rigby, D. L. (2015). Technological relatedness and knowledge space: entry and exit of US cities from patent classes. *Regional Studies*, 49(11), 1922-1937. [CrossRef]
- Rigby, D. L., Roesler, C., Kogler, D., Boschma, R., & Bolland, P. A. (2019). Do EU regions benefit from smart specialization? *Utrecht University Papers in Evolutionary Economic Geography*, 19.
- Romer, P. M. (1990). Endogenous technological change. *Journal of political Economy*, 98(5, Part 2), S71-S102. [CrossRef]
- Schmoch, U. (2008). *Concept of a technology classification for country comparisons. Final report to the world intellectual property organisation (WIPO)*. WIPO.
- Schumpeter, J. A. (1939). *Business cycles: A theoretical, historical, and statistical analysis of the capitalist process* (Vol. 1). New York and London: McGraw-Hill Book Company Inc.
- Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy*. New York: Harper & Row.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The quarterly journal of economics*, 70(1), 65-94. [CrossRef]
- TUIK. (2019). *National Education Statistics Database, 2008-2019*. Retrieved 2021, from Education Statistics: <http://www.tuik.gov.tr/>
- Whittle, A., & Kogler, D. F. (2019). Related to what? Reviewing the literature on technological relatedness: Where we are now and where can we go? *Papers in Regional Science*, 99(1), 97-113. [CrossRef]
- Widuto, A. (2019). *European Regional Development Fund and Cohesion Fund 2021-2027*. European Parliamentary Research Service. European Parliament.



## Yıldız Social Science Review

Web site information: <https://yssr.yildiz.edu.tr>  
DOI: 10.51803/yssr.872075



### Original Article / Orijinal Makale

## Spillovers Between Institutional Interactions Index, Market Risk and Return: Case of Turkey (2007-2020)

### Kurumlarla İlişkiler Endeksi, Piyasa Getiri ve Riskleri Arasındaki Yayılma Etkisi: Türkiye Örneği (2007-2020)

Sadi UZUNOĞLU<sup>a</sup>, Caner ÖZDURAK<sup>b</sup>, Serap DURSUN<sup>a</sup>

<sup>a</sup>Department of Economics, Trakya University, Edirne, Turkey

<sup>b</sup>Department of Financial Economics, Yeditepe University, Istanbul, Turkey

<sup>a</sup>Trakya Üniversitesi, Ekonomi Bölümü, Edirne, Türkiye

<sup>b</sup>Yeditepe Üniversitesi, Finansal Ekonomi Bölümü, İstanbul, Türkiye

#### ARTICLE INFO

##### Article history

Received: 12 December 2007

Accepted: 13 June 2008

##### Key words:

Arch-garch model, bist100 index, cds, exchange rate, relations with institutions

#### MAKALE BİLGİSİ

##### Makale Hakkında

Geliş tarihi: 13 Aralık 2007

Kabul tarihi: 13 Haziran 2008

##### Anahtar kelimeler:

Arch-garch modeli, bist 100, cds, döviz kuru, kurumlarla ilişkiler

#### ABSTRACT

One of the key components of political stability is relations with institutions, which refers to the relationships between the government and higher judicial organ, government and presidency, government and military bureaucracy, government civil bureaucracy and independent economic institutions, and relations with international institutions. The importance of institutions for economic development and stability has been thoroughly discussed by both the old and new schools of institutional economics, who developed theses against the Classical and Neo-Classical paradigms. In the study, we utilized VAR-VECH-TARCH models to understand spillover effects between our newly introduced Institutional Interaction Index (II), markets return (BIST 100, FX), and risks (CDS). The Institutional Interaction Index, the novelty of this paper, was obtained from data published daily by S. Bilişim. According to the results especially in the long-term spillover exists between all variables. The results from this study support institutionalist approaches. As the relations with institutions deteriorate, BIST100 and FX rate volatilities, that is, instability, increases due to the increase in market risks.

**Cite this article as:** Uzunoglu, S., Özdurak, C., & Dursun, S. (2021). Spillovers Between Institutional Interactions Index, Market Risk and Return: Case of Turkey (2007-2020). *Yıldız Social Science Review*, 7(2), 123–136.

#### ÖZ

Politik istikrarın önemli belirleyicilerinden biri de kurumlarla ilişkilerdir. Kurumlarla ilişkiler; iktidar-yüksek yargı, cumhurbaşkanlığı-hükümet, hükümet-askeri bürokrasi, hükümet-sivil bürokrasi-özerk ekonomik kurumlar ve uluslararası kurumlarla ilişkileri kapsamaktadır. Ekonomik gelişmişlik ve istikrar için kurumların önemi klasik ve Neo-klasik paradigmaya karşı tezler geliştiren eski ve yeni kurumsal iktisat okulları tarafından derinlemesine tartışılmış, günümüzde de tartışılmaya devam etmektedir. Bu çalışmamızda VAR-VECH-TACH mo-

\*Sorumlu yazar / Corresponding author

\*E-mail: [isadiuzunoglu@trakya.edu.tr](mailto:isadiuzunoglu@trakya.edu.tr)



Published by Yıldız Technical University Press, İstanbul, Turkey

Copyright 2021, Yıldız Technical University. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

dellerini kullanarak yeni tanıttığımız Kurumlarla İlişkiler Endeksi (II), piyasa getirileri (BIST 100, FX) ve piyasa riskleri (CDS) arasındaki yayılmaları analiz ettik. Bu bağlamda makalenin en önemli farklılık yaratan kısmı S. Bilişim tarafından günlük olarak yayınlanan verilerden, hazırlanan Kurumlarla İlişkiler Endeksini kullanarak politik riski günlük olarak sayısallaştırarak modellere dahil etmemizdir. Modellere göre politik istikrarsızlık arttıkça piyasa risklerinin artması sonucu piyasa getirilerine doğru bir yayılma etkisi olduğu sonucuna varılmıştır.

**Atıf için yazım şekli:** Uzunoğlu, S., Özdurak, C., & Dursun, S. (2021). Spillovers Between Institutional Interactions Index, Market Risk and Return: Case of Turkey (2007-2020). *Yıldız Social Science Review*, 7(2), 123–136.

## 1. INTRODUCTION

In recent economics literature, institutionalists have argued that economies with inclusive institutionalist structures are better able to sustain economic performance and achieve stability, which leads to economic growth. Acemoğlu D. & Robinson J.A. defined sufficiently centralized and pluralistic political institutions as “inclusive political institutions” and defined institutions that fail to meet either of these conditions as “exploitative institutions”. The authors highlighted the powerful synergy between economic and political institutions and argued that exploitative political institutions will concentrate power in the hands of a narrow elite who will take few steps to limit that power. In such cases, the elites generally structure economic institutions to exploit the resources of the rest of society. The present authors assert that exploitative economic institutions naturally accompany exploitative political institutions. Inclusive institutions, which widely distribute power, operate to remove the economic institutions that seize the sources of the majority, impose barriers to entry, and manipulate market operations so only a small segment of society can benefit. Political and economic institutions, which ultimately have choices, can be inclusive and stimulate economic growth. Naturally, economic growth and technological change will create new firms through “creative destruction”. This change is a change from old to new. As a matter of course, the old firms will resist this change. Since inclusive institutions allow this transformation, they can become targets in the political arena. Conversely, institutions can be exploitative, which means they can become a formidable obstacle to economic growth and technological change (Acemoğlu D. & Robinson J.A., 2015, p. 80-84).

As can be seen in the Appendix, in Figure 5, the Political Stability Index (PSI) published daily by the PSI consists of various sub-indices, one being Institutional Interactions. The index consists of the relationships between the government and higher judicial organ, the presidency and the government, the government and the military bureaucracy, the government civil bureaucracy and autonomous economic institutions, and the relations with international institutions. Lower index scores indicate deterioration in the relationships among related institutions, whereas higher scores indicate that the relations among institutions are compatible with

the legal and institutional legislation within the framework of constitutional principles and serve to generate stability in terms of institutional experience, accumulation, and independence.

This study focuses on the PSI sub-index of Institutional Interaction to examine the interaction between credit default swap (CDS), foreign exchange (FX), and Borsa Istanbul (BIST), or Istanbul Stock Exchange. By examining this interaction, the function imposed on institutions by institutional economists can be tested with three important indicators. As known, in unstable economies, CDSs rise, and significant volatility is experienced in the Stock Exchange Index and FX rates. In these cases, economic stability deteriorates to a great extent. On the other hand, high CDS rates limit the inflow of external sources and increase its costs as well. Excess volatility in the FX rate negatively affects growth in many respects, such as causing inflation and uncertainty.

## 2. LITERATURE

In the literature review, there was no study found on the Institutional Interaction that looked specifically at the relationship between CDS, Stock Market Index, and FX rate. However, some studies that explore the concept of Institutional Interaction and its impact on economic performance, such as growth. The study will therefore be the first attempt of its kind. Institutional Interaction, one of the determinants of political stability, is a sub-index of the Political Stability Index. Therefore, different studies addressing political stability and the relationship between CDS, the equity market, and/or FX basket were guiding for the present study.

Regarding the related works, Artan and Hayaloğlu (2014) conducted a co-integration analysis of the relationship between institutional structure and economic growth in Turkey for the period of 1972-2009 based on real GDP, political liberties, gross fixed capital formation, public consumption expenditure, foreign trade (the sum of exports and imports), and inflation rate. The results from the study showed that while political freedom, taken as an indicator of the level of institutional structure, had a positive effect on long-run economic growth, there was no relationship found between institutional structure and economic growth in the



short run.

Davis, L. S. (2010) developed a formal model to investigate the relationship between institutional quality, existing property rights, and institutional flexibility, and the ability to develop new institutions, relating these aspects of institutional structure to dynamic economic performance. This model attempts to advance this convergence by developing a theory of growth that takes into account the economic historical distinction between institutional quality and institutional flexibility. The analysis suggests that institutional flexibility plays a central role in economic growth. The model is also used to highlight the relatively temporary gains from reforms on institutional quality, an aspect of the analysis that may prove useful to understand prolonged periods of stagnation in developed countries and the fragility of growth experienced in some countries. According to the study findings, an increase in institutional quality lowers market transaction costs, producing an immediate but short-lived increase in the rate of economic growth. In contrast, an increase in institutional flexibility results in a delayed but permanent increase in economic growth.

Knack, S. and Keefer, P. (1995) aimed to advance this convergence by developing a growth theory that takes into account the historical economic difference between institutional quality and institutional flexibility. The study examined the impact of property rights on economic growth using indicators provided to potential foreign investors by country risk assessors. The indicators included evaluations of contract enforceability and risk of expropriation. Results from the research suggested strong supports for three hypotheses. First, political violence and Gastil's index of political and civil liberties indicators (Freedom House Index) do not adequately represent the quality of institutions that protect property rights. More accurate indicators are required to properly explain the impact of institutions. Second, institutions that protect property rights are crucial to economic growth and investment, and the impact of institutions on growth continues even after the investment is controlled. This indicates that the security of property rights affects not only the size of the investment but also the efficiency of input allocation. Third, stronger evidence for controlled convergence emerges when institutions are regulated.

Jensen, N. (2008) examined the relationship between democratic institutions and foreign direct investment (FDI) flows. In the study, qualitative data collected from 28 interviews with investors, political risk insurers, plant location consultants, and international lawyers who represent multinational companies and price data collected from political risk insurance companies were used to directly test how local political institutions affect the premiums paid by multinational companies for state expropriation and contract disputes. According to the study results, democratic institutions have lower risk levels due to the restrictions imposed on executives in democratic regimes. In other words, democratic regimes appear to reduce risks for multinational investors,

particularly by increasing restrictions on executives.

Scully, G. W. 1988 analyzed the compound growth rates of production per capita and Farrell-type efficiency measures for 115 market economies for the 1960-80 period by comparing them against measures of political, civil, and economic liberty. It was found that the institutional framework had significant and profound effects on the efficiency and growth rate of economies. Politically open societies subject to the rule of law, private property, and market allocation of resources, grow at two and one-half times the rate and are two and one-half times as productive as societies in which these freedoms are restricted.

Easterly et al. (2006) examined the effect of social cohesion level on institutional structure and the relationship between institutional structure and economic growth. The variables applied to the regression analysis included the concept of social cohesion, the number of ethnic groups (determined based on the language spoken), the Gini coefficient, the middle-class share in income, the measure of trust, income per capita, and income growth. To determine the institutional structure, in addition to the Freedom House's indices of political rights and civil liberties, variables such as government accountability and effectiveness, quality of bureaucracy, and the rule of law were used. According to the study results, more social cohesion leads to better institutions, and better institutions in turn lead to higher growth.

Yıldırım, S. 2010 examined the effect of institutions on economic growth by considering the dynamic structure of institutions. In the study, a panel data analysis was conducted using the economic freedoms index, the political rights and civil liberties index, education, distance from technology frontier, and GDP. According to the results of the study, countries with better institutional structures have higher growth rates, and an increase in the economic freedom or the political and civil rights of citizens in countries that are far from the technology frontier slows these countries' growth rates; in other words, the position of a country in relation to the technology frontier indicates how the institutional structure will affect the country's growth rate. In a country far from the technology frontier, an improvement in institutional structure increases the growth rate less than that of a country closer to the technology frontier. These findings indicate that the farther a country in question is from the technology frontier, the more the effect of political and civil rights and economic liberties slows down the growth rate. It was stated that the effect of the institutional structure (its ability to protect rights and increase freedom) on a country's growth rate is high only in countries close to the technology frontier.

Şahin, E. E. and Özkan (2018) applied the panel data analysis method to examine the relationship between the CDS, BIST100, and FX rate for Turkey using the monthly data from the period of 2012-2017. According to the study findings, a bi-directional causality relationship was found between the BIST100 index and CDS, while no causality rela-

tionship was found between the BIST100 index and FX rates.

Yamak T. (2017) examined the effect of Institutional Quality Factors on Economic Growth in the Gulf countries. To measure economic growth, the study applied the flexible generalized least squares method (FGLS) and panel data analysis, using the inputs of real income per capita, gross fixed capital formations, central government final consumption expenditures, foreign trade volume, life expectancy at birth, and institutional quality indicators for the period 1995-2014. According to the results of the study, in the six Gulf Arab Countries, a positive and significant relationship was identified between economic growth and the institutional quality variables of “Expression and Accountability” and “Control of Corruption”, while a negative and significant relationship was identified between economic growth and the institutional quality variables of “Rule of Law” and “Regulatory Quality”. There was no significant relationship found between economic growth and the institutional quality variables of “Political Stability and Absence of Violence” and “Government Effectiveness”. In our study, we will utilize VAR-VECH-TARCH models to analyze the interactions and exhibit spillovers in a holistic approach.

### 3. METHODS

Usually, financial data suggest that some time periods are riskier than others. The goal of such models is to provide a volatility measure that can be used in financial decision making with risk analysis, portfolio selection, and derivative pricing (Engle 1982, Engle and Ng 1993). An important characteristic of such asset prices is that “bad” news has a more persistent impact on volatility than “good” news has. Most of the stocks have a strong negative correlation between the current return and future volatility. This is called “the leverage effect”, which refers to the well-established relationship between stock returns and both implied and realized volatility. A standard explanation ties the phenomenon to the effect a change in market valuation of a firm’s equity has on the degree of leverage in its capital structure, with an increase in leverage producing an increase in stock volatility (Figlewski and Wang 2000). Glosten et al. (1993) showed how to allow the effects of good and bad news to have different effects on volatility. In a sense,  $\varepsilon_{t-1} = 0$  is a threshold such that shocks greater than the threshold have different effects than shocks below the threshold. Consider the threshold-GARCH (TARCH) process:

$$h_t = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \lambda_1 d_{t-1} \varepsilon_{t-1}^2 + \beta_1 h_{t-1} \quad (1)$$

where  $d_{t-1}$  is a dummy variable that is equal to one if  $\varepsilon_{t-1} < 0$  and is equal to zero if  $\varepsilon_{t-1} \geq 0$ . The intuition behind the TARCH model is that positive values of  $\varepsilon_{t-1}$  are associated with a zero value of  $d_{t-1}$ . Hence if  $\varepsilon_{t-1} \geq 0$ , the effect of  $\varepsilon_{t-1}$  shocks on  $h_t$  is  $\alpha_1 \varepsilon_{t-1}^2$  when  $\varepsilon_{t-1} < 0$ ,  $d_{t-1} = 1$ , and the effect of an  $\varepsilon_{t-1}$  shock on  $h_t$  is  $(\alpha_1 + \lambda_1) \varepsilon_{t-1}^2$ . If  $\lambda_1 > 0$ , negative shocks will have larger effects on volatility than positive shocks.

This method is extended from VAR-GARCH, which is proposed by Ling and McAleer (2003). An examination of the conditional returns and conditional volatility can be conducted with meaningful estimated parameters via this structure. This method is composed of two parts, namely the VAR model and asymmetric VECH-TARCH model, which are used to explore the joint evolution of conditional returns and volatility spillovers between different financial markets. First, the VAR model extends the univariate autoregressive (AR) to vector autoregressive (VAR) by internalizing the related variables into endogenous variables to examine the contagion and spillover effect between major financial markets.

The basic mathematical expression of the VAR model is as follows:

$$R_t = C + A_1 R_{t-1} + A_2 R_{t-2} + \dots + A_k R_{t-k} + \varepsilon_t \\ \varepsilon_t | I_{t-1} \sim N(0, H_t) \quad (2)$$

where  $R_t$  refers to the value of endogenous variables vector at time  $t$ ,  $C$  is the constant vector, matrix  $A$  is the estimated coefficients and  $k$  is the lag operator. Residual vector  $\varepsilon_t$  is assumed to be normally distributed with a zero mean and constant variance where the market information available at time  $t-1$  denoted as  $I_{t-1}$ . The lag order of ( $k$ ) VAR structure is decided via AIC criterion, FPE criterion and LR.

In this approach we incorporate a three-dimensional model to examine the news spillover between different markets. Suppose that our model structure is as follows:

$$\varepsilon_{i,t} = v_{i,t} \cdot h_{i,t}, v_{i,t} \sim N(0, 1) \quad (3)$$

$$h_{i,t} = c_i + a_i \varepsilon_{t-1}^2 + \beta_i h_{i,t-1} \quad (4)$$

$$H_t = C^T C + A^T \varepsilon_{t-1} \varepsilon_{t-1}^T A + B^T H_{t-1} B \quad (5)$$

Equation (3) specifies the relation between the residual term  $\varepsilon_{i,t}$  and the conditional variance  $h_{i,t}$ .  $v_{i,t}$ , which is normally distributed with a zero mean and constant variance.  $\alpha, \beta$  are the coefficients.  $H_{i,t}$  represents the conditional variance-covariance matrix,  $C$  represents the lower triangular matrix,  $A$  and  $B$  are square arrays. If  $C^T C$  is positive, then it is almost positive.

$$H_t = \begin{bmatrix} h_{11,t} & h_{12,t} & h_{13,t} \\ h_{12,t} & h_{22,t} & h_{23,t} \\ h_{31,t} & h_{32,t} & h_{33,t} \end{bmatrix} \\ C = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix} \quad A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \quad B = \begin{bmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \\ b_{31} & b_{32} & b_{33} \end{bmatrix}$$

where  $h_{11,t}, h_{22,t}, h_{33,t}$  in the matrix  $H_t$  represent the conditional variances. Matrix  $A$  is the ARCH coefficients of the model,  $a_{11}, a_{22}, a_{33}$  represent the ARCH effect while Matrix  $B$  is the GARCH coefficients of the model,  $b_{11}, b_{22}, b_{33}$  are the GARCH effect.

In consideration of the asymmetric effect, diagonal VECH is:

$$H_t = A_0 + \sum_{i=1}^p A_i \otimes H_{t-i} + \sum_{i=1}^q B_i \otimes \varepsilon_{t-1} \varepsilon_{t-1}^T \quad (6)$$

where the conditional variance–covariance equation of a bivariate (VECH) TARCh model has the following form:

$$VECH(H_t) = C + AVCEH(\varepsilon_{t-1} \varepsilon_{t-1}^T) + BVECH(H_{t-1} H_{t-1}^T) + DVECH(\varepsilon_{t-1} \varepsilon_{t-1}^T)(d_{t-1}) \quad (7)$$

where the last term on the RHS of Equation (7) depicts the asymmetries. In this context, the diagonal bivariate VECH model is as follows:

$$h_{11,t} = C_{01} + a_{11} \varepsilon_{1,t-1}^2 + b_{11} h_{11,t-1} \quad (8)$$

$$h_{12,t} = C_{02} + a_{33} \varepsilon_{1,t-1} \varepsilon_{2,t-1} + b_{22} h_{12,t-1} \quad (9)$$

$$h_{22,t} = C_{03} + a_{33} \varepsilon_{2,t-1}^2 + b_{33} h_{22,t-1} \quad (10)$$

The coefficient  $a_{11}$  refers to the ARCH process in the residuals from asset  $i$  which depicts the fluctuations of the assets reflecting the impact of external shocks on fluctuations. The ARCH effects measure the short-term persistence while the GARCH effect measures the long-term persistence. The  $a_{33}$  coefficient represents the ARCH process in the second asset residuals and the parameters between asset  $i$  and asset  $j$ . The calculation of the time-varying beta coefficient is done as

$$\beta_{it}^{BG} = \hat{h}_{12,t} / \hat{h}_{22,t} \quad (11)$$

where the symbol  $\hat{\phantom{x}}$  indicates the estimated values of conditional variance.

#### 4. DATA AND EMPIRICAL RESULTS

The effect of relationships with institutions on the equity market and FX basket<sup>1</sup> in Turkey was examined using the daily data for the period between January 1, 2007 and March 30, 2020. Models were also expanded with CDS returns, as the CDS<sup>2</sup> data had a significant impact on both markets.

Descriptions of the series used in the study are presented below in Table 1. We again narrowed the period between March 15, 2011, and March 30, 2020, to analyze the impact of Arab Spring<sup>3</sup> which is a major milestone for II. Considering its impact on Turkey, we started the Arab Spring period with the beginning of pro-democracy protests in Syria.

The Augmented Dickey Fuller (ADF) was used to test the stationarity of the variables before creating the model. The inputs of the GARCH model were then determined. The descriptive statistical information of the data is presented in Table 2. In examining the kurtosis and skewness values, the high Jarque-Bera values indicated that the data are not normally<sup>4,5</sup> distributed. The ADF test results indicat-

**Table 1.** Data Set Description

Series	Description of Series	Source
RII = the return of the Institutional Interaction Index	The return of Institutional Interaction Index	S Bilişim Consultancy
RFX = the return of foreign exchange basket	Exchange rate is taken as a basket. ((Euro+Dollar)/2) and its return was calculated	TRCB Evds
RCDS= returns of CDS	5-year CDs yield returns of Turkey credit default swap series	Investing.com
RBIST100= the return of BIST 100 index	BIST100 = the return of the Borsa İstanbul 100 index	TRCB Evds

<sup>1</sup> The foreign exchange basket is generally used when the local currency is closely related to foreign currencies. For example, in Turkey, the US dollar gains weight in trade and external borrowing, whereas the Euro is dominant in some service areas and trade. In such a case, the value of the Turkish Lira against the US dollar and Euro can be easily measured by creating a FX basket.

<sup>2</sup> CDS (Credit Default Swap) is a financial instrument that eliminates the bond risk that a person who is holding a financial instrument will not be paid for a certain amount of their receivable at the end of maturity. There is a cost of 1% for every 100 CDS base points calculated for countries. Countries with high CDS premiums and the institutions in these countries bear higher costs to meet their borrowing requirements. Therefore, the CDS premium is an important, up-to-date, and reliable indicator for countries.

<sup>3</sup> The Arab Spring was a series of anti-government protests, uprisings, and armed rebellions that spread across much of the Arab world in the early 2010s. It began in response to oppressive regimes and a low standard of living, starting with protests in Tunisia. From Tunisia, the protests then spread to five other countries: Libya, Egypt, Yemen, Syria, and Bahrain, where either the ruler was deposed (Zine El Abidine Ben Ali, Muammar Gaddafi, Hosni Mubarak, and Ali Abdullah Saleh) or major uprisings and social violence occurred including riots, civil wars, or insurgencies.

<sup>4</sup> Another way to determine whether the data distribution is normally distributed is to look at the mean, mode, and median values. These values coincide in normal distribution. The closer these statistics are to each other, the closer the distribution is to a normal distribution. The distribution skews the further these values diverge from one another.

<sup>5</sup> Another way to test for normal distribution is to look at the skewness and kurtosis coefficients. The skewness coefficient is 0 at normal distribution. A negative skewness coefficient indicates a right-skewed distribution, while a positive skewness coefficient indicates a left-skewed distribution. The kurtosis coefficient is 3 in normal distribution. A positive kurtosis coefficient indicates that the distribution has thicker tails, while a negative kurtosis coefficient indicates a light-tailed distribution.

<sup>6</sup> The Ergenekon and Sledgehammer (Balyoz) case in 2010, which claimed that “alleged coup plans were prepared by military officers” and accordingly indicted retired and serving generals including the then Chiefs of the land forces, of the navy, and of the air forces for “establishing a structure outside the military hierarchy and attempting to overthrow the government and constitutional order” (European Commission, 2010: 7). Consequently, the 2011 Arab Spring marked another turn in the Turkish foreign policy. The Arab Spring revealed several contradictions, constraints as well as opportunities for Turkish foreign policy, all of which are of key relevance both to Turkey and to its transatlantic partners. This process enabled Turkey to end the conflict of institutional power in favor of politicians whether it became good or bad is still arguable and this started the rally of Institutional Interaction Index after 2011.

**Table 2.** Descriptive Statistics

	RBIST100	RCDS	RFX	RII
Mean	0.000291	0.000340	0.000448	-0.000244
Median	0.000672	-0.000850	0.000144	0.000000
Maximum	0.121281	0.358551	0.143402	1.470639
Minimum	-0.110633	-0.358972	-0.090399	-1.174020
Std. Dev.	0.016201	0.034522	0.008375	0.049020
Skewness	-0.333818	0.382409	1.527513	3.210556
Kurtosis	7.261029	17.396210	39.480850	444.739100
Jarque-Bera	2731	30509	196728	28650020
Probability	0.000000	0.000000	0.000000	0.000000
ADF Test Level	-58.63	-55.14	-36.25	-10.75
	[0.0000]	[0.0000]	[0.0000]	[0.0000]

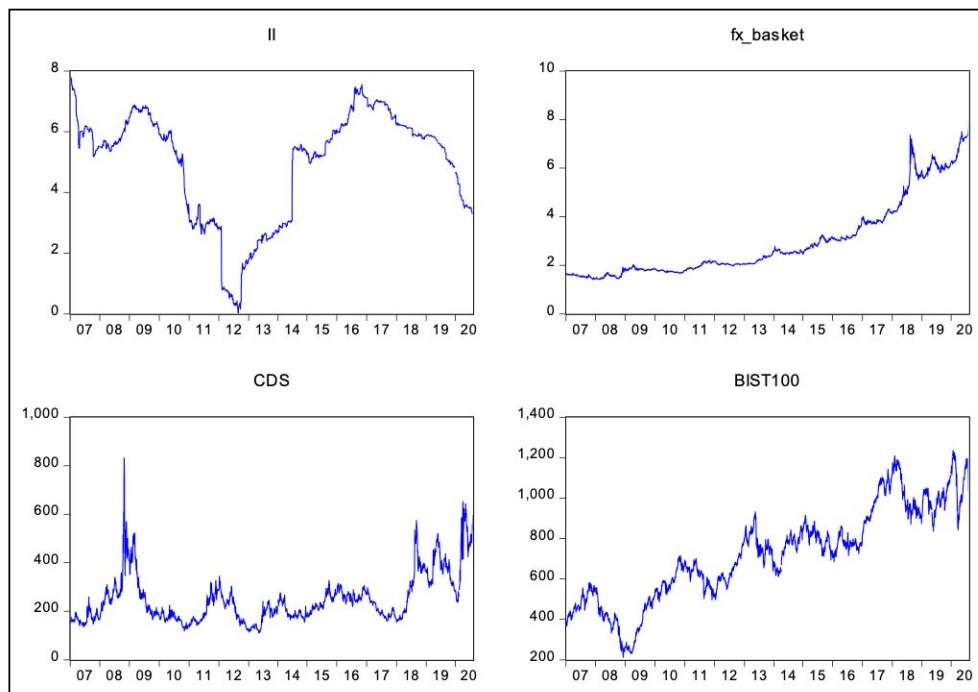
Notes: Between parenthesis: p-values. The number of observations is 3523. ADF Tests refer to Augmented Dickey Fuller test for the presence of unit root for long differences (returns).

ed that all data are stable. The descriptive statistical values of the variables are presented below in Table 2.

Figure 1 presents the graphs of the series that constitutes the data set. According to the graphs, after the rapid recovery it experienced after 2011<sup>6</sup>, the Institutional Interaction Index<sup>7</sup> has been on a downward trend since 2017. The FX basket, on the other hand, started on a highly accelerated increasing trend after 2018, with the CDS premiums following this movement in the same period. After 2018, CDS premiums and the BIST100 index moved almost the same, and the

correlation between them increased significantly. This points to the pressure in the markets created by the deterioration in the relations with institutions, in parallel with the volatility in CDSs because of the fluctuations experienced in the stock market, the FX rate, and the government-higher judicial organ, presidency-government, government-military bureaucracy, government civil bureaucracy-autonomous economic institutions, and relations with international institutions after the Pastor Brunson crisis.

The daily logarithmic returns,  $r_t$ , for use in the models



**Figure 1.** The Graphs on Returns of the BIST100, CDS, FX Rate, and the Institutional Interaction Index.

<sup>7</sup> Detailed methodology of the Index is represented in the Appendix part

<sup>8</sup> Although the Institutional Interaction Index is not an investable asset like BIST100, FX, or CDS, the rate of increase of the index was calculated as yield due to the way it is used in the GARCH models, and therefore it was included in the analysis.

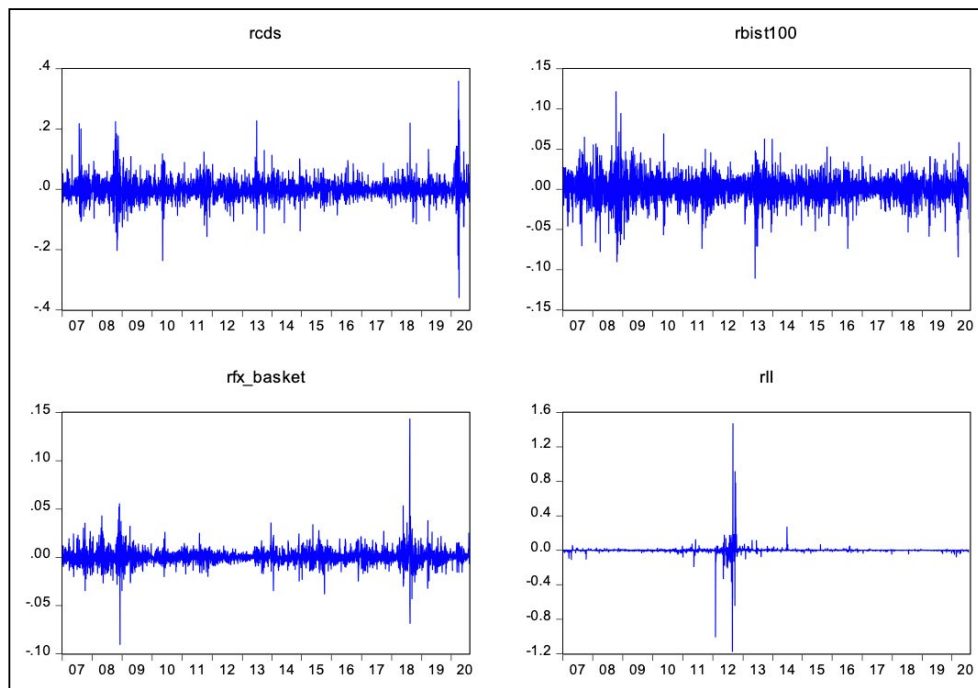


Figure 2. The Graphs on Returns of BIST100, CDS, FX, and the Institutional Interaction Index

were derived from the following calculation<sup>8</sup>:

$$r_t = \frac{\ln(P_t)}{\ln(P_{t-1})}$$

Figure 2 presents the return graphs of the BIST100, CDS, FX, and Institutional Interaction Index. FX yields climbed to record levels in 2018 due to the foreign exchange crisis, while CDSs were impacted by concerns over difficulties in paying external debt with the loss in the value of the Turkish Lira. The effects of the break in the Institutional Interaction Index in 2012 due to Arab Spring contagion are clearly seen in the charts.

We constructed two different model systems with three different VAR<sup>9</sup> system specifications which are equity markets model (Model 1) and market risk (Model 2). In this context,

**VAR System Specification for Model 1:**

$$\begin{aligned} RBIST100_t &= \alpha_1 + \beta_1 RBIST100_{t-1} + \beta_2 RBIST100_{t-2} + \beta_3 RII_{t-1} + \beta_4 RII_{t-2} + \beta_5 RCDS_{t-1} + \beta_6 RCDS_{t-2} \\ RII_t &= \alpha_2 + \beta_7 RBIST100_{t-1} + \beta_8 RBIST100_{t-2} + \beta_9 RII_{t-1} + \beta_{10} RII_{t-2} + \beta_{11} RCDS_{t-1} + \beta_{12} RCDS_{t-2} \\ RCDS_t &= \alpha_3 + \beta_{13} RBIST100_{t-1} + \beta_{14} RBIST100_{t-2} + \beta_{15} RII_{t-1} + \beta_{16} RII_{t-2} + \beta_{17} RCDS_{t-1} + \beta_{18} RCDS_{t-2} \end{aligned} \quad (13)$$

This model system represents the relationship between equity markets (BIST 100), institutional interactions (II), and market risk (CDS). According to the results represented in Table 3 Panel A, the own conditional ARCH effects ( $a_{ii}$ ) are significant at the %1 level for all variables which indicates that all variables are influenced by the volatility of their own dynamics. There is no significant volatility spillover over effect among II and CDS in the short term since  $a_{23}$  is not statistically significant even at 10% level. How-

ever, volatility spillover over effect among BIST100-II and BIST100-CDS is detected in the short term since  $a_{12}$  and  $a_{13}$  are statistically significant at 1% and %5 level respectfully. Moreover, the own conditional GARCH effects ( $b_{ii}$ ) in matrix B are all significant at %1 level for all related markets in Model 1. Consequently, for the long-term volatility spillovers, the volatility spillover exists only between BIST100 and CDS as only  $b_{13}$  is significant at %1 level. As a result, we can conclude that a volatility spillover between equity markets and market risk strongly exists in the long term, which is consistent with the modern finance theory.

Finally, the D matrix refers to the asymmetric coefficients. According to the results only  $d_{11}$  and  $d_{33}$  are significant at %1 and %5 level respectfully. Positive coefficients mean that good news increases volatility. The coefficients of  $d_{13}$  is positive, which indicates that good news to equity market increases the volatility while the coefficients of  $d_{33}$  is negative, which indicates that bad news to market risk increases the volatility. Last but not least, asymmetric volatility does not exist among all variables in Model 1.

**VAR System Specification for Model 2:**

$$\begin{aligned} RFX_t &= \alpha_1 + \beta_1 RFX_{t-1} + \beta_2 RFX_{t-2} + \beta_3 RII_{t-1} + \beta_4 RII_{t-2} + \beta_5 RCDS_{t-1} + \beta_6 RCDS_{t-2} \\ RII_t &= \alpha_2 + \beta_7 RFX_{t-1} + \beta_8 RFX_{t-2} + \beta_9 RII_{t-1} + \beta_{10} RII_{t-2} + \beta_{11} RCDS_{t-1} + \beta_{12} RCDS_{t-2} \\ RCDS_t &= \alpha_3 + \beta_{13} RFX_{t-1} + \beta_{14} RFX_{t-2} + \beta_{15} RII_{t-1} + \beta_{16} RII_{t-2} + \beta_{17} RCDS_{t-1} + \beta_{18} RCDS_{t-2} \end{aligned} \quad (14)$$

In Model 2, the relationship between foreign exchange basket (FX), institutional interactions (II), and market risk (CDS) are analyzed. The own conditional ARCH effects ( $a_{ii}$ ) are significant at the %1 level for all variables. These results indicate that all variables are influenced by the volatility of

<sup>9</sup> Since we detected cointegration even with higher level of lag numbers for all variables we used VECM models with two lags. The lag structure was decided due to lag length criteria test of Eviews.

**Table 3. VAR-VECH-TARCH Models**

Panel A: Estimation results of VAR-VECH-TARCH (1,1) models for all period

Model 1: Equity Markets				Model 2: FX Markets			
	Coefficient	z-Statistic	P-Value		Coefficient	z-Statistic	P-Value
M(1,1)	0.0000 ***	8.4040	0.0000	M(1,1)	0.0000 ***	9.6443	0.0000
M(1,2)	0.0000	0.5204	0.6028	M(1,2)	0.0000	0.3404	0.7335
M(1,3)	0.0000	-1.1152	0.2648	M(1,3)	0.0000 ***	2.7326	0.0063
M(2,2)	0.0000 ***	16.3972	0.0000	M(2,2)	0.0000 ***	16.1100	0.0000
M(2,3)	0.0000	0.2601	0.7948	M(2,3)	0.0000	0.2836	0.7767
M(3,3)	0.0000 ***	11.4893	0.0000	M(3,3)	0.0000 ***	11.8287	0.0000
A1(1,1)	0.0451 ***	4.9166	0.0000	A1(1,1)	0.2409 ***	17.8026	0.0000
A1(1,2)	-0.2225 **	-2.2651	0.0235	A1(1,2)	-0.0417	-0.5908	0.5547
A1(1,3)	0.0187 ***	2.4387	0.0147	A1(1,3)	-0.0195 **	-2.0195	0.0434
A1(2,2)	1.1075 ***	16.1123	0.0000	A1(2,2)	1.0557 ***	14.9298	0.0000
A1(2,3)	-0.0739	-0.6628	0.5075	A1(2,3)	-0.0534	-0.4674	0.6402
A1(3,3)	0.1767 ***	16.4280	0.0000	A1(3,3)	0.1789 ***	16.9024	0.0000
D1(1,1)	0.1183 ***	10.2454	0.0000	D1(1,1)	-0.1510 ***	-10.9091	0.0000
D1(1,2)	-0.0002	-0.0010	0.9992	D1(1,2)	0.0023	0.0223	0.9822
D1(1,3)	-0.0045 **	-0.4475	0.6545	D1(1,3)	-0.0513 ***	-2.9459	0.0032
D1(2,2)	0.0025	0.0249	0.9801	D1(2,2)	0.0284	0.2594	0.7953
D1(2,3)	0.0027	0.0125	0.9900	D1(2,3)	0.0077	0.0392	0.9687
D1(3,3)	-0.0979 ***	-7.8739	0.0000	D1(3,3)	-0.1063 ***	-8.8319	0.0000
B1(1,1)	0.8528 ***	81.6014	0.0000	B1(1,1)	0.8198 ***	85.6725	0.0000
B1(1,2)	0.2491	0.7083	0.4788	B1(1,2)	0.7796 ***	2.5330	0.0113
B1(1,3)	0.9393 ***	37.3204	0.0000	B1(1,3)	0.9297 ***	39.2805	0.0000
B1(2,2)	0.7638 ***	434.3706	0.0000	B1(2,2)	0.7657 ***	410.5196	0.0000
B1(2,3)	0.4732	0.5532	0.5801	B1(2,3)	0.5545	0.5442	0.5863
B1(3,3)	0.8279 ***	91.9200	0.0000	B1(3,3)	0.8324 ***	99.1222	0.0000

Note: \*\*\*, \*\*, \* represent 1%, 5% and 10% significance respectively.

Panel B: Estimation results of VAR-VECH-TARCH (1,1) models after Arab Spring period

Model 1: Equity Markets				Model 2: FX Markets			
	Coefficient	z-Statistic	P-Value		Coefficient	z-Statistic	P-Value
M(1,1)	0.0000 ***	3.6255	0.0003	M(1,1)	0.0000 ***	6.1054	0.0000
M(1,2)	0.0000	0.4568	0.6478	M(1,2)	0.0000	0.4206	0.6741
M(1,3)	0.0000	-0.6280	0.5300	M(1,3)	0.0000	0.1270	0.8989
M(2,2)	0.0000 ***	12.3233	0.0000	M(2,2)	0.0000 ***	8.0436	0.0000
M(2,3)	0.0000	-0.3084	0.7578	M(2,3)	0.0000	-0.2341	0.8149
M(3,3)	0.0001 ***	8.4971	0.0000	M(3,3)	0.0001 ***	8.7962	0.0000
A1(1,1)	0.1074 ***	3.4449	0.0006	A1(1,1)	0.2532 ***	11.7841	0.0000
A1(1,2)	0.0420 **	1.5320	0.1255	A1(1,2)	-0.0014	-0.2674	0.7892
A1(1,3)	0.1593 ***	6.1895	0.0000	A1(1,3)	0.0092	0.1514	0.8796
A1(2,2)	0.0164 ***	4.3343	0.0000	A1(2,2)	0.0116 ***	2.9242	0.0035
A1(2,3)	<b>0.0623</b> ***	<b>2.5103</b>	<b>0.0121</b>	A1(2,3)	0.0097	0.2058	0.8370
A1(3,3)	0.2364 ***	8.5536	0.0000	A1(3,3)	0.2175 ***	7.3452	0.0000
D1(1,1)	0.0000	0.0000	1.0000	D1(1,1)	-0.0010	-0.0212	0.9831
D1(1,2)	0.0000	0.0000	1.0000	D1(1,2)	-0.0039	-0.3716	0.7102
D1(1,3)	0.0000	0.0000	1.0000	D1(1,3)	-0.0001 ***	-0.0004	0.9997
D1(2,2)	0.0000	0.0003	0.9998	D1(2,2)	0.0039	1.1268	0.2598
D1(2,3)	0.0000	0.0000	1.0000	D1(2,3)	0.0002	0.0022	0.9983
D1(3,3)	0.0000	0.0000	1.0000	D1(3,3)	-0.0002	-0.0042	0.9967
B1(1,1)	0.8289 ***	24.3489	0.0000	B1(1,1)	0.7499 ***	41.7469	0.0000
B1(1,2)	<b>0.8954</b> ***	<b>13.5579</b>	<b>0.0000</b>	B1(1,2)	1.0047 ***	119.7924	0.0000
B1(1,3)	0.7498 ***	17.0477	0.0000	B1(1,3)	0.4834	0.1201	0.9044
B1(2,2)	0.9673 ***	405.2011	0.0000	B1(2,2)	0.9702 ***	324.7822	0.0000
B1(2,3)	<b>0.8099</b> ***	<b>4.9973</b>	<b>0.0000</b>	B1(2,3)	<b>0.9021</b> ***	<b>2.6609</b>	<b>0.0078</b>
B1(3,3)	0.6782 ***	29.5538	0.0000	B1(3,3)	0.7036 ***	34.2933	0.0000

Note: \*\*\*, \*\*, \* represent 1%, 5% and 10% significance respectively.

their markets. Besides, there is no significant volatility spillover over effect between FX-II and CDS-II in the short term since  $a_{12}$  and  $a_{23}$  are not statistically significant even at the 10% level. However,  $a_{13}$  is significant at 5% level leading a volatility spillover over effect between FX and CDS. Moreover, the own conditional GARCH effects ( $b_{ii}$ ) in matrix B are all significant at %1 level for all related markets in Model 2. Consequently, for the long-term volatility spillovers, the volatility spillover between FX-II and FX-CDS are all significant at 1% level that are  $b_{12}$  and  $b_{13}$ . As a result, we conclude that volatility spillover between mentioned markets exists in

the long term. Finally, the D matrix refers to the asymmetric coefficients. According to the results only  $d_{11}$  and  $d_{33}$  are significant at %1 level and negative coefficients mean that bad news increases the volatility. The coefficients  $d_{11}$  and  $d_{33}$  are negative which indicates that bad news to FX basket and the market risk increases the volatility. Finally, asymmetric volatility exists only between FX and CDS in Model 2. As mentioned earlier since Arab Spring is a milestone for Institutional Interaction Index, we also applied all models for a second period in Table 3 Panel B. In this period, we can see that volatility spillover over effect occurs among CDS and II



in short term in Model 1. Also, in the long-term volatility spillover over effect occurs among BIST100-II and CDS-II in Model 1. In Model 2 in the long-term only volatility spillover over effect occurs among CDS and II.

If we summarize the results, we can conclude that volatility spillover between institutional interaction index and equity market exists in the short and long term. For the second period results, we see volatility spillover between insti-

tutional interaction index and CDS also exists in both the short and long term. Also, volatility spillover between institutional interaction index and equity market is still valid in both short and long term. In Model 2 we observe volatility spillover between II and FX basket only in short term for all period results. In the second period results volatility spillover between the II-FX basket and II-CDS occurs in the long period as well. Finally, we can show the movement of

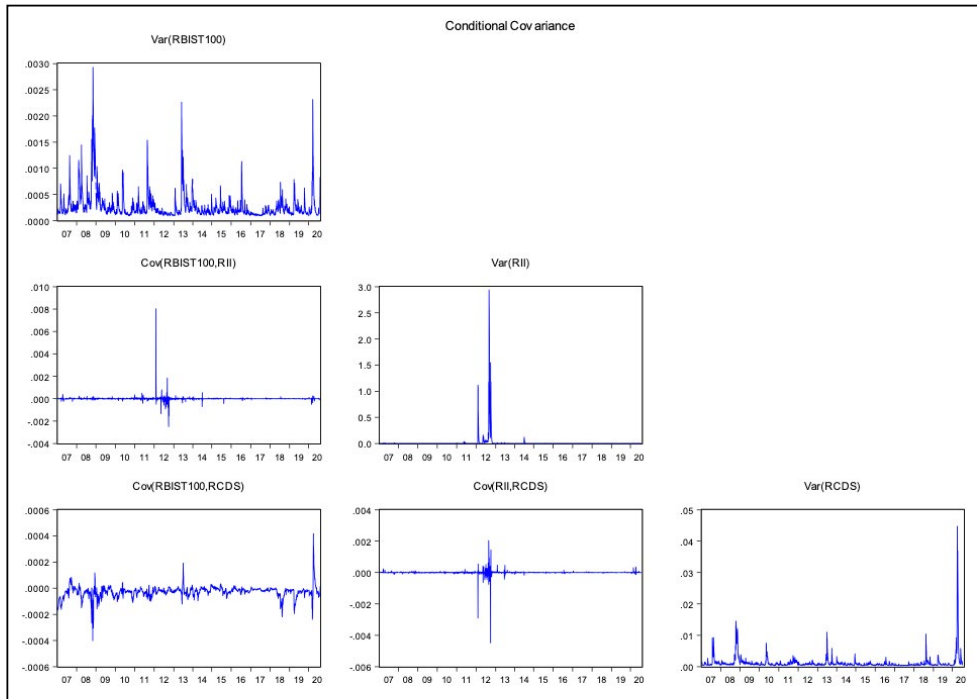


Figure 3. Conditional Correlation Model 1.

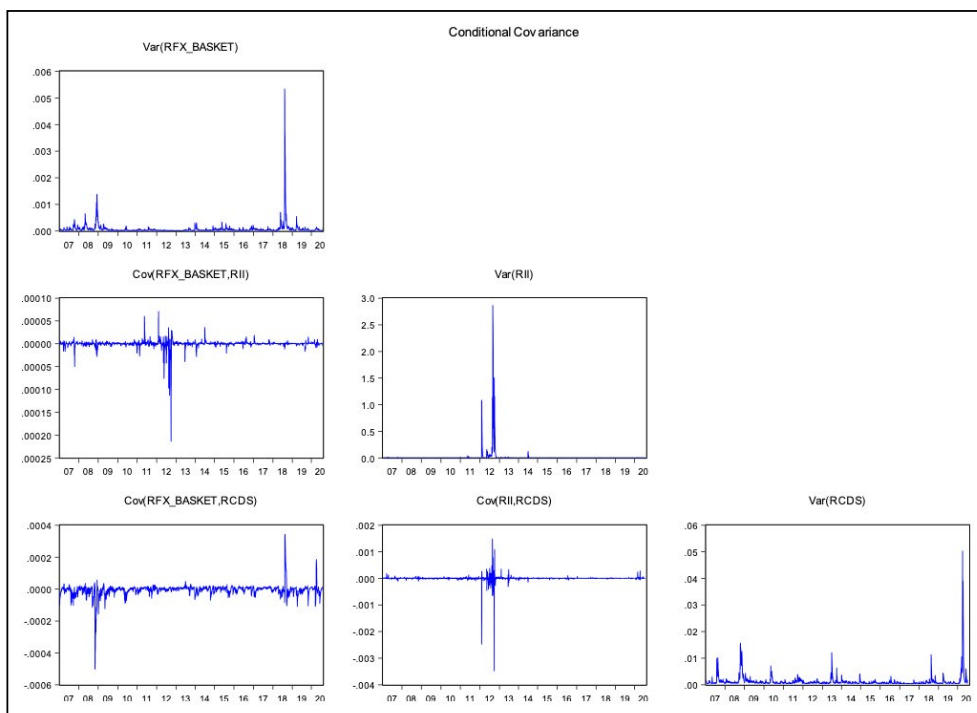


Figure 4. Conditional Correlation Model 2.



the conditional covariance and the conditional correlation of II, FX, BIST 100 and CDS in Model 1 and 2 for overall period according to Figure 3 and 4. Impact of 2011 on II is quite visible in these graphs.

## 5. CONCLUSION

One of the key components of political stability is relations with institutions, which refers to the relationships between the government and higher judicial organ, government and presidency, government and military bureaucracy, government civil bureaucracy and independent economic institutions, and relations with international institutions. The importance of institutions for economic development and stability has been thoroughly discussed by both the old and new schools of institutional economics, who developed these against the Classical and Neo-Classical paradigms.

The novelty of this paper is the Institutional Interaction Index which allows us to measure the relationships between government and higher judicial organ, presidency and government, government and military bureaucracy, government civil bureaucracy and autonomous economic institutions, and relations with international institutions in a daily base which allows us to quantify and incorporate II into time series model. The higher the Institutional Interaction Index, the greater the tendency towards stability, whereas the lower this index, the greater the deterioration in stability. As stated in the institutionalist approaches, the involvement of institutions is important for economic growth and economic stability.

In the study, the relationship between the Institutional Interaction Index, a sub-index of the Political Stability Index, and BIST100, FX basket rate, and CDS was analyzed, and we can conclude that volatility spillover between institutional interaction index and equity market exists in the short and long term. For the second period results, we see volatility spillover between institutional interaction index and CDS also exists in both short and long term. Also, volatility spillover between institutional interaction index and equity market is still valid in both the short and long term. In Model 2 we observe volatility spillover between II and

FX basket only in short term for all period results. In the second period results volatility spillover between the II-FX basket and II-CDS occurs in the long period as well. As the bottom line we can sum up the results as II has more impact on markets and markets risk create volatility spillover impact on both equity market and FX market obviously. The results from this study support institutionalist approaches. As the relations with institutions deteriorate, BIST100 and FX rate volatilities, that is, instability, increases due to the increase in market risks. Unquestionably, albeit ironically, volatility investors derive profits from these volatilities.

## 6. APPENDIX: THE SUB INDEXES THAT CREATE PSI AND THE COMPUTATION METHODOLOGY

The political participation in democratic societies, procures decision making and implementation about comprehensive, thoroughly, and vital issues. In the regimes where political participation is not adequate, it drifts apart from being inclusive in decision making and applying and maintaining social order becomes harder. Stability means, when looked at its Arabic origin, “the determination of the decisions”. Therefore, “Political Stability” states determination about the implementation of the decisions. In the regimes where there is no political order, making, implementing, updating, and extending the decisions is quite hard. Financial markets rapidly evaluate the value of political development and stability, and they choose the shortest way for adapting to their expectations. Political order and stability play a part in, not only the financial markets’ but also in all the economic actors’ future decisions. Within this framework, the gaugeability of Political Stability and effective usage of it becomes important. The foundations of The Political Stability Index that is calculated based upon the case series are primarily the rule of law and legal security principles.

### 6.1. PSI Consists of the Whole Sub Rules and Indexes (Table 4)

#### 6.1.1. Basic Legitimacy and Management Norms

“State of Law” has been documented in the verdicts of high courts particularly in the Supreme Court and The



Figure 5. Political Stability Indices 2007-2020.

**Table 4.** Sub-Indexes of PSI and Their Weights (%)

	Index Share (%)	Total Basic Indicator (Excluding Lower and Upper Groupings)
Basic Legitimacy and Management Norms	15	16
Parliamentary Support, The Structure	15	25
Government: Establishment and Operation	10	13
Policy Implementation Effectiveness and Governance	10	14
Relations with Institutions	15	22
Relations with Foreign Political Actors	5	10
Bureaucratic Capacity and Usage	5	10
Political Violence	10	10
Economic Stability Factors	15	13
Political Stability Index	100	133

Source: Compiled from PSI Introduction and Calculation Methodology documents.

Council of State. Compliance with the Constitution and the laws, the lawfulness of all acts and acts of the state, the assurance of individual rights, the implementation of separation of powers, equality, assurance of legal judges, effectiveness of criminal and criminal law principles, legal administration, openness to judicial remedy and administrative judiciary, judicial independence and judge guarantee, Judiciary according to conscientious opinion, observance of the Constitution and etc. are followed under this caption.

Basic Legitimacy and Stability of Management Norms are structured in two main sections: With the above details, the essence of the Republic in which the legitimacy norms are included, and the basic characteristics of the state are in the first group with high coefficients. The second group includes management norms and procedures (with appointing powers-bureaucratic procedures and regulatory transaction categories) with lower coefficients.

**Basic legitimacy norms** of the Turkish political system are the type of state and the characteristics of the republic defined in the constitution. These are the immutable principles of the Constitution. Changes or attempts to change the principles of the constitute are a violation of basic legitimacy norms. These violations are summarized under two headings as basic and secondary variables. In the definition of basic legitimacy norms, primarily the Constitutional text and if there is no clarity, the verdicts of the high court are taken as basis.

The basic management norms are Preservation of the legal order and implementation order defined in the Constitution, the internal regulations of the Parliament, laws or laws on the establishment and functioning of ministries (Law no 3046 etc.).

#### 6.1.2. Parliamentary Support, The Structure

The basic characteristic of the political system in Turkey is parliamentary democracy. According to the Constitution and state traditions, the highest / **final binding decision place** is still the Parliament. Even though their final decision is

based on qualified / rigid decisions, that is as so. After the new Presidential system was put into operation, although different discussions have been made on this issue and although the importance of parliamentary support and structure seems to have decreased, the structure, composition, continuity, and variability of the government's (administration's) parliamentary support are critical. The parliamentary support of the government (the administration) with how many parties and representatives, party disciplines and its sub-indicators, deputy transfers, tendencies in legislative activities, the actions in the budget and critical law negotiations are among the reviewed matters. The following of the working conditions and working hours of the Parliament, including the commissions; the presentation of the laws as draft and proposal, the quality of the regulation, their voting and acceptance, briefly, the performance of the parliament and its quality are monitored under this caption.

#### 6.1.3. Government: Establishment and Operation

The institutional body of political stability at the center of the parliamentary regime is the government. Even if the majority cannot be achieved in the parliament during the crisis period, the basis is the ability to take and implement political decisions, in short, the existence and functioning of the government. Even if there is a sufficient political majority in the parliament, this is not a guarantee for the establishment of government.

#### 6.1.4. Policy Implementation Effectiveness and Governance

In governance (accountability-transparency-consistency) and impact analysis (scope-dimensioning of the political problem, clarification of its content, determination and inclusion of relevant parties, clarification of causes and effects, harmonization with targets, making processes and measures measurable and clarified, measuring the effects of solution management and evaluation of the audit, etc.), detailed issues are included in the analysis by passing through certain filters.

The processes of controlling and evaluating the presentation-formation-decision-making-implementation-implementation results of the government's political choices and practices or governance processes in general are monitored and evaluated. The basic reasoning styles of the government in terms of political decision-making, the quality of the regulations made, their appropriateness, the impurities they cause, if any, impact analysis are examined in this topic.

#### 6.1.5. Relations with Institutions

**The Turkish political system has been structured by two sections of power**, reflected in the decisions of the high court and been subject to the evaluations of valuable public lawyers beyond political scientists. With the direct election of the president by the people, the function and criticality of the second power section have come to the fore.

**The first section has been architected through the assembly and the government; and the second has been architected through the Presidency - "the high public bureaucracy" - over the higher judicial bodies.** "The core of the high public bureaucracy"; is the diplomatic and military bureaucracy. Diplomatic bureaucracy has also undertaken the memory function of the system. Finance, Internal Affairs, Religious Affairs, Autonomous Economic Boards, some elements of the high judiciary in the center are included in the high public bureaucracy.

#### 6.1.6. Relations with Foreign Political Actors

Centered in monitoring foreign policy relations within the PSI are Turkey's foreign policy preferences. Although taking caring of monitoring global trends, the dynamics of the international political system, will not be included in the analysis before its effects on Turkey became concrete. The indicative of concretization should be clear and observable. Analysis and risk measurements of global political developments can be made competently by various organizations.

Within the PSI, "Turkey, with its institutional structure" is the one that has been taken into the center in terms of foreign political actors. **The bundle of "foreign policy goal" summarized as full independence-full security and prosperity** is critical in this respect. Security and regime sensitivities in the field of foreign policy are extremely effective. One of the serious risks within the PSI is, the emphasis on the immediate and voluminous internationalization of the risk patterns of the Turkish political system.

Within the PSI, the direction and degree of relations with foreign political actors are distinguished in terms of US-EU-international institutions and neighbors. It has been monitored in four sub-parameters. **The four sub parameters that are monitored in relations with the USA are; relations between military bureaucracies, relations between civil bureaucracies, relations between high level politicians, and public perception.** Relations with the USA covers almost 40 percent of the sub-sector total share.

The reason why relations with the EU has a lower share in the sub-sector is to sterilize the effect of bureaucratic-economic ties concentrated on its positioning within the general model. Russia's initially increasing energy dependency relationship, increased unity of Turkey's public tax revenues and exports of Russia, relative parallelization on the Black Sea and Middle East policy are assessed under this chapter.

The evaluation of relations with all actors influencing the politics of the country, especially the USA-EU, is under discussion. In addition to institutions such as NATO-UN-World Bank-IMF, relations with near-far neighboring countries are monitored.

#### 6.1.7. Bureaucratic Capacity and Usage

Modern societies have suffered extensive and long-term difficulties due to the breadth and depth of bureaucracy and even its effectiveness. Bureaucratic obstacles or supports are known to have an impact on political, social and economic trends. In terms of brief political analysis, the current position of the issue of bureaucratic capacity and usage during political stability is the centrality of the parallelism of bureaucratic capacity-economy. The social state stands at the base of the parallelism. The prominent mechanism in the current molding of parallelization is being bank focused and the activation of the autonomous economic bureaucratic institutions' architecture. The general orientation of bureaucratic capacity and its full use are evaluated together with the level reached in terms of generality-equality-variability-compatibility and consistency in the provision and regularity of public services.

#### 6.1.8. Political Violence

Widespread or singular incidents of violence affecting political stability, whether they are of a political nature or not, are monitored in the topic. Border conflicts, non-country-level external conflicts, bureaucratic pollution and gangs with intense and widespread impact, military and security-related contamination are included. Increases in religious and ethnic activities, even if they are crude and non-violent, and excessive ideological activities are also measured. Excessive deviation from justice statistics, continuous violations of legal and implementation regularities, attacks and looting of domestic and foreign representative offices, stores-widespread chains, attacks on financial institutions, violence and continuous violations of public order, possible or actualized threats to general health are monitored and evaluated.

#### 6.1.9. Economic Stability Factors

The economic system and its sub-developments are the main channels of the social and political system's adaptability to life. Social change begins or is driven by the economy. The political analysis of economic stability is not intended to predict whether the economy is or will be in good condition or not. Economy is occasionally in good condition or bad. The issue of political value is how and to what extent

the assessments affect voters' political choice and their decisions for the elected.

What is measured within the scope of PSI is whether economic actors comply with the requirements of the economy or not. Prices may decrease, interest rates may increase, etc. What stands out is to preserve the rationality of the reactions given in return for the product or service whose price is increasing. The contrary situation is to hand over the solution, which economic actors should reveal, to the political area. And this feeds political instability. The Economic Stability Factors should examine the economy itself as well as the mechanics of its articulation with the political system. The articulation of the economy with bureaucratic capacity has been emphasized above.

In the first section, price volatility, the severity of economic waves, liquidity and credit volatility, conditions that determine the general investment environment, public and critical private sector indebtedness amounts and rates, as well as employment, growth, interest, investments, foreign investments, developments in the field of energy are monitored. The most critical price volatility is in subsistence products and services. The prices that determine the necessity goods, energy-accommodation-transportation-communication expenditures are monitored with the highest coefficients. Indirect and common taxes, health-medicine-education etc. expenses are also included in monitoring.

The short-term, general securities investment regime, restrictions on foreign currency and similar liquid values, tax controls and restrictions, nationalization, if any, tariffs, payment cancellations, trade barriers and labor market constraints are observed in the second section. Long-term focus is investment-commercial and general demand constraints. During the economic expansion period, protectionism is scored as a cut below negative.

What is monitored in the third part is the realization of the economic targets set in the plan-program, action plans and budgets. Whether the targets are set correctly, whether there is a disruption-negative effect in the mechanisms of establishing and realizing economic expectations, and if any, reasonable or unreasonable causes are monitored.

Finally, debt delays, delays, and accumulations in loan payments, sudden, unfounded or large expropriations, large or widespread contract cancellations, heavy or widespread public-status contract term changes, sudden-bulky-specific tax regulations or decisions, foreign currency or deposit focused extraordinary controls are specially monitored and evaluated.

Expectation-realization differences are high at macro level; the differences of what can be seen as micro, such as sub-items of public finance, are scored with a low coefficient. Especially **inbounded bankruptcies, strikes, layoffs are recorded severely negatively**. Investments are mostly placed in short-long term measures.

## 6.2. PSI Calculation Method

**The total basic indicators handled in the PSI calculation are 133.** Basic indicators have 2 to 28 sub indicators. There are many first indicators among the sub-indicators, especially the economic ones. It is not very meaningful to give a total number of indicators, since there are indicators that are activated and remain in the background and those that should not be activated simultaneously.

The above-mentioned political case series, which are open, accessible and based on concrete records, are measured by including them in the model subject to certain principles. By converting the measurements, PSI and its change are made observable. The model, registration and operating principles, together with its sub-sectors and parameters, are formalized and kept in the Basic Status by the Notary.

**There are 8 basic categories in the scoring of indicators. The sign is either positive (+) or negative (-). Scores are made as strictly 1 and 0.875, severe 0.75 and 0.625, likely 0.50 and 0.375, probability 0.25 and 0.125. The scores of the indicators can change according to the degree of direction and gaining effectiveness at different times. Scoring is calibrated according to time, conjuncture, marginal and resource filters.**

**Ethics:** There are no ethical issues with the publication of this manuscript.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Authorship Contributions:** Concept: S.U., C.Ö., S.D.; Design: S.D., C.Ö.; Supervision: S.U.; Resources: S.U., S.D.; Data collection and/or processing: C.Ö., S.D.; Analysis and/or interpretation: C.Ö.; Literature search: S.D.; Writing Manuscript: C.Ö., S.D.; Critical review: S.U.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

- Acemoğlu, D., & Robinson, J. A. (2015). *Ulusların Düşüşü: güç, zenginlik ve yoksulluğun kökenleri*. Doğan Kitap.
- Artan, S., & Hayaloğlu, P. (2014). Kurumsal Yapı ve İktisadi Büyüme İlişkisi: Türkiye Örneği. *Sosyoekonomi*, 22(2). <https://doi.org/10.17233/se.65623> [CrossRef]
- Bolatoğlu, N. (2007). Politik İstikrarsızlığın Hüküm Sürdüğü Bir Ekonomide Reel Döviz Kurunun Stokastik Davranışı: Türkiye Üzerine Ampirik Bulgular, 1971-2002. *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 25(2), 1-13. <https://dergipark.org.tr/en/pub/huniibf/issue/7873/103440>
- Burak, B. (2011). The Role of the Military in Turkish Politics: To Guard Whom and From What?, *European Journal of Economic and Political Studies*. 4(1), 143-169.

- <https://www.acarindex.com/dosyalar/makale/acarindex-1423880526.pdf>
- Davis, L. S. (2010). Institutional flexibility and economic growth. *Journal of Comparative Economics*, 38(3), 306-320. <https://doi.org/10.1016/j.jce.2010.05.001> [CrossRef]
- Easterly, W., Ritzen, J., & Woolcock, M. (2006). Social cohesion, institutions, and growth. *Institutions, and Growth (August 2006)*. [https://www.cgdev.org/sites/default/files/9136\\_file\\_WP94.pdf](https://www.cgdev.org/sites/default/files/9136_file_WP94.pdf) [CrossRef]
- Engle, Robert F., Victor K. Ng, (1993) Measuring and testing the impact of news on volatility, *Journal of Finance* 48, 1749-1778. <https://doi.org/10.1111/j.1540-6261.1993.tb05127.x> [CrossRef]
- Engle, R. F. (1982). Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica: Journal of the Econometric Society*, 987-1007. <https://doi.org/10.2307/1912773> [CrossRef]
- European Commission (2010) Turkey 2010 Progress Report, SEC (2010)1327, 9 November, Brussels. [https://www.avrupa.info.tr/sites/default/files/2016-11/tr\\_rapport\\_2010\\_en.pdf](https://www.avrupa.info.tr/sites/default/files/2016-11/tr_rapport_2010_en.pdf)
- Figlewski and Wang 2000) Figlewski, Stephen., and Xiaozu. Wang. 2000. Is the Leverage Effect” a Leverage Effect?. *SSRN Electronic Journal*. <https://dx.doi.org/10.2139/ssrn.256109> [CrossRef]
- Glosten, L. R., R. Jagannathan, and D. E. Runkle. (1993). On the Relation between the Expected Value and the Volatility of the Nominal Excess Returns on Stocks. *Journal of Finance*, 48: 1779-1801. <https://doi.org/10.1111/j.1540-6261.1993.tb05128.x> [CrossRef]
- Jensen, N. (2008). Political risk, democratic institutions, and foreign direct investment. *The Journal of Politics*, 70(4), 1040-1052. <https://doi.org/10.1017/S0022381608081048> [CrossRef]
- Knack, S., & Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics & Politics*, 7(3), 207-227. <https://doi.org/10.1111/j.1468-0343.1995.tb00111.x>
- Ling, S., & McAleer, M. 2003. Asymptotic Theory for a Vector ARMA-GARCH Model. *Econometric Theory*, Vol. 19(2), pp. 280-310. <https://www.jstor.org/stable/3533354?seq=1> [CrossRef]
- S. Bilişim Danışmanlık, Siyasi İstikrar İndeksi: Siyasi Performansın Standartları, Kısa Siyasi Analizin Standartları, Kısa Siyasi Analizin Araçları, Siyasi Risk İzlek Standartları, Ekim 2010
- Saraçoğlu, Cenk and Yeşilbağ, Melih (2015) AKP Döneminde Türkiye: Minare ile İnşaat Gölgesinde in G. Atılğan, C. Saraçoğlu and A. Uslu (et al) *Osmanlıdan Günümüze Türkiye’de Siyasal Hayat*, Yordam Yayınları, pp. 871-957.
- Scully, G. W. (1988). The institutional framework and economic development. *Journal of Political Economy*, 96(3), 652-662. <https://doi.org/10.1086/261555> [CrossRef]
- Şahin, E.E. ve Özkan, O. (2018) Kredi Temerrüt Takası, Döviz Kuru ve BİST100 Endeks İlişkisi. *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 11(3), 1939-1945 <https://doi.org/10.17218/hititsosbil.450178> [CrossRef]
- Teletar E.& Cangir N., Türkiye İçin Politik İstikrarsızlık Endeksleri: 1955–2009 Dönemi. *Sosyo-Ekonomi*, 2014-1 / 140101. <https://doi.org/10.17233/se.73988> [CrossRef]
- Yamak, T. (2017). Kurumsal Kalite Faktörlerinin Ekonomik Büyüme Üzerindeki Etkisi: Körfez Ülkeleri Örneği. *Siyaset, Ekonomi ve Yönetim Araştırmaları Dergisi*, 5(4). <https://doi.org/10.25272/j.2147-7035.2017.5.4.04> [CrossRef]
- Yıldırım, S. (2010). Kurumların dinamik yapısının ekonomik büyüme üzerine etkisinin analizi. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 10(3), 111-126. <https://app.trdizin.gov.tr/publication/paper/detail/TVRB-NE1UQTBOQT09>
- Yılmaz, A., & Çetiner, Ö. (2017). Risk İn Turkish Economy; The Linkage Between Credit Default Swap (CDS), Current Account Deficit and Exchange Rate. *Uluslararası Sosyal Araştırmalar Kongresi*, 563-576. [https://www.researchgate.net/publication/320531465\\_RISK\\_IN\\_TURKISH\\_ECONOMY\\_THE\\_LINKAGE\\_BETWEEN\\_CREDIT\\_DEFAULT\\_SWAP\\_CDS\\_CURRENT\\_ACCOUNT\\_DEFICIT\\_AND\\_EXCHANGE\\_RATE](https://www.researchgate.net/publication/320531465_RISK_IN_TURKISH_ECONOMY_THE_LINKAGE_BETWEEN_CREDIT_DEFAULT_SWAP_CDS_CURRENT_ACCOUNT_DEFICIT_AND_EXCHANGE_RATE)





## Yıldız Social Science Review

Web site information: <https://yssr.yildiz.edu.tr>  
DOI: 10.51803/yssr.926562



### Original Article / Orijinal Makale

## Labor Underutilization in European Countries: Some Facts About Age and Gender \*

### *Avrupa Ülkelerinde Atıl İş Gücü: Yaş ve Cinsiyet Hakkında Bazı Tespitler*

Yasemin ÖZERKEK<sup>a</sup>, Fatma DİDİN SÖNMEZ<sup>b</sup>

<sup>a</sup>Department of Economics, Marmara University, Istanbul, Turkey

<sup>b</sup>Department of Economics, Istanbul Bilgi University, Istanbul, Turkey

<sup>a</sup>İktisat Bölümü, Marmara Üniversitesi, İstanbul, Türkiye

<sup>b</sup>Ekonomi Bölümü, İstanbul Bilgi Üniversitesi, İstanbul, Türkiye

#### ARTICLE INFO

##### Article history

Received: 23 April 2021

Accepted: 30 November 2021

##### Key words:

Age, gender, labor underutilization, unemployment

#### MAKALE BİLGİSİ

##### Makale Hakkında

Geliş tarihi: 23 Nisan 2021

Kabul tarihi: 30 Kasım 2021

##### Anahtar kelimeler:

Yaş, cinsiyet, atıl iş gücü, işsizlik

#### ABSTRACT

It is undeniably accepted that labor underutilization has important consequences for economies and societies. Unemployment that is the narrowest measure of labor underutilization is one of the main concerns for policymakers, investors, and society. Besides the standard unemployment rate, there are alternative measures of labor underutilization providing a wider picture of the underutilization of workforce. This study aims to delineate some facts about labor underutilization by age and gender for a group of European countries in a broader view. For this purpose, specifically, time-related underemployment and potential labor force data are employed to measure the labor underutilization along with unemployment. It is observed that there are significant gender and age differences in the labor underutilization components across countries. Elasticity and descriptive analyses together verify that time-related underemployment is more sensitive to unemployment than the potential labor force. While the sensitivity of time-related underemployment to changes in unemployment differs by gender and age, the potential labor force is almost equally sensitive to unemployment regardless of age and gender. The study additionally displays the degree of reallocation between underutilization components and suggests a higher reallocation for the young than adults. On the other hand, reallocation between labor underutilization components is not gender-biased.

**Cite this article as:** Özerkek, Y., & Didin Sönmez, F. (2021). Labor Underutilization in European Countries: Some Facts About Age and Gender. *Yıldız Social Science Review*, 7(2), 137–146.

#### ÖZ

İş gücünün atıl kullanımının ekonomiler ve toplumlar için önemli sonuçları olduğu açık bir şekilde kabul edilmektedir. Atıl iş gücünün en dar kapsamlı göstergesi olan işsizlik, politika yapıcılar, yatırımcılar ve toplum için temel sorunlardan biridir. Standart işsizlik oranının yanı

#### \*Sorumlu yazar / Corresponding author

\*E-mail: [yasemin.ozerkcek@marmara.edu.tr](mailto:yasemin.ozerkcek@marmara.edu.tr)

\*The first version of this study is presented at the 19th International Conference of Middle East Economic Association (MEEA), 9 -11 October 2020.



Published by Yıldız Technical University Press, İstanbul, Turkey

Copyright 2021, Yıldız Technical University. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

sıra, atıl iş gücünü temsil eden daha kapsamlı alternatif göstergeler mevcuttur. Bu çalışma, bir grup Avrupa ülkesi için yaş ve cinsiyet dikkate alınarak atıl iş gücüne dair bazı tespitleri daha geniş bir bakış açısıyla sunmayı amaçlamaktadır. Bu amaçla, işsizlikle birlikte zamana bağlı eksik istihdam ve potansiyel iş gücü verileri, atıl iş gücünü ölçmek için kullanılmaktadır. Atıl iş gücü göstergelerinin ülkeler arasında cinsiyet ve yaşa göre önemli ölçüde farklılaştığı görülmektedir. Betimsel bulgular ve esneklik analizi, zamana bağlı eksik istihdamın işsizliğe potansiyel iş gücünden daha duyarlı olduğunu ortaya koymaktadır. Zamana bağlı eksik istihdamın işsizlikteki değişikliklere duyarlılığı cinsiyete ve yaşa göre farklılık gösterirken, potansiyel iş gücünün işsizliğe duyarlılığı yaşa ve cinsiyete göre değişmemektedir. Çalışma ayrıca, atıl iş gücü bileşenleri arasındaki kaymaları analiz ederek yetişkinlerin gençlere göre daha fazla bileşenler arasında yer değiştirdiğini göstermektedir. Öte yandan, atıl iş gücü bileşenleri arasındaki kaymaların cinsiyete dayalı olmadığı tespit edilmiştir.

**Atf için yazım şekli:** Özerkek, Y., & Didin Sönmez, F. (2021). Labor Underutilization in European Countries: Some Facts About Age and Gender. *Yıldız Social Science Review*, 7(2), 137–146.

## 1. INTRODUCTION

As labor markets become more complicated, the analysis of unemployment is increasingly becoming not adequate to understand the problems associated with poverty, inequality, economic development, etc. Underutilization of workforce has important adverse consequences in terms of productive capacity in the labor market, national income and social inclusion (Mitchell and Muysken, 2008). Thus, economists have been focusing on broad measures of labor underutilization which provide a more comprehensive understanding of multi-dimensional social and economic effects compared to the traditional unemployment rate measure (ILO, 2020; Baum and Mitchell, 2010).

Simply, labor underutilization occurs when supply of and demand for labor do not match. The unemployment rate, which is calculated by considering the active job seekers who are currently not working but available to start working within two weeks, is a narrow definition of labor underutilization. The definition of the concept does not involve the people who are not actively seeking a job and not available to start working. Likewise, it does not consider those who are employed on a part-time basis but want to work more hours. These two labor force status are qualified as underutilized labor. Since unemployment does no longer sufficiently describe all aspects of the labor market, a wider definition assessing the overall degree of labor underutilization is more helpful for broad labor market monitoring.

Several researchers have engaged in efforts to identify and gauge the elements of labor underutilization, along with conventional unemployment measure. Ducoff and Hagood (1957), one of the earlier studies, examine the measurement of discouraged workers. The concept of underemployment is also scrutinized to acquire an accurate understanding of labor underutilization (Carter, 1982; Jensen et al., 1999; Wilkins & Wooden, 2011). Some previous literature has fo-

cused on the term subemployment (White, 1969; Vietorisz et al., 1975; Price, 1976). The extent of subemployment measure comprises discouraged workers, involuntary part-time workers, and workers who work full-time but earn below a certain level of income. These measures intend to capture labor market failure, thereby enabling a more comprehensive view of labor underutilization (Glyde, 1977).

Clogg (1979) credits that Labor Utilization Framework (LUF) has been first suggested by Hauser (1974, 1977) to tackle shortcomings in the unemployment measure.<sup>1</sup> Clogg (1979) and Clogg and Sullivan (1983) are among the studies applying the LUF to the U.S. data. Clogg (1979) remarks that this framework was applied especially to developing countries in which the deficiency of unemployment measure could account for the slow growth in economic productivity in these countries.

There is a growing literature providing insights into the issues surrounding labor underutilization (Cavalcanti, 1974; Pazos, 1975; Baum & Mitchell, 2010; Addy et al., 2012; Bell & Blanchflower (2011, 2013, 2018); Song & Wei, 2019; Sibirskaia, 2020, among others). The studies are concentrated on either one or more components of labor underutilization. In their panel study with a group of European countries, Ruiz-Quintanilla and Claes (1996) find that organizational and societal factors have a larger effect than behavioral and demographic variables on the pattern of underemployment. Kingdon and Knight (2006) examine the nature of non-searching jobless persons in South Africa and they underline how the treatment of them is important for the understanding of poverty and labor market concerns. Baum et al. (2008) investigate labor underutilization in Australia by emphasizing the essential role of individual characteristics, personal circumstances, and local features of labor markets in the analysis. Baum and Mitchell (2010) investigate unemployment and hidden unemployment by gender in Australia. Prause and Dooley (2011) study the

<sup>1</sup> LUF included the following categories: those not in the labor force, the subemployed (discouraged workers), the unemployed, the part-time employed, low income underemployment, and educational mismatch (Clogg, 1979; Clogg et al., 2001).



effects of youth underemployment on the psychological health and well-being of young workers. Song and Wei (2019) examine the difference between the unemployed and those not in the labor force by analyzing the demographics, time allocation, and transition rates to employment for the U.S. They suggest an extended alternative measure which also includes out of labor force individuals who are non-retired and non-disabled males and single females without children, to reflect the scope of labor underutilization more accurately. Bell and Blanchflower (2018) studying European countries find that underemployment, rather than unemployment has the main effect on wages in the years since the Great Recession.

This study aims to provide the conceptual framework of labor underutilization and investigate the components of labor underutilization for a group of European countries during the period 2006-2019. The components include the potential labor force and the time-related underemployed along with the unemployed. Time-related underemployment consists of employed working-age persons who are willing and available to work more hours than their current working time. The potential labor force comprises working-age persons not in employment. It consists of two different groups; those who are available but not actively searching for a job and those who are seeking but not immediately available. The first group characterizes discouraged workers, or alternatively, it is called hidden unemployment. In this study, hidden unemployment is defined in a broader sense as the sum of the potential labor force and time-related underemployment. The analyses are performed by age (youth, adult) and gender. Youth refers to individuals aged 15- 24 and adults to those aged 25 and older. The association and reallocation between components of labor underutilization and the sensitivity of hidden components (potential labor force and time-related underemployed) to the number of unemployed are investigated. It is important to note that this study does not seek to identify causal relationships. Rather the analysis aims to provide some insights into labor underutilization by age and gender aspects and to identify the associations between labor underutilization measures.

The paper is organized as follows. The next section re-

veals some facts about the indicators of labor underutilization by age and gender for a group of European countries. Section 3 focuses on the shares of the components in total underutilization and demonstrates the gender and age aspects of the reallocation between them. In Section 4 we examine the sensitivity of hidden unemployment elements to unemployment. Section 5 concludes by providing a discussion of the main findings.

## 2. RESEARCH AND RESULTS

Traditional labor market analysis mostly considers people employed, unemployed and not in the labor force as discrete categories and underutilization of the workforce is commonly measured by the unemployment rate. Besides the rate of unemployment, ILO (International Labour Organization) describes three more different labor underutilization indicators using a broad view of this concept as is shown in Table 1. The narrowest indicator is the unemployment rate (LU1), while the broadest one is the composite measure of labor underutilization (LU4) including time-related underemployment, unemployment, and potential labor force.

Table 2 presents the average rates of different labor underutilization measures taken from ILO Statistics for the period 2015-2019. It shows the rates of 23 European countries for different gender and age groups. While the narrowest measure of labor underutilization (LU1) is low, unsurprisingly the broader measures including time-related underemployment (LU2) and potential labor force (LU3) are considerably high. If one considers the broadest measure (LU4), all countries suffer from very high labor underutilization rates compared to LU1. In addition, the difference between LU4 and LU1 are remarkably high, especially for the young and women in general. Among those listed countries, only Czechia has a very small difference between LU4 and LU1.

Table 2 also reveals that European countries have a serious underutilization problem of the young workforce for all indicators. Youth labor underutilization rates are considerably higher than adult rates. Given the broader indicator of

**Table 1.** Basic Labor Underutilization Indicators

LU1	Unemployment rate	$[\text{persons in unemployment} / \text{labor force}] \times 100$
LU2	Combined rate of time-related underemployment and unemployment	$[(\text{time-related underemployment} + \text{unemployment}) / \text{labor force}] \times 100$
LU3	Combined rate of unemployment and potential labor force	$[(\text{unemployment} + \text{potential labor force}) / (\text{extended labor force})] \times 100$
LU4	Composite measure of labor underutilization	$[(\text{time-related underemployment} + \text{unemployment} + \text{potential labor force}) / (\text{extended labor force})] \times 100$
		where extended labor force=labor force + potential labor force

Source: ILO (2020).

Table 2. Labor Underutilization Rates % (average between 2015-2019)

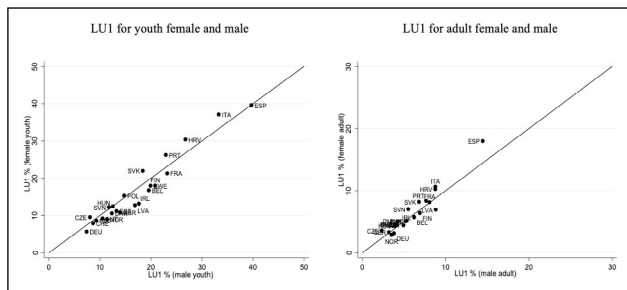
Country	LU4				LU3				LU2				LU1			
	Youth		Adult		Youth		Adult		Youth		Adult		Youth		Adult	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Austria	21	20	13	10	16	17	8	8	15	14	10	7	9	11	4	5
Belgium	35	32	13	11	25	27	9	8	28	25	11	9	17	20	6	6
Croatia	45	39	21	16	43	37	18	13	33	29	13	11	30	27	10	9
Czechia	13	10	5	3	12	10	5	3	11	9	4	3	10	8	4	2
Denmark	28	29	10	8	19	22	7	6	21	21	8	6	11	12	5	4
Estonia	22	22	11	10	20	21	10	9	14	15	6	6	11	13	5	5
Finland	43	43	16	15	33	36	11	11	29	29	12	11	18	21	6	7
France	40	37	21	16	27	29	11	11	35	32	18	14	21	23	8	8
Germany	14	14	10	8	10	12	5	5	9	10	8	6	6	7	3	4
Hungary	20	19	8	7	18	18	7	6	15	14	6	5	12	13	4	4
Ireland	30	32	15	13	19	23	8	8	25	27	12	11	13	18	6	6
Italy	58	51	27	18	54	48	23	15	42	36	15	12	37	33	11	9
Latvia	23	26	15	15	19	23	11	12	17	20	11	12	13	17	7	9
Netherlands	23	23	15	9	16	17	9	7	17	16	11	7	9	9	5	4
Norway	23	25	8	7	19	21	5	5	14	15	6	5	9	11	3	4
Poland	25	22	10	8	21	19	8	6	19	17	7	6	15	15	4	4
Portugal	45	39	19	16	36	32	12	10	37	30	16	13	26	23	8	8
Slovakia	32	24	12	10	29	22	10	8	25	21	10	8	22	18	8	7
Slovenia	31	25	14	11	19	17	9	7	25	20	12	10	12	12	7	6
Spain	58	53	31	20	47	46	23	16	52	48	27	18	40	40	18	14
Sweden	40	40	11	9	31	33	7	7	28	27	9	7	18	20	5	5
Switzerland	24	22	19	9	18	19	10	7	14	12	14	7	8	9	5	4
United Kingdom	28	29	12	8	17	20	6	5	23	24	10	7	11	14	3	3

Source: ILOSTAT (2020).

labor underutilization, the number of countries having serious youth labor underutilization problems is significantly increasing.

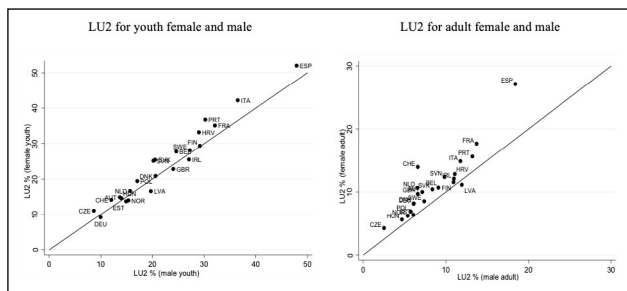
Furthermore, some countries in Table 2 have a relatively high labor underutilization gender gap. It is observed that labor underutilization indicators are gender-biased. The number of countries experiencing a comparably high gender gap in labor underutilization is increasing as we expand the measure further. To focus more on the gender and age aspects of the indicators, Figures 1, 2, 3 and 4 show labor underutilization measures by age and gender groups. In the figures, straight lines reflect 45-degree lines to check whether there exists a biased distribution for gender and age groups.

It is seen that unemployment rates for youth are more dispersed and relatively higher than adults in Figure 1. LU1 ranges from 6 per cent to 40 per cent for youth while it ranges from 3 per cent to 18 per cent for adults. In the figure, higher values for females are associated with higher values for males. Among the other countries, Croatia, France, Italy, Portugal and Spain are the countries that suffer the most from extremely high youth unemployment. Variations in adult unemployment across countries are not noteworthy as they are in youth unemployment. Only Spain has a remarkably higher adult unemployment rate (18 per cent for females and 14 per cent for males) than the other countries have.



**Figure 1.** Average Unemployment Rates for the Period 2015-2019 (%).

Source: ILOSTAT (2020).

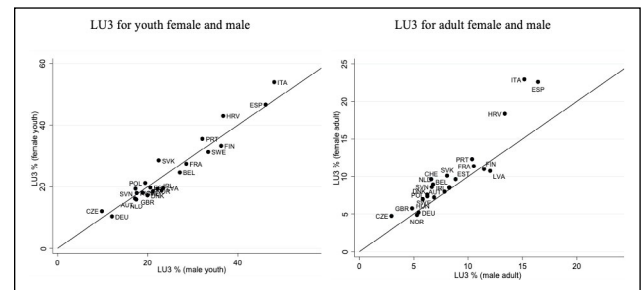


**Figure 2.** Average Combined Rate of Time-related Underemployment and Unemployment for the Period 2015-2019 (%).

Source: ILO (2020).

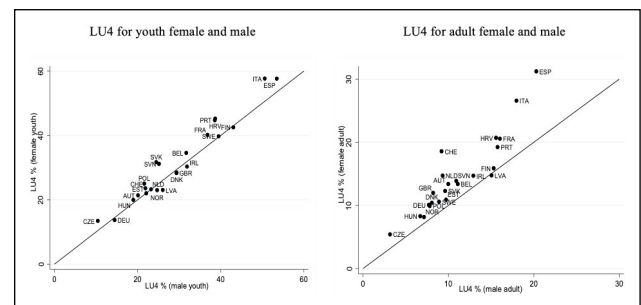
Figures 2 and 3 use broader labor underutilization measures of LU2 and LU3, respectively. They show the combined rates considering time-related underemployment and potential labor force in addition to unemployment. These two figures show that there is a substantial variation in LU2 and LU3 across countries. Rates plotted in these figures are more dispersed compared to Figure 1. LU2 ranges from 3 per cent to 27 per cent for adults and from 9 per cent to 52 per cent for youth while LU3 is between 3 per cent and 23 per cent for adults and between 10 per cent and 54 per cent for youth. Additionally, the figures indicate that LU2 and LU3 are gender-biased for adults. These measures for the adult female are greater than for adult males in almost all countries presented in the figure.

Figure 4 presents LU4 which is the broadest indicator to measure labor underutilization by including both time-related underemployment and potential labor force in addition to unemployment. Thus, the rates are considerably higher than the rates presented in Figures 1, 2 and 3. The scatter plots involving exceptional rates in the figure signal striking disparities across countries. The highest rates for both youth and adults belong to Italy and Spain. In these two countries, more than half of the youth are underutilized. Like LU2 and LU3, LU4 is also gender-biased with relatively high adult female rates.



**Figure 3.** Average Combined Rate of Unemployment and Potential Labor Force for the Period 2015-2019 (%).

Source: ILO (2020).



**Figure 4.** Average Composite Measure of Labor Underutilization for the Period 2015-2019 (%).

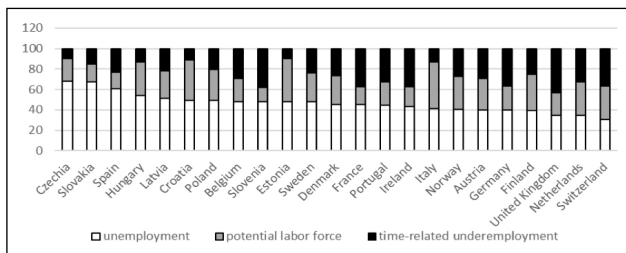
Source: ILOSTAT (2020).

## 2. THE SHARES OF UNDERUTILIZATION COMPONENTS

This section dwells on shares of each component in total underutilization. The shares are computed as the number of persons in each element of labor underutilization divided by the total number of underutilized persons (Figure 5). Starting from the left in the figure, countries are sorted by their share of unemployment in total labor underutilization. As we move from left to right, the unemployment share is decreasing whilst the shares of the potential labor force and time-related underemployment are not following a certain pattern across countries. Thus, as is depicted in the figure, it is not possible to generalize the relationship between shares of unemployment and hidden unemployment components (potential labor force or time-related underemployment). Figure 5 also indicates that the shares of the potential labor force and time-related underemployment is too large to be ignored. Their total share is 50 and over per cent in most of the countries (19 out of 23 countries). Among those countries, Czechia, Slovakia, Spain and Hungary have the smallest share of hidden components, with the shares of 32, 33, 40 and 47 per cent, respectively. Although countries have similar shares of unemployment, they differ in their shares of the potential labor force and time-related underemployment. This might stem from the country-specific labor market structures.

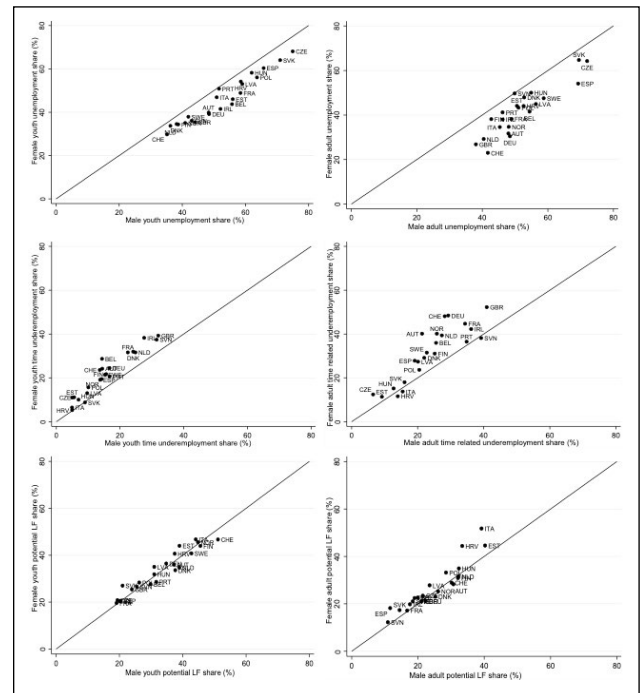
Figure 6 depicts age and gender-specific underutilization patterns in a comparative view. For both youth and adults, since unemployment shares are located on the right of the 45-degree line whilst time-related underemployment shares are located left of the line, there is a gender-biased distribution for these two components. As is seen in the figure, females have a larger time-related underemployment share in total underutilization than males while males have a greater unemployment share than females. For the potential labor force, the distribution by gender and age does not differ notably.

How do unemployment and other components of labor underutilization move in these countries? Figure 7 provides visual evidence on the shares of the elements of labor underutilization. In most of the countries, the share of unem-



**Figure 5.** Shares of Labor Underutilization Components in Total Labor Underutilization (%).

Source: ILOSTAT (2020).

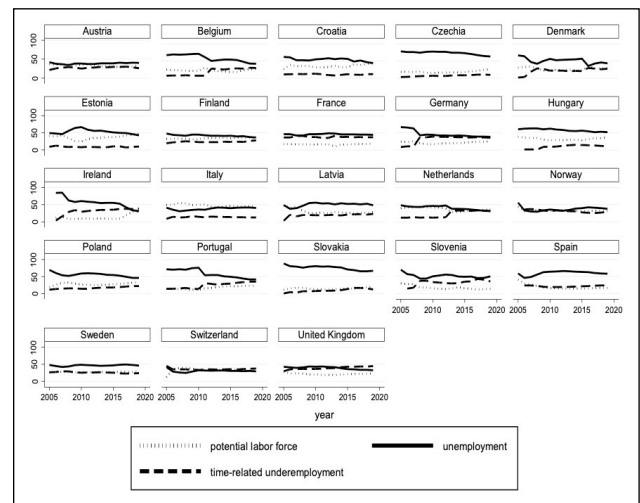


**Figure 6.** Share of Labor Underutilization Components by Age and Gender (%).

Source: ILOSTAT (2020).

employed is greater than those of the potential labor force and time-related underemployed. In particular, the gap between these shares of states is large in Slovakia, Czechia, and Spain with unemployment moving apart from the other two states. On the other hand, all these shares are very close to each other for Norway, Sweden, and Finland.

Figure 7 signals a negative relationship between unemployment and time-related unemployment, whereas the



**Figure 7.** Shares of the Labor Underutilization Components (%).

Source: ILOSTAT (2020).

share of the potential labor force is quite stable during the period of analysis. Time-related underemployment and unemployment are significantly correlated with a correlation coefficient of -0.67. The correlation coefficient between the potential labor force and unemployment is -0.51 and between the potential labor force and time-related underemployment is -0.26, and they are statistically significant.

Variations in percentages of these three states suggest that there exists a reallocation among these components of labor underutilization (Figure 7). It is clearly observed that most of the reallocation is between time-related underemployment and unemployment. Decreasing (increasing) share of unemployment is accompanied by an increasing (decreasing) share of time-related underemployment. Figure 8 draws attention to the reallocation between underutilization components and shows the whole picture of the labor market in a compact way.

In the face of aggregate labor market conditions, there may be a reallocation between different components of labor underutilization, namely between the unemployed, potential labor force, and time-related underemployed. In order to gauge the degree of reallocation, the Lilien index is calculated for the two age and gender groups (Figure 9).<sup>2</sup> The Lilien index is computed as follows (Lilien, 1982):

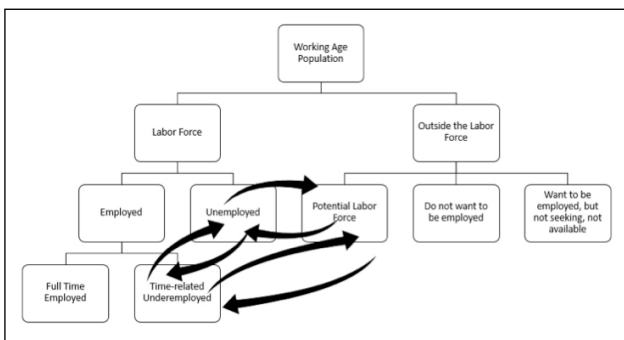


Figure 8. Reallocation between Components of Labor Underutilization.

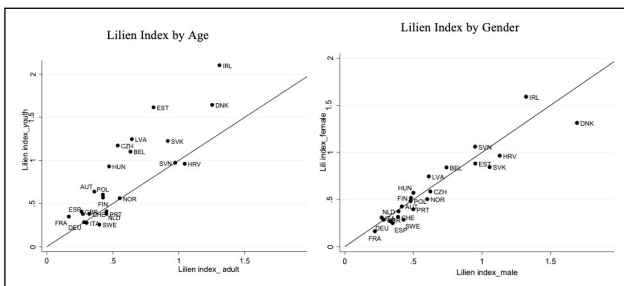


Figure 9. Lilien Index by Age and Gender (2015-2019).

Source: Authors' own calculations with ILOSTAT (2020) data.

$$\hat{\sigma} = \sqrt{\sum_{t=1}^N \left(\frac{x_{irt}}{X_{rt}}\right) \left[ \ln\left(\frac{x_{irt}}{x_{ir,t-1}}\right) - \ln\left(\frac{X_{rt}}{X_{rt-1}}\right) \right]^2} \quad (1)$$

where  $x_{irt}$  is the number of people in labor underutilization component  $i$  in period  $t$  in country  $r$  and  $X_{rt}$  is total labor underutilization in period  $t$  in country  $r$ . The share of labor underutilization component in total labor underutilization is used as the weight. A higher index number indicates that the reallocation is higher.

Figure 9 demonstrates the computed values of the Lilien index by age and gender. For most of the countries in the analysis, the levels of the Lilien index for the youth is higher than those of adults as revealed by the concentration to the left of the 45-degree line. In other words, reallocation between labor underutilization components is higher for the young. This is apparent especially for the higher values of the index. On the other hand, as is shown in the right panel of the figure, European countries are generally concentrated around 45-degree line indicating that reallocation between the unemployed, potential labor force and time-related underemployed is not different for women and men. Among those countries, Ireland and Denmark have a prominently high degree of reallocation.

### 3. ELASTICITY ANALYSES

There has been much literature on the relationship between unemployment and labor force participation. It is widely accepted that unemployment tends to drive workers out of labor force (Schwietzer and Smith, 1974). We might expect that the greater the number of unemployed people on the labor market, the higher the number of discouraged workers and/or persons in underemployment. The more remarkable question is how big an influence does the change in unemployment have on hidden unemployment? To assess the sensitivity of hidden unemployment to changes in unemployment, the elasticities of time-related underemployment and potential labor force with respect to unemployment are estimated by age and gender.

The estimation outcomes reported in Tables 3 and 4 are obtained with the fixed effect estimation method, which incorporates the time-invariant factors. All elasticity coefficients are positive and significant at 1 per cent.<sup>3</sup> An elasticity of less than one implies that as unemployment increases, hidden unemployment components also increase but less than proportionately. The results show that a 1 per cent increase in unemployment will raise the potential labor force by 0.45 per cent, and time-related underemployment by 0.67 per cent. Hence, the size of the unemployment does have more significant implications for time-related underemployment. The findings reveal that elasticity coefficients for the potential labor force do not vary with age and/or

<sup>2</sup> The Lilien index originally measures the standard deviation of the sectoral growth rates of employment from period  $t-1$  to period  $t$ . The index shows sectoral reallocation or sectoral shifts (Lilien, 1982).

<sup>3</sup> The elasticities are computed with the data belonging to each gender and age group (e.g., elasticity of hidden unemployment of youth with respect to youth unemployment).

**Table 3.** The Elasticity of the Potential Labor Force with respect to Unemployment

	(1)	(2)	(3)	(4)	(5)
Variables	logpotential	logpotential_male	logpotential_female	logpotential_young	logpotential_adult
logun_total	0.455*** (0.0401)				
logun_male		0.467*** (0.0381)			
logun_female			0.463*** (0.0443)		
logun_young				0.444*** (0.0500)	
logun_adult					0.465*** (0.0383)
Constant	2.579*** (0.239)	2.010*** (0.202)	2.275*** (0.230)	1.909*** (0.225)	2.315*** (0.217)

Source: Authors' own calculations

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: log refers to the natural logarithm.

**Table 4.** The Elasticity of the Time-related Underemployment with respect to Unemployment

	(1)	(2)	(3)	(4)	(5)
Variables	logtru_tot	logmale_tru	logfemale_tru	logtru_young	logtru_adult
logun_total	0.675*** (0.0869)				
logun_male		0.745*** (0.0834)			
logun_female			0.583*** (0.0944)		
logun_young				0.484*** (0.0824)	
logun_adult					0.701*** (0.0867)
Constant	1.046** (0.518)	0.174 (0.443)	1.515*** (0.491)	1.005*** (0.374)	0.900* (0.492)

Source: Authors' own calculations

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: log refers to the natural logarithm.

gender, suggesting that the potential labor force is almost equally sensitive to unemployment regardless of age and gender (Table 3). On the other hand, time-related underemployed men are more sensitive to unemployment than women. From the perspective of age groups, an increase in the unemployed adults of 1 per cent will raise the time-related underemployed adults by 0.70 per cent, while the corresponding elasticity coefficient for the young is 0.48.

In other words, time-related underemployed adults seem more sensitive to unemployment than the young.

#### 4. CONCLUSION

This study does focus on different labor underutilization measures namely unemployment, potential labor force and time-related underemployment in a comparative view

of gender and age. Employing different indicators provided by ILO, the descriptive analysis part of the paper reveals that labor underutilization indicators are gender-biased especially for adults. Generally, male adults have relatively less underutilization rates than female adults in many countries. For the selected European countries, a broader measure increases the number of countries experiencing a comparably high gender gap in labor underutilization. As we expand the indicator by including potential labor force and time-related underemployment in addition to unemployment, considerable variations across the countries exist as well. Besides, a serious youth labor underutilization problem is strikingly observed.

In addition to labor underutilization indicators, shares of each component in total underutilization are investigated in this study. The most obvious fact is that the share of hidden unemployment in total labor underutilization is too large to be ignored. In most of the countries, total shares of the potential labor force and time-related underemployment is 50 and over per cent. Regarding the gender aspect of the components, the share of time-related underemployment is larger for females while males have a larger unemployment share than females.

Additionally, a negative relationship between unemployment and time-related underemployment shares is detected during the period 2006-2019. For the same period, the share of the potential labor force is quite stable. The correlation between time-related underemployment and unemployment is stronger than the correlation between the potential labor force and unemployment as well. Meanwhile, the potential labor force and time-related underemployment has a weak correlation. There exists a reallocation among these components of labor underutilization and most of the reallocation is between time-related underemployment and unemployment. The Lilien index is calculated to display the extent of reallocation between three underutilization states. The index values point out a higher reallocation between unemployed, potential labor force, and time-related underemployed for the young. Moreover, reallocation between labor underutilization components is not gender-biased.

Furthermore, the elasticity of time-related underemployment with respect to unemployment is greater than that of the potential labor force. The elasticity analysis also indicates that time-related underemployment for males (adults) is more sensitive to unemployment than females (the young). Besides, the potential labor force is almost equally sensitive to unemployment regardless of age and gender so that the elasticity is not age and gender-biased.

In a nutshell, this study shows that variations in labor underutilization elements are considerably high and the shares of these components differ by age and gender groups across countries. These different underutilization patterns of countries point out country-specific underutilization problems. Therefore, it is worth considering gender, age

and country-specific aspects to track labor underutilization and develop policies to combat the problem.

**Ethics:** There are no ethical issues with the publication of this manuscript.

**Peer-review:** Externally peer-reviewed.

**Authorship Contributions:** Concept: Y.Ö., F.D.S.; Design: Y.Ö., F.D.S.; Supervision: Y.Ö., F.D.S.; Resources – Y.Ö., F.D.S.; Data collection and/or processing: Y.Ö., F.D.S.; Analysis and/or interpretation: Y.Ö., F.D.S.; Literature search: Y.Ö., F.D.S.; Writing Manuscript: Y.Ö., F.D.S.; Critical review: Y.Ö., F.D.S.

**Conflict of Interest:** The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

- Addy, S., Bonnal, M., & Lira, C. (2012). Toward a more comprehensive measure of labor underutilization: The Alabama case. *Business Economics*, 47(3), 214-227. <http://www.jstor.org/stable/23491649> [CrossRef]
- Baum, S., Bill, A., & Mitchell, W. (2008). Labour underutilisation in metropolitan labour markets in Australia: Individual characteristics, personal circumstances and local labour markets. *Urban Studies*, 45(5–6), 1193–1216. <https://doi.org/10.1177/0042098008089865> [CrossRef]
- Baum, S., & Mitchell, W.F. (2010). Labour underutilisation and gender: Unemployment versus hidden-unemployment. *Population Research and Policy Review*, 29, 233–248. <https://doi.org/10.1007/s11113-009-9137-6> [CrossRef]
- Bell, D. N. F., & Blanchflower, D. G. (2011). Underemployment in the UK in the great recession. *National Institute Economic Review*, 215(1), R23-R33. <https://doi.org/10.1177%2F0027950111401141> [CrossRef]
- Bell, D. N. F., & Blanchflower, D. G. (2013). Underemployment in the UK revisited. *National Institute Economic Review*, 224, F8-F22. <https://doi.org/10.1177%2F002795011322400110> [CrossRef]
- Bell, D. N. F., & Blanchflower, D. G. (2018). Underemployment in the US and Europe. NBER Working Paper 24927. <http://www.nber.org/papers/w24927> [CrossRef]
- Carter, K. A. (1982). Inadequacies of the traditional labor force framework for rural areas: A labor utilization framework applied to survey data. *Rural Sociology*, 47, 459–474. <https://search.proquest.com/scholarly-journals/inadequacies-traditional-labor-force-framework/docview/1291015225/se-2?accountid=12251>
- Cavalcanti, C., (1974). Some reflections for a study on labor underutilization. *World Development*, 2(4-5), 29-34. [https://doi.org/10.1016/0305-750X\(74\)90065-5](https://doi.org/10.1016/0305-750X(74)90065-5) [CrossRef]
- Clogg, C. C. (1979). *Measuring underemployment: Demographic indicators for the United States*. New York: Ac-



- ademic Press. <https://doi.org/10.1016/C2013-0-10507-7>
- Clogg, C.C., & Sullivan, T.A. (1983). Labor force composition and underemployment trends, 1969–1980. *Social Indicators Research*, 12, 117–152. <https://doi.org/10.1007/BF00318232> [CrossRef]
- Clogg, C. C., Eliason, S. R., & Leicht, K. T. (2001). *Analyzing the labor force concepts, measures, and trends*. Springer US. <https://www.springer.com/gp/book/9780306465376>
- Ducock, L. J., & Hagood, M. J. (1957). *The meaning and measurement of partial and disguised unemployment*. NBER Chapters in: The Measurement and Behavior of Unemployment, 155-166, National Bureau of Economic Research, Inc. <http://www.nber.org/chapters/c2641>
- Glyde, G. P. (1977). Underemployment: Definition and causes. *Journal of Economic Issues*, 11(2), 245-260. <https://doi.org/10.1080/00213624.1977.11503434> [CrossRef]
- Hauser, P. M. (1974). The measurement of labour utilisation. *Malaysian Economic Review*, 19(1), 1–15.
- Hauser, P. M. (1977). The measurement of labour utilization - more empirical results. *Malaysian Economic Review*, 22(1), 10–25.
- ILO (2020). *World employment and social outlook: Trends 2020*. International Labour Office – Geneva: ILO, [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_734455.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_734455.pdf)
- ILOSTAT (2020). *International Labour Organization Database*. <https://ilostat.ilo.org/data/>
- Jensen, L., Findeis, J. L., Hsu, W. L., & Schachter, J. P. (1999). Slipping into and out of underemployment: Another disadvantage for nonmetropolitan workers? *Rural Sociology*, 64(3), 417–438. <https://doi.org/10.1111/j.1549-0831.1999.tb00360.x> [CrossRef]
- Kingdon, G., & Knight, J. (2006). The measurement of unemployment when unemployment is high. *Labour Economics*, 13(3), 291-315. <https://doi.org/10.1016/j.labeco.2004.09.003> [CrossRef]
- Lilien, D. (1982). Sectoral shifts and cyclical unemployment. *Journal of Political Economy*, 90(4), 777-793. <http://www.jstor.org/stable/1831352> [CrossRef]
- Mitchell, W., & Muysken, J. (2008). *Full employment abandoned: Shifting sands and policy failures*. Cheltenham, UK: Edward Elgar. [CrossRef]
- Pazos, F. (1975). Development and the underutilisation of labour: lessons of the Dominican Republic employment mission. *International Labour Review*, 111(3), 235-49. [https://www.ilo.org/public/libdoc/ilo/P/09602/09602\(1975-111-3\)235-249.pdf](https://www.ilo.org/public/libdoc/ilo/P/09602/09602(1975-111-3)235-249.pdf)
- Prause J., & Dooley, D. (2011). Youth underemployment. In: Maynard D., Feldman D. (eds) *Underemployment*. Springer, New York, NY. [https://doi.org/10.1007/978-1-4419-9413-4\\_4](https://doi.org/10.1007/978-1-4419-9413-4_4) [CrossRef]
- Price, H.F. (1976). The cost of male subemployment in the black community. *The Review of Black Political Economy*, 6, 213–224. <https://doi.org/10.1007/BF02689523>
- Ruiz-Quintanilla, S., & Claes, R. (1996). Determinants of underemployment of young adults: A multi-country study. *Industrial and Labor Relations Review*, 49(3), 424-438. <https://doi.org/10.1177%2F001979399604900303>
- Schweitzer, S., & Smith, R. (1974). The Persistence of the discouraged worker effect. *Industrial and Labor Relations Review*, 27(2), 249-260. <https://doi.org/10.1177%2F001979397402700207> [CrossRef]
- Sibirskaya, E.V., Volkova, M.V., Oveshnikova, L.V., Shchukina, N.A., & Lula, P. (2020). Monitoring of regional labor markets and the main trends of labor underutilization in Russia. *International Journal of Sociology and Social Policy*, 41(1/2), 103-115. <https://doi.org/10.1108/IJSSP-03-2020-0090> [CrossRef]
- Song, C., & Wei, C. (2019). Unemployment or out of the labor force: A perspective from time allocation. *Labour Economics*, 61(C). <https://doi.org/10.1016/j.labeco.2019.101768> [CrossRef]
- Vietorisz, T., Mier, R., & Giblin, J. (1975). Subemployment: Exclusion and inadequacy indexes. *Monthly Labor Review*, 98(5), 3-12. <http://www.jstor.org/stable/41839978>
- White, R. (1969). Measuring unemployment and subemployment in the Mississippi Delta. *Monthly Labor Review*, 92(4), 17-23. <http://www.jstor.org/stable/41837612>
- Wilkins R., & Wooden M. (2011). *Economic approaches to studying underemployment*. In: Maynard D., Feldman D. (eds) *Underemployment*. Springer, New York, NY. [https://doi.org/10.1007/978-1-4419-9413-4\\_2](https://doi.org/10.1007/978-1-4419-9413-4_2) [CrossRef]



## Yıldız Social Science Review

Web site information: <https://yssr.yildiz.edu.tr>  
DOI: 10.51803/yssr.859303



### Original Article / Orijinal Makale

# Cooperation between Turkey and Libya on Maritime Transport *Libya ile Türkiye Arasında Deniz Ulaştırması Alanında İşbirliği*

Ergün DEMİREL<sup>a</sup>

<sup>a</sup>Department of Maritime Transportation and Management Engineering, Piri Reis University,  
Maritime Faculty, Istanbul, Turkey

<sup>a</sup>Piri Reis Üniversitesi, Denizcilik Fakültesi, Deniz Ulaştırma İşletme Mühendisliği Bölümü, İstanbul, Türkiye

### ARTICLE INFO

#### Article history

Received: 12 January 2021

Accepted: 7 November 2021

#### Key words:

Cooperation for Maritime Transport, Libya, Middle East, North Africa, Turkey

### MAKALE BİLGİSİ

#### Makale Hakkında

Geliş tarihi: 12 Ocak 2021

Kabul tarihi: 7 Kasım 2021

#### Anahtar kelimeler:

Denizcilik alanında işbirliği, Libya, Ortadoğu, Kuzey Afrika, Türkiye

### ABSTRACT

Turkey is an important agent in MENA region, especially in the Eastern Mediterranean. Although it does not have oil sources, Turkey is one of the developing countries of the region. It has historical and cultural ties with all countries in the region. Libya, on the other hand, is a country with significant oil reserves in the world and is dependent on foreign countries with its limited industry and agriculture. Since the year 2011 civil unrest and war continue in this country. While France, Egypt, Greece, Italy, GCA (Greek Cypriot Administration), United Arab Emirates support the Libyan National Army, Turkey and Qatar support to the Nation Reconciliation Government (GNA) at the West recognized by the United Nations. This situation is temporary and will change soon. It is inevitable to achieve order by reaching a consensus in Libya soon.

The aim of this research is to evaluate possible development and economic activities in Libya, in the near future and defining the scope of maritime transport will be realized for this purpose. Finally, assessing the sustainable cooperation areas in the *maritime transportation* between Libya and Turkey.

This research starts analysing the political, economic, social, and military relations of the two countries and as a result, identifying possible areas for a sustainable cooperation in the maritime transportation. Afterwards, the determined areas of cooperation will be examined separately, and the results and proposals will be presented.

**Cite this article as:** Demirel, E. (2021). Cooperation between Turkey and Libya on Maritime Transport. *Yıldız Social Science Review*, 7(2), 147–159.

### ÖZ

Türkiye MENA Bölgesinde özellikle de Doğu Akdeniz’de önemli bir aktördür. Petrol yataklarına sahip olmamasına rağmen, bölgenin gelişmiş ülkelerinden birisidir. Bölge ülkeleri ile tarihsel ve kültürel bağları bulunmaktadır. Libya ise Dünyanın önemli petrol yataklarına sahip bir ülkedir; kısıtlı sanayisi ve tarımı ile dışa bağımlıdır. 2011 yılından bu yana, iç huzursuzluk ve savaş ortamı süren bu ülkede, Fransa, Mısır, Yunanistan, İtalya, (Kıbrıs Rum Yönetimi), Birleşik Arap Emirlikleri ülkenin Doğusundaki Libya Ulusal Ordusuna, Türkiye ve Katar ise Birleşmiş Milletler

\*Corresponding author / Sorumlu yazar

\*E-mail: edemirel@pirireis.edu.tr



Published by Yıldız Technical University Press, İstanbul, Turkey

Copyright 2021, Yıldız Technical University. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

tarafından tanınan Batıdaki Ulusal Mutabakat Hükümetine destek sağlamaktadır. Bu durumun sonsuza kadar devam etmesi beklenemez. Yakın bir gelecekte Libya'da bir mutabakat sağlanarak sürdürülebilir bir düzenin sağlanması gerekmektedir.

Bu araştırmanın amacı, Libya'daki muhtemel gelişmeleri ve yapılacak ekonomik faaliyetleri ve bu amaçla yapılacak deniz ulaştırmasının kapsamını değerlendirerek; Türkiye ile Libya arasındaki denizcilik konusunda sürdürülebilir işbirliği imkânlarını ortaya koymaktır.

Bu araştırma iki ülkenin politik, ekonomik, sosyal, askeri ilişkilerinin değerlendirilmesi ve bunun sonucu olarak denizcilik alanında sürdürülebilir işbirliği sahalarının belirlenmesi ile başlayacaktır. Bilahare belirlenen işbirliği sahaları ayrı ayrı irdelenerek bu alanda sonuç ve öneriler sunulacaktır.

**Atf için yazım şekli:** Demirel, E. (2021). Cooperation between Turkey and Libya on Maritime Transport. *Yıldız Social Science Review*, 7(2), 147–159.

## 1. INTRODUCTION

As result of the Civil War and Foreign Intervention in Libya in 2011, damage and disorder from the war has been considerable. There are frequent electric outages, little business activity, and a loss in revenues from oil by 90%. A third of the country's population has fled to Tunisia as refugees. Main source of the country, oil production has fallen from 1.6 million barrel per day to 900,000 in five years of war and civil disturbance. Despite periodic economic and political crisis, a considerable emerge of economic activity is expected reconstruction of urban areas and infrastructure is expected soon (Abmdas & Demirel, 2018).

The most important economic aspect for Libya is inclusion in the international economy. To achieve that Libya should establish a continuous shipping and open its ports for operation in a short period. Shipping is one of the most important forms of transportation for global trade. The ports play an important and vital role in the maritime transport chain because it represents the link between road transport and maritime transport, in addition cannot be global trade that have an affair in the absence of ports).

The development of global supply chains requires high inland accessibility and efficient port operations. There is a tendency towards logistics integration in the shipping and port industry. The integration between ports and logistics-related activities contributes to the development of the concept of a "port-hinterland relationship" (Notteboom and Rodrigue 2005).

Container and Ro-Ro terminals are nodes that link with other inland transport modes such as highways, railways, and inland waterway systems. The role of container terminals is now evolving from a cargo handling point to a distribution centre enhanced and became logistic bases. Hence, container and Ro-Ro terminals have a significant role to provide interface between the areas of production and consumption.

### 1.1. Political Situation in Libya

Libya is a country with a long sea lane and a large part of its land is a desert without suitable living conditions (Fig. 1). The country is surrounded by Chad, Niger, Algeria, Tu-

nisia, and Egypt. Libyan borders with other countries are in the desert, and the control of border crossings is almost impossible.

After the overthrow of Gaddafi government in 2011, United Nations recognized the National Transitional Council (NTC) [now called as Government of National Accord-NGA] at Tripoli as legal representative in Libya. Most of the population refused the legality of NTC government and The House of Representatives (HoR), elected in 2014 relocated to Tobruk. Second Libyan Civil War started at 2014. General Haftar led HoR take over the control of two-thirds of Libya in a short period as NTC controls only a small part of country including Tobruk and Tripoli. Two governments in Libya; Tobruk based HoR. and LNA (Libyan National Army) supported by Libyan House of Representatives are now controlling Eastern and Central Libya. HoR does not have a regular army but some militia groups supported by only Turkey and Qatar. Political Situation in Libya is shown in the Figure 1 extracted from Africa Center for Strategic Studies (2020).

Libya is an important country having oil reserves and all respective parties are looking for stabilization in Libya without military operation unless needed. Libya's eastern-based military leader Khalifa Haftar said his Libyan National Army (LNA) was accepting a "popular mandate" to rule the country, apparently brushing aside civilian au-



**Figure 1.** Libya and Neighbourhoods (Source: Encyclopaedia Britannica, 1998).

thorities nominally governing eastern Libya (Defense web, 2020). Two third of the country is under the control of LNA and military power is rather strong comparing with GNA. The LNA have overt support of Western countries in the diplomatic arena (Fig. 2).

### 1.2. Powers/Actors Politics on Libya

Since Gaddafi took power, oil has been the main resource in the hands of the leader of the newly proclaimed Libyan Arab Republic. The triumph of the 1969 revolution marked a paradigm shift, moving the new government to use its oil income to boost redistributive measures among the population, generating a new model of economic and social development for the country. According to analysts, among the measures of “economic sovereignty” which drove Gaddafi’s policies were the nationalization of various Western oil companies. Throughout Gaddafi’s tenure, ambitious social programs were launched in the areas of education, health, housing, public works and subsidies for electricity and basic foodstuffs. These policies led to a substantial improvement in the living conditions of Libyans, from being one of the poorest countries in Africa in 1969 to being the continent’s leader in its Human Development Index in 2011 (Telesur, 2015).

United Nations Development Programme (2010) considered Libya a high-development country in the Middle East and North Africa. This translated status meant a literacy rate of 88.4 percent, a life expectancy of 74.5 years, gender equality, among several other positive indicators.

France is effectively using the Libyan conflict to keep making a profit, even if this means that its weapons are used to further the violence Although France denies taking sides in the conflict (Open Democracy-2020). Although France denies taking sides in the conflict, French President Emmanuel Macron was the first Western leader to invite General Haftar to Europe for peace talks, and France launched air strikes in support of his forces in February 2019. They targeted Chadian opposition forces fighting against the LNA in the south (BBC, 2020). Khadafy has been a strong

threat for France controlled Central Africa after Libya has started an offensive in Chad. France is happy with a Libya without Khadafy and a weaken Libya which cannot involve their area of interest. It is French policy to get involved in all conflict areas in the world and looking for probably military sales to Libya as it was in 1980s. Haftar’s army has received financial and military support from Egypt, Saudi Arabia, and the United Arab Emirates (UAE). However, another nation that has also been propping up Haftar’s forces is France. Being a member of the UN Security Council, this support is somewhat controversial as France’s official position is in support of the UN-backed GNA, rather than the opposing side. But Macron’s administration sells weapons to Egypt, Saudi Arabia, and the UAE, and likely does not want to lose them as customers.

NATO quickly retreated leaving Libyans to piece their country back together (Open Democracy-2020). Though the United States helped lead the North Atlantic Treaty Organization (NATO) coalition that brought down Qaddafi in 2011, it no longer has a presence in Libya and has played a limited role in the current conflict. The United States officially supports the GNA but has not provided it with military support in its battle against the LNA. The primary U.S. concerns in the region are counterterrorism-related, and the United States has conducted joint air strikes with the GNA against Libya’s Islamist groups (Council on Foreign Relations, 2021). US is the main actor in Libya. relations between US and pro-Haftar is not a secret and now anti-US Gaddafi era is over. Only problem is Libya to defeat the Islamist groups and riot tribes in the South. Many. US politicians believe that America led power projection to Libya was a mistake and it should not be repeated. So, US prefer not a direct involvement at that stage but providing support to Haftar to establish stabilization, having the support of allied countries.

Due to Russia’s preference for a finite LNA offensive and uncertainties about Haftar’s leadership capabilities, Moscow has maintained a diplomatic backchannel with the GNA. As Haftar’s offensive continued, Russia maintained positive relations with the LNA through PMC deployments, which are reportedly financed by Saudi Arabia, and stepped up its arbitration role in Libya (RUSI, 2021). It is then evident that Russia, which has increased its presence in Libya especially in recent years, aims not so much to realize its economic and security interests there as to become a player with a voting right in a geopolitical competition that runs both between global and regional forces in the Mediterranean region (INSAMER; 2020). Russia’s political aim is to stop US direct intervention to Libya and become a key player. Russia declared that Russia would provide support to LNA if the intervention will be conducted under UN umbrella but not NATO.

Italian foreign policy always interested in dynamics of cooperation and conflict in key geographical regions such



**Figure 2.** Political Situation in Libya as of June 2020 (Source: Africa Center for Strategic Studies, 2020).



as the Mediterranean and Middle East, Asia, Eurasia, Africa and the Americas (Altunışık, 2020). The country's interests in the fate of Libya are huge and compare to no other European country, from dependence on Libyan hydrocarbons, to migration, to terrorism. How successful Italy has been at protecting these interests, or safeguarding Libya's political transition, is less certain (ECFR, 2020). Before 2011 Italians got important projects in Libya and they want to continue them as well as they assume that Libya is the nearest and most feasible oil source for them. Although Italians are in a position to follow EU policy for Libya, they do not want a direct involvement which may create a negative impact for future relations with Libya. Before 2011.

Federal Germany focuses on preventing refugees from reaching Europe, and Libya gains importance for Germany within the framework of this policy. Berlin's interest in Libya is that this country, which is very rich in oil and natural gas resources and geographically close to Europe, is one of the important alternatives in Germany's energy supply (SETA; 2020). Standing out as the leader of the EU in times of crisis, Germany should also play a leadership role in solving the Libyan crisis, which has become a conflict area for EU countries such as France, Italy, and Greece. Otherwise, the deepening of this crisis may cause greater damage to the EU integration, which is already experiencing serious problems.

In terms of Libya, the military and intelligence assistance that Turkey provided to the GNA led to a reversal of the military balance and a rethinking of the political calculations of all actors involved in the Libyan crisis. Egypt's decision-makers realized that there is a need for a new approach to deal with the Libyan conflict in order to prevent Turkey from expanding its influence over the GNA (Arab World, 2021). Sisi wants to stop Muslim Brothers settlement in stern Libya which is the biggest threat for his government. Egypt is the strongest supporter of Haftar.

Britain's Secretary of State for the Middle East, James Cleverly, stated that her country stands by the legitimate Government of National Consensus (GNA) recognized by the United Nations (UN) in Libya (Egypt Independent, 2021).

Turkey and Qatar support GNA at the West. Turkey claims that GNA is the legal government recognized by UN as it fights against UN recognized Assad's government in Syria. Turkey also accused by many countries providing military support to Muslim Brother which is the enemy for Egypt as well as Jihadist Islam organization in the West (Arab World, 2021).

Turkey's military assistance to the Government of National Accord (GNA) has enabled the Tripoli-based government to turn the tide of the civil war and capture territory held by the Libyan National Army (LNA) forces command-

ed by Khalifa Haftar, who has received covert support from France in addition to substantial support from Egypt and the United Arab Emirates (UAE). Following the Courbet incident<sup>1</sup>, France's foreign minister Jean-Yves Le Drian condemned Turkey's "growing military support" claiming it to be "in direct violation of the United Nations embargo.

Since April 2019, the United Nations-recognized and Tripoli-based Government of National Accord (GNA), supported by armed groups in western Libya nominally under its control, has been embroiled in an armed conflict with the rival Interim Government based in eastern Libya, which is affiliated with the armed group Libyan Arab Armed Forces (LAAF) [LNA] under the command of General Khalifa Haftar (Human Right Watch, 2021). On October 23, conflict parties signed a country-wide ceasefire agreement in Geneva.

Migrants, asylum seekers, and refugees in Libya—including thousands intercepted at sea while trying to reach Europe and returned by the European Union-supported Libyan Coast Guard—faced arbitrary detention, during which many experienced ill-treatment, sexual assault, forced labour, and extortion by groups under the GNA Interior Ministry, members of armed groups, smugglers, and traffickers.

For the last decade, external sponsors and non-state actors have pursued conflicting interests in Libya, turning the initial civil war into a protracted conflict with no end in sight. However, recent events suggest that the country is once again on Washington's radar. Given the wide-ranging regional security risks posed by the situation, the Biden administration is likely to become involved in some capacity (Fasanotti, 2021).

The UN Security Council has authorized international monitors to watch over a nearly six-month-old cease-fire agreement in Libya as the country heads toward December elections after a decade of fighting and upheaval (Egypt Independent, 2021).

If we make estimation for the future of Libya, there is a huge coalition supporting Haftar who also had a regular army commanded by ex-Libyan officers. The GNA supported by only Turkey and Qatar cannot stand against Haftar's forces for a long duration.

### 1.3. Turkish Energy Policy and Libya

Turkish Ministry of Energy and Natural Sources (ETKB, 2017) explains that Turkish energy policy has three distinct components. These components are procurement diversification, securing sufficient reserve; instrument to elevate its geopolitical importance, and to a lesser extent, means. Yilmaz (2018) explains Turkish energy policy as follows: (1) enabling the country to diversify its suppliers and thus secure its energy reserves at home; (2) using as a 'transit country'

<sup>1</sup> The French frigate Courbet patrols the eastern Mediterranean as part of Operation Sea Guardian under NATO mandate. On June 9, the day before the incident, the French frigate was ordered to inspect a Turkish freighter, the Cerkin, suspected of arms smuggling.

position as leverage against its rivals, enabling it to maximize national interests and being a emerging regional power.

Turkey is a petroleum and natural gas poor country. So, energy policies. Has always been priority for Turkish economy and foreign policy. Turkey has established a vision (Political Vision 2023) which aims to be a global player a powerful mediator for peace and stability in the Middle East ; which portrays Turkey as a rising global player, a powerful mediator. Energy policy is an essential element which shapes the foreign policy. AK Parti (2012) states that the Turkish government openly associates the country's political and economic stability with its regional energy-related interests and intends to be in a constant dialogue with all of its neighbours in this regard.

Turkish government strives to integrate the country into the energy and transportation networks already established in the Middle East by presenting itself as a trade hub for the resources flowing through the Caspian Sea, the Black Sea, and the Mediterranean (MFA 2013). To secure energy demand of the country Turkey is trying to reduce 70 percent energy import dependency, diversifying energy sources (ETKB, 2017).

There were many projects handled by Turkish contractor and Libya was the most suitable oil producing country before 2011. Nowadays Turkey tries to get some contractor works from GNA government. But, if LNA takes over the overall control of Libya, Turkey may have many problems to establish economic and political links with Libya due to its pro-GNA policy.

#### 1.4. Libyan Economy

The petroleum and natural resources are the main element of Libyan economy. According to World Bank (2020a) oil production decrease around 0.4 million barrels per day (bpd) or the fourth of potential”.

Budget deficiency is still a problem. Deficit was 7.3 percent of GDP in 2020 and 1.4 percent expected in 2022 as economic growth still goes down. Libyan economy continued to suffer from the disordered political conflict and subsequently worsening financial situation and GDP is halved comparing with 2011 (World Bank, 2020a). In this situation, it is unlikely to make investment for reconstruction of damaged infrastructure in Libya.

Libya is the nearest petroleum exporter for Europe. It is strongly believed that all parties which have interest in Libya will take action to establish order an facilitate economic activities in this country. Abmdas and Demirel (2018) states that “Despite periodic economic and political crisis, a considerable emerge of economic activity is expected in the near future in particular reconstruction of urban areas and infrastructure is expected soon”.

#### 1.5. Economic Situation of Turkey

At the beginning of 2000s, the Turkish economy had a good performance and GDP grew, unemployment rate

is reduced. After 2008 foreign debts have increased and mistakes in foreign policy started to effect economic relations. Turkey still has not recovered after the 2008 crisis. The spending of the budget on unnecessarily expensive projects and tender frauds made the economy difficult to manage. There is a serious problem in the repayment of approximately \$ 600 billion foreign debt. While TL constantly depreciated, interests increased, and investments almost stopped. There is no foreign exchange reserve in the Central Bank, and it has even decreased to minus \$ 120 billion. World Bank (2020b) assessment for Turkey is as follows; in the past few years, growing economic vulnerabilities and a more challenging external environment have threatened to undermine those achievements”.

Turkey's status declined from Partly Free to Not Free due to a deeply flawed constitutional referendum that centralized power in the presidency (Freedom House, 2019). Termination of political and economic reforms, political conflicts among US, EU, and Russia, uprising of autocratic governance after 2016 Turkey's slip out of both democratic and legal norms, continuously increasing budget deficiency cast a shadow on Turkey's reliability. Consequently, this situation seriously affected the foreign investments. Turkish involvement in conflicts in the Middle East has also created a negative impact on relations between Turkey and its allies. The COVID-19 pandemic also negatively affected production, export, and import.

The overall macroeconomic indicators are more vulnerable and uncertain, given rising inflation and unemployment, contracting investment, elevated corporate and financial sector vulnerabilities, and patchy implementation of corrective policy actions and reforms (World Bank, 2020b). Unfortunately, there is no attempt to recover economic collapse unless new economic policies are adopted.

## 2. RESEARCH AND RESULTS

Currently, Turkey and Libya are faced with serious economic problems and needs. Libya's priority is now rapid reconstruction its damaged infrastructure. Turkey is looking for increase of exports to gain foreign currency which is vital for its production. Cooperation between these two countries could be a good solution.

Turkey has one of the largest construction industries in the world. The country has 44 contracting companies building the largest volume of projects across the world outside their home country “Top 250 international contractors list, 2019” (ENR, 2020), Turkish construction companies would benefit from some more positive global developments, including the normalisation of its bilateral ties with Russia and a significant increase in demand from new potential markets, such as sub-Saharan Africa.

It is stated that the number of receivables of Turkish companies in return for their works in Libya is 4.5 billion dollars. It is not known exactly when the receivables will be

collected. Companies do great harm. companies doing business in Libya, Turkey intensity is engaged in the construction industry. There are also those who have hotel investments. Currently 180 Turkish companies doing business in Libya. TML Construction, Taşyapı, Emergence, Gürış, Kolin, Cengiz, GAP, Özaltın, Nurol and paperclips as the leading contracting companies operated in Libya. According to sector officials, only a few companies continue to operate in Libya by reducing their operations (Emlak Kulisi- 2015). In the contracting sector, Turks and secondly Italians have the great portion, and joint projects with many countries such as PRC, Brazil, Russia, Indonesia, South Korea, USA, Malta. are in progress (Turkish Ministry of Commerce, 2020).

Turkish strategic relationship and cooperation with Libya over the coming decades should be holistic to help with reaching lasting peace as well as institution and state building. Help can also cover construction across all sectors including security services reform, energy, transport, healthcare, housing, and infrastructure (Insight Turkey, 2020). However, during the Civil War, Turkish support to GNA may cause a serious problem between the relations. It is likely that the NLA will be dominant party and assume overall control of Libya in the near future Realignment of Turkish policy in Libya is required.

### 2.1. Turkey's Politics in the Eastern Mediterranean

Turkey is an important factor in MENA (Middle East and Northern Africa) region, especially in the Eastern Mediterranean. Turkey has economic, historical, and cultural ties with all countries in this region. Libya, on the other hand, is a country with significant oil reserves in the world and is dependent on foreign countries with its limited industry and agriculture.

This conflict is no longer just a Libyan affair. There are many other key players now involved, and all with their own interests and motivations (Open Democracy, 2021). The civil unrest and war started in 2011 and continues in Libya. While France, Egypt, Greece, Italy, Cyprus (Greek Cypriot Administration), United Arab Emirates support the GNA government at the West, Turkey, Qatar and in a limited way the United States provide support to the Libyan National Army recognized by the United Nations. This situation cannot be expected to continue forever. It is inevitable to achieve order by reaching a consensus in Libya soon with the involvement of international community. Once peace is established, the reconstruction of Libya will start immediately. The reconstruction of economic and military facilities which are approximately destroyed in the civil war is to require the transportation of thousands of tons of materials, especially for construction work materials to Libya by sea.

The LNA launched an assault on Tripoli in April 2019 and today controls large swaths of Libya's east and south. Haftar claimed military rule over eastern parts of the country in April 2020 (CFR, 2020). Opposition fighters (GNA) are still only loosely organized under the aegis of the Na-

tional Liberation Army (NLA) and are a diverse assortment of forces with low tactical capacity to fight a full-scale war. Turkey has made military intervention against the NLA in Libya which probably will be the winner party concerning tactical situation. Additionally, it could not find any ally in the region. This will create dangerous political and economic results when Turkey starts to establish ties with unified Libya.

Turkey and Libya (UN recognized GNA side) have signed a Security and Military Cooperation MOU (Memorandum of Understanding) on 27 November 2019 covering establishment of Rapid Response Force, establishment of 'Defence and Security Cooperation Office', Education, counselling, support will be given materials and planning, Allocation of Land, sea and air vehicles, weapons, training bases, Joint exercises, intelligence sharing, "peacekeeping" operations, Military equipment donation, sold or rental (KAS, 2020).

Greece has taken very careful steps on the Libyan conflict. Greek government has never involved in any intervention against any parties in Libya. This approach will assist to Greece when she establishes good relations with new formation in Libya. Işeri and Bartan (2019) makes an assessment "Contrary to Turkish policy, Greece tries to establish an alliance with all respective parties related to Eastern Mediterranean conflicts and problems".

Because of the policies implemented by Turkey, there are serious problems in political relations with all Arab countries except Qatar (Başkan, 2019) This situation adversely affects not only political but also economic relations with these countries. Turkish current policy may create serious problems in the future in terms of Turkish - Libyan relations. Libya is an important source of oil and Turkey have economic relations that started many years ago, especially in terms of construction works. Our current policies will hardly hinder the re-development of future economic relations.

Nevertheless, Turkey could be amenable to change its course in Libya if it sees an opportunity to address the driving factors for its intervention through political and diplomatic efforts. Eljarh (2020) suggests that "These include securing allies in the next unity government, receiving guarantees regarding its exclusive economic zone with Libya, reactivating billions of dollars in contracts, and establishing a direct dialogue channel with Egypt. Likewise, better engagement from Europe in relation to Turkey's concerns in the Eastern Mediterranean may also result in Ankara changing its course in Libya.

### 2.2. Restoration Requirement of Libya

Libya provides country's income from oil exporting. Currently, the urgent need of Libya is to rapidly repair seriously destroyed oil production facilities and to increase oil production. El Wardany (2020) assesses that "If oil exports are increased, the priority activities will be repairing heavily



damaged infrastructure facilities and rebuilding unusable dwellings because of heavy air bombing and civil war”.

As a result of its political system, the possibility of making large investments in Libya is only the government's monopoly. Currently, there are no large-scale renovation and renewal infrastructure projects planned by both existing governments in Libya. The revenues are mostly used for to meet the immediate needs of the population such as emergency aid to the people in need, execution of municipal services, repair of destroyed roads repairs and emergency repairs to make some facilities operational.

Now airport and port development have priority to keep the Libya connected to the global economy. The ports have a significant role to connect the links between consumption and production centres. The reconstruction and rehabilitation projects need construction material and machinery. Libya has not sufficient industrial facilities to produce construction material and equipment. (Abmdas, 2017). So, these materials and equipment will be procured from abroad, may be from Turkey. Transfer of all these materials will reach the ports by maritime transportation and then to construction sites by land transportation. This gives priority to rehabilitation of port and land transportation infrastructure.

The sea transportation is necessary to carry civil construction material and equipment from abroad. The container ships, Ro-Ro ships, and solid bulk carriers would be the best carriers for these kinds of material.

### 2.3. Libyan Economy

It is very difficult to collect reliable economic data due to the lack of order in Libya and the existence of two separate governments. For this reason, in this section, information obtained from different sources has been analysed comparatively.

The Libyan economy has recently been hit by four overlapping shocks: an intensifying conflict that suffocates economic activity, the closure of oil fields that puts the country's major income-generating activity largely on hold, decreasing oil prices that reduce income from oil production in surviving fields, and the COVID-19 pandemic (with 3,438 confirmed cases and 73 deaths as of August 2020), which threatens to further suppress the economy. A politi-

cal resolution in Libya is needed to implement the required reforms for a private sector driven growth and jobs generation (World Bank, 2020a).

The economic impact was already felt in 2019 as real GDP growth slowed sharply to 2.5%, down from what seemed a promising steady recovery during 2017–18, with a record growth performance of 20.8% on average. As military confrontations escalated, oil production decreased from 1.2 million bpd in December 2019 bpd to 0.1 million bpd in April 2020, choking the lifeline of the economy (World Bank, 2020a).

Libya is expected to produce a daily average of only 0.17 million barrels in 2020, which is less than one seventh of last year's production. As a result, GDP is expected to shrink by 41% this year. The adopted budget for 2020 partially reflects this dire situation, with a large, forecasted deficit, the highest in recent years. Likewise, the current account is expected to run astronomic deficits in 2020 (World Bank, 2020a).

Turkish- Libyan Commercial Activities are resumed in the Table 1.

Some details one import and export between Turkey and Libya are as follows:

*Main export products* of Turkey: Furniture, textile, jewellery, carpet, drug, cement

*Main import products:* Gold, Petroleum and Chemical products, scrap metals

*Tourism:* Number of Libyan citizens visiting Turkey: 99.395 (2017), 188.312 (2018)

The following figures shows Economic Indicators of Libya in 2017. (Turkish Embassy in Libya, 2018) (Table 2).

#### The main commercial partners:

**Imports:** Italy (15.1%), Spain, France, China (12.3%), Turkey (7.1%), South Korea (5.1%), Tunis (4.7%)

**Exports:** Italy (17.7%), France (13.1%), Germany (11.9%), Netherland (8.5%), Switzerland (6.1%), Spain (6.0%)

*Main export products:* Petroleum and Chemical products

*Main import products:* Machineries, Electrical and Electronic products, foods

In order to sustain the Libyan economy, it is essential to raise oil production to pre-2011 levels and to restore production and survival facilities that were almost completely destroyed during the war. For this purpose, damaged oil

**Table 1.** Turkish- Libyan Commercial Activities

Year	Export (Billion USD)	Import (Billion USD)	Volume	Balance (Billion USD)
2014	2.060	0.249	2.309	1.811
2015	1.420	0.196	1.616	1.224
2016	0.906	0.161	1.067	0.745
2017	0.880	0.248	1.128	0.632
2018	1.498	0.367	1.865	1.131
2019	1.963	0.478	2,441	1,485

Source: Izmir Chamber of Commerce, (2019) based on TUIK.

**Table 2.** Fact and Figures of Libya's Economy

GDP 105.6 billion USD	Real GDP increase: 3%
Population: 6.700.000	GNP per capita: 7.970 USD
Inflation: 12.5 %	Unemployment: 17.7%
Export (FOB): 13.8 billion USD	Import (CIF): 9.2 Billion USD

Source: Turkish Embassy in Libya, 2018.

transfer lines and port facilities must be repaired swiftly, and the damaged transportation network and social facilities must be put into operation in order to sustain normal life in the country. Unfortunately, Libya's technical infrastructure and manpower are not available for these repairs. This situation requires Libya to cooperate with other countries and get foreign technical and financial support. The countries that have done business in Libya before are already making plans for taking priority for construction work to be done in Libya. In this context, Turkey's need to make serious preparation to get contractor works in Libya. The most important factor delaying the start of contracting works is that the order in the country has not been established yet. In the future, countries aiming to do business in Libya should be very careful about the policies they follow in Libya problem and avoid practices that will create hostility. Given the extreme volatility and unpredictability surrounding the determinants of economic trends, it is not sensible to produce forecasts beyond the immediate horizon.

#### 2.4. Ports of Libya

All infrastructure projects are funded and operated by Libyan government due to lack of private companies. Libya, government having rich petroleum and natural gas reserves, can afford renewal and repair of its highly damaged ports even road and air transportation systems. But Libyan government needs technical support from the other countries to achieve such great works (Abmdas, 2018).

With the increasing use of containers, worldwide, most container ports, regardless of whether self-automatic or automatic, utilize dock holder cranes of various sorts and details to manage seaward activities. Also, completely mechanized holder ports utilize AGVs (Automatic Guided Vehicles) to transport compartments from ocean to capacity yard and the other way around. The compartment is then stacked in the capacity yard utilizing RMG (Rail mounted gantry) crane or RTG (Rubber tyred gantry), contingent upon the affirmed gear. Inside self-loader holder ports, SC (Ship Crane) are utilized to transport and store compartments.

Port information is extracted from Maritime Database (2019). Libya has 7 combined ports (Container, General Cargo (GC), Dry Bulk & Ro-Ro), 9 liquid bulk terminals (petroleum- petrochemical and chemical cargo terminals)", 3 dry bulk ports (GC, Bulk, Small GC and Industrial ore ) and 1 multipurpose terminal (petroleum, other liquids, GC, dry bulk, Ro-Ro terminal). There is no further data about the operational status of these ports. The positions

of multipurpose and energy (Petroleum) ports are shown in the Figure 3.

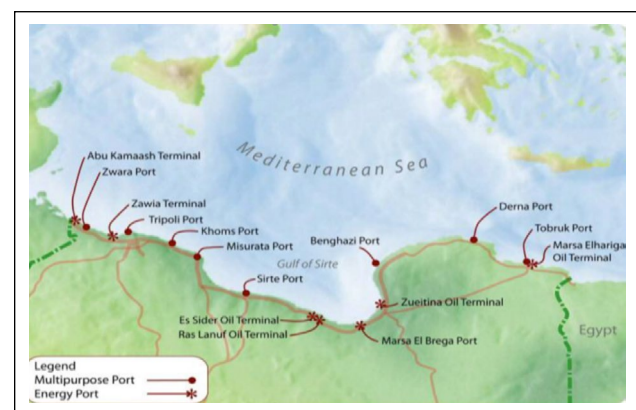
In Libya there is no sufficient cargo handling equipment in any of the Libyan ports. Conventional payload dealing with gear keeps on being utilized by every single Libyan port to deal with containers, other than Qasr - Ahmed port. Where the port of Qasr Ahmed has two specialized quality control cranes and two RTG, due to the shortcomings of this container handling equipment caused some limitations on its recent capacity (Abmdas, 2018). A significant part of the ports in Libya have been seriously damaged. There is an opportunity to turn their renewal and repair activities into an opportunity. While doing this, it will be suitable to benefit from the following concepts while reconstructing and renovating the port infrastructure.

It is strongly believed that Libya will start port development projects as soon as stability is established. This projects mainly will be port construction to enhance the capacity and improvement of cargo handling equipment.

Ports are changing and now becoming Logistic Industrial Zone (LIZ) providing more opportunities beyond a classical port's capabilities. Francello (2016) proposes that "LIZ should provide integrated logistics services, Value-added logistics services and sufficient IT infrastructure".

Container terminals are nodes that link with other inland transport modes such as highways, railways, and inland waterway systems (Lun et al. 2008). The role of container terminals has been evolving from a cargo handling point to a distribution centre with physical infrastructure serving as transport hubs in the container supply chain (Almotairi and Lumsden 2009). Hence, container terminals function as an interface between the areas of production and consumption servicing the players in shipping and transport-related areas (Ugboma et al. 2009). In container transport, a container terminal is a vital part of the transport infrastructure (Bichou et al. 2007).

With the outbreak of the war in Libya, western companies doing port development work here, but they could not complete their work. Italian contractors abandoned the 8 billion USD worth Benghazi port project and left the coun-



**Figure 3.** Libyan Ports (Source: Maritime Database, 2019).

try. This situation negatively affected the Western perspective of Libyans (Abmdas, 2018).

Turkish contractors are ready and willing to complete their unfinished projects in the country and take new projects if their rights are protected (Yapı.com.tr, 2020). Turkish contractors have an experiment to achieve construction works in Libya in the past 50 years. Turkey having 196 port and terminals, has achieved port development for 30 years and there are well-experienced 20 port construction companies in Turkey. The cooperation on this field would be beneficial for both countries.

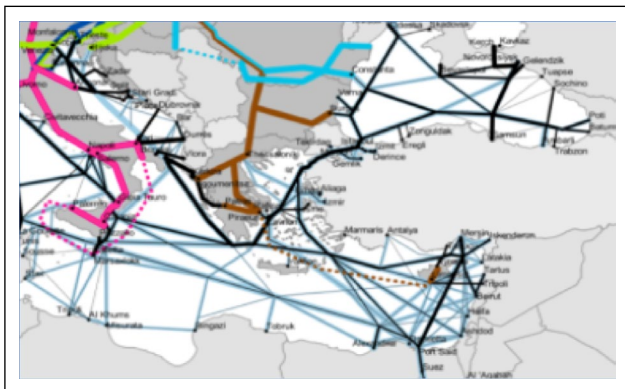
### 2.5. Shipping Features of Turkey about Libya

In order to integrate Libya to global economy, maritime transportation is essential. The suitable transportation method will be container and Ro-Ro (Roll on-Roll off) ships and solid bulk carriers. Turkey has a sufficient both on container, Ro-Ro, and bulk transportation capacity. Turkish owned ships are registered convenient flag and this situation protect shipping companies refrain any sanction against Turkey. There is condense maritime traffic in the Mediterranean.

The Figure 4 shows Ro-Ro and container lines in the Mediterranean. The Grimaldi, MSC and Moby are the biggest Ro-Ro operators in the Mediterranean. Only Grimaldi operates between Greece and Libya.

The following information is extracted from IMEAK DTO Maritime Sector report (2019). This is the latest report in hand.

Turkey has an important container and Ro-Ro transport capacity in the Mediterranean. Turkey based Ro-Ro companies operate between the following lines: Pendik-Trieste (Italy), Yalova-Sete (France), Mersin Trieste as well as Patras (Greece) and Bari (Italy) are frequented places for Pendik-Trieste line. The large capacity Ro-Ro operators in Turkey are DFDS and DFDS, which started operations in 2019, has a significant Ro-Ro transportation capacity with 15 ships registered in Turkish International flag. ULUSOY



**Figure 4.** Ro-Ro and Container Lines in the Mediterranean (Dark-container, Light- Ro-Ro) (Source: Ro-Ro Lines in the Mediterranean, 2020).

is the second Ro-Ro company operates between Çeşme and Trieste.

ARKAS has both container handling and transportation with 126.500 TEUs capacity as well as it is the biggest and container maker and container handling operator. ARKAS operates in the Mediterranean, Black Sea, North and West Africa. Likewise, there are around 10 shipping companies specialized in bulk cargo.

In Libya, Tripoli Port is planned to be closed for cargo transportation and used only for cruise ships, and cargo transportation is planned to be shifted to the newly built Zaviye Port. In this context Turkey upon the request of Libya, will launch a new operation in the region. A new freight forwarding port will be built in Libya in the region. The Ministry of Environment and Urbanization started to collect applications from companies interested in the project. (Denizcilik Dergisi, 2021).

76.3 percent of the Turkish owned ships are registered into the convenient flags (UNCTAD, 2020) and this situation facilitates operation of these ships to Libya if Libyan prospective government applies any sanction against Turkey. In this respect, Turkey may an important role in maritime transportation. Turkish shipping companies have a great chance to get maximum benefit from sea transportation for reconstruction of Libya.

### 2.6. Future Prospects

Libya, which is an important oil producer, and It is not expected that the current uncertainty situation will continue for a long period. If this uncertainty continues, the internal conflict will continue, and it will be much more difficult to maintain order in the country. In this case, it is inevitable for other countries to be included in the solution process. However, it is a fact that Russia will not allow the initiation of an operation under the umbrella of the United Nations. It is very difficult to carry out an operation under the umbrella of NATO or the European Union due to the different and even conflicting political approaches of the members. Considering the new conjuncture of the world, a military intervention in Libya does not seem possible. The countries led by Germany are searching for a soft policy solution to this conflict and this approach is getting stronger.

The LNA is stronger than the GNA in terms of the size of the area it controls, its more organized military structure and the economic resources it controls as well increasing number of countries providing political support. Although the GNA seems to be the legitimate government by the UN, foreign powers now cooperate with the LNA and treat both sides as representatives of the country. In the light of the political and military situation, it does not seem possible for the LNA to gain full control over Libya with its current armed force, unless it receives military assistance from foreign powers. It is assessed that it is very difficult for the LNA to conduct a second attack for this purpose.

Many countries are in search of economic opportunities in Libya, which has a large oil income, and waiting for establishment of order in Libya as soon as possible. There are many tenders required for the reconstruction of the infrastructure of the country, which has suffered a great deal of damage, and these have whetted the appetite of the countries.

Turkey is a country that specializes in construction works and produces all kinds of construction materials. Turkish contractors have done business in Libya for more than 50 years and they are familiar with the conditions of this country. Turkish construction companies are attempting to get a tender in the region under GNA control. Especially the construction of damaged harbours and roads comes to the fore.

The materials to be used in the restoration process in Libya are construction materials and they must be procured from outside to the country that does not have the capacity to produce them. The most suitable mode for transporting this material is by sea. Considering the character of the goods to be transported to this region, suitable vehicles are Ro-Ro, Container, and bulk cargo ships. Turkey is a country experienced in all three types of transport and has suitable vehicles. The fact that the vast majority of Turkish ships are registered in convenient flag countries which. Having convenient flags will allow Turkish ships to avoid political restrictions and sanctions that may arise in the future.

However, considering the future interests of Turkey, which still maintains relations with only one side, it would be appropriate to open communication channels with the other side. For this purpose, it is also recommended to use commercial channels instead of only political channels.

### 3. CONCLUSION

While France, Italy, Germany, Saudi Arabia, UAE, and Egypt follow a pro-Haftar policy, Turkey and Qatar follow a pro-GNA policy. Libya policy implemented by Russia is constantly changing and trying to maintain relations with both parties. United States refrains to take part one side of the conflict. Russia's Libya policy is built on preventing the US from establishing a control mechanism over Libya. Britain tries to stay out of this conflict. It can be assumed that Haftar is better off in terms of political support.

The geography (land) controlled by Haftar is wider comparing with other party. Most of the oil sources are under the control of Haftar. Compared to GNA, Haftar has a more organized and powerful armed force. In this case, it is evaluated that Haftar can take control of Libya in the future unless there is a change in the policy and occurrence of unexpected interventions.

All Western countries even Russia are making plans to benefit from reconstruction of Libya. Existing Turkish foreign policy will create serious problems to establish fair relations with Libya. This will also hamper establishment eco-

nomical relations with Libya which may be very important for assist to handy capped Turkish economy. The establishment of a unified government will be the realistic solution for Libya. All foreign actors who have intervened in Libya, must work constructively for a single government.

Civil war and unrest continue in Libya. While this situation damaging the economy, people cannot see their future. It is imperative that civil war and public warfare be established as soon as possible, and economic activity should settle again.

The most important economic aspect for Libya is integration in the international economy. To achieve that Libya should establish a continuous shipping and open its ports for operation in a short period. To achieve this, the ports must be rebuilt and started to serve. With this speed, the needs of the people can be transported to consumption points by road. The main element of the Libyan economy is oil production facilities and ports primarily need maintenance and repair.

Realignment of Turkish policy in Libya may be possible concerning future economic opportunities in Libya. This policy ensures that relations with the next unified governments in Libya. In order for such a policy to be implemented, it will be appropriate deployment of commercial actors as well as diplomatic relations.

Turkish contractors have an experiment to achieve construction works in Libya in the past 40 years. Turkey having 196 port and terminals, has achieved port development for 30 years and there are well-experienced 20 port construction companies in Turkey. The cooperation on this field would be beneficial for both countries.

Libyan urgent need now is the rapid repair of the cities and facilities destroyed by the war. This will require a very extensive construction activity. Libyan construction material production is very limited, and these materials will be imported by the sea. For this, the suitable sea transportation method will be container and Ro-Ro and solid bulk. Turkey has a sufficient container, Ro-Ro, and bulk transportation capacity. Turkish owned ships are registered convenient flag and this situation protect shipping companies refrain any sanction against Turkey.

Likewise, Turkey has a vast experience in the construction material production capacity. When considering the geopolitical impacts, Turkey has an advantageous position to provide both construction products and transportation.

**Ethics:** There are no ethical issues with the publication of this manuscript.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Financial Disclosure:** The authors declared that this study has received no financial support.



## REFERENCES

- Abmdas M. (2018). Study on Development of Benghazi Port, Unpublished Doctorate Thesis, Piri Reis University
- Abmdas M. and Demirel E. (2018). A Preliminary Study on Development Port of Benghazi, International Journal of Social Humanities Sciences Research (JSHSR) 5(19) Follow journal March 2018 DOI: 10.26450/jshsr.398 [CrossRef]
- Africa Center for Strategic Studies, (2020) <https://africacenter.org/wp-content/uploads/2020/06/Areas-of-Control-in-Libya-Civil-War-April-and-June-2020-printable.pdf> Retrieved on 20 July 2020
- AK Parti. 2012. 2023 Siyasi Vizyonu: Siyaset, Toplum, Dünya [Political Vision 2023: Politics, Society, World]. Ankara: AK Parti Genel Merkezi. <https://www.akparti.org.tr/site/akparti/2023-siyasi-vizyon> Retrieved on 20 July 2020
- Almotairi, B. and Lumsden K. V. (2009). Port logistics platform integration in supply chain management, International Journal of Shipping and Transport Logistics > List of Issues > Volume 1, Issue 2 <https://doi.org/10.1504/IJSTL.2009.024495> [CrossRef]
- Arap Center (2021). Egypt's Changing policy in Libya: Opportunities and Challenges 21, January 2021 by Khalil al-Anani [http://arabcenterdc.org/policy\\_analyses/egypts-changing-policy-in-libya-opportunities-and-challenges/](http://arabcenterdc.org/policy_analyses/egypts-changing-policy-in-libya-opportunities-and-challenges/) Retrieved on March 2021
- Başkan, B. (2019) "Turkey between Qatar and Saudi Arabia: Changing Regional and Bilateral Relations", Uluslararası İlişkiler, Vol. 16, No. 62, 2019, DOI: 10.33458/uidergisi.588947 [CrossRef]
- BBC (2020). Why is Libya so lawless? Published on 23 January 2020 <https://www.bbc.com/news/world-africa-24472322> Retrieved on 20 July 2020
- Bichou K., Lai K.H., Lun Y.H.V., Cheng T.C.E., (2007). A quality management framework for the liner shipping companies to implement the 24 hour advance vessel manifest rule. Transport Journal 46(1):5–2
- Council on Foreign Relations (CFR) (2021). Who's Who in Libya's War? [https://www.cfr.org/in-brief/whos-who-libyas-war?gclid=Cj0KCQjwse-DBh-C7ARIsAI8YcWJI9fmDQZDj3xj4jDFqtZW1FSUGn91EvpL1cZ84c\\_qM9A\\_BUKmg0u0aAjFaEALw\\_wcB](https://www.cfr.org/in-brief/whos-who-libyas-war?gclid=Cj0KCQjwse-DBh-C7ARIsAI8YcWJI9fmDQZDj3xj4jDFqtZW1FSUGn91EvpL1cZ84c_qM9A_BUKmg0u0aAjFaEALw_wcB) Retrieved on 20 March 2021
- Defenceweb (2020). LNA will rule Libya – Haftar <https://www.defenceweb.co.za/security/national-security/lna-will-rule-libya-haftar/> Retrieved on 20 July 2020
- Denizcilik Dergisi (2021). An invitation from the Libyan port under the BOT model in Turkey. Turkey upon the request of Libya, Libya will build a new cargo handling at the port. 18 March 2021 <https://www.denizcilikdergisi.com/denizcilik-gundem-haberleri/libyadan-turkiyeye-yid-modeliyle-liman-daveti/> Retrieved on 20 April 2021
- ECFR (European Commission Foreign Relations) (2020). Italy's chance in Libya 21 June 2020 [https://ecfr.eu/article/commentary\\_italys\\_chance\\_in\\_libya/](https://ecfr.eu/article/commentary_italys_chance_in_libya/) Retrieved on 20 January 2021
- Eljarh M. (2020) Escalating Complexity in Libya's Ongoing Conflict, Perspectives on Emerging Geopolitical Realities, KAS, Eastern Mediterranean Uncharted Waters: [https://www.kas.de/documents/283907/10938219/Eastern+-Mediterranean+in+Uncharted+Waters\\_KAS+Turkey.pdf/6f554da1-93ac-bba6-6fd0-3c8738244d4b?version=1.0&t=1607590823989](https://www.kas.de/documents/283907/10938219/Eastern+-Mediterranean+in+Uncharted+Waters_KAS+Turkey.pdf/6f554da1-93ac-bba6-6fd0-3c8738244d4b?version=1.0&t=1607590823989) Retrieved on 20 February 2021
- El Wardany, S. (2020). Civil war's end won't be enough to revive Libyan oil production, World Oil.com 6/25/2020 <https://www.worldoil.com/news/2020/6/25/civil-war-s-end-won-t-be-enough-to-revive-libyan-oil-production> Retrieved on 13 July 2020
- Emlak Kulisi (2015). Libyadaki Türk muteahhitlik firmaları <https://emlakkulisi.com/libyadaki-turk-muteahhitlik-firmalari-alacaklarini-ne-zaman-tahsil-edecek/348702> Retrieved on 20 November 2019
- Egypt Independent (2021). UN agrees to deploy cease-fire monitors in Libya 17 April 2021 <https://egyptindependent.com/un-agrees-to-deploy-cease-fire-monitors-in-libya/> Retrieved on 20 April 2021
- ENR (2020). Engineering News Record magazine Top lists 2019, [www.enr.com/toplists/2019-Top-400-Contractors1](http://www.enr.com/toplists/2019-Top-400-Contractors1) Retrieved on November 2020
- ETKB (Ministry of Energy and Natural Sources) (2017). 2015-2019 Stratejik Planı [Strategic Plan of 2015-2019]. Ankara: Enerji ve Tabii Kaynaklar Bakanlığı. [https://sp.enerji.gov.tr/ETKB\\_2015\\_2019\\_Stratejik\\_Planı.pdf](https://sp.enerji.gov.tr/ETKB_2015_2019_Stratejik_Planı.pdf). Retrieved 20 July 2020 Retrieved on on November 2020
- Euronews (2020). Libya: Is it in rapprochement with Egyptian government and Turkey's supported Serrac? 01 June 3030 <https://tr.euronews.com/2020/06/15/libya-turkiye-nin-destekledigi-serrac-hukumeti-misir-ile-yaklasma-icerisinde-mi> Retrieved on on 20 January 2021
- Fasanotti, F.S. (2021). Reports on Libyan civil war, Geopolitical Intelligence Services <https://www.gisreportsonline.com/libyan-civil-war;tag.html> Retrieved on 20 July 2020
- Francello, G. (2016). 10 Trends for the future of Mediterranean Port Industry New Trends in the Mediterranean Port Industry, 9th MEDA Ports Submit, CIREM, University of Cagliari. <https://www.slideshare.net/Ascameorg/medaports16-gianfranco-francello> Retrieved 20 July
- Freedom House (2019) Freedom in the World 2018, Democracy in Crisis <https://freedomhouse.org/report/freedom-world/2018/democracy-crisis> Retrieved on 11 March 2021
- Geopolitical Intelligence Services (GIS). (2020). Libya <https://www.gisreportsonline.com/libya,country.html> Retrieved on 21 March 2021

- Human Right Watch (2021). Human Right Report 2021 <https://www.hrw.org/world-report/2021/country-chapters/libya> Retrieved on 20 March 2021
- Insight Turkey (2020). Turkey's Role in the Reconstruction of Libya <https://www.insightturkey.com/commentary/turkeys-role-in-the-reconstruction-of-libya-2> Retrieved on 10 November 2020
- IMEAK DTO (2020). Maritime Sector Report 2019. [https://www.denizticaretodasi.org.tr/Media/SharedDocuments/sectorraporu/2019\\_sektor\\_tr.pdf](https://www.denizticaretodasi.org.tr/Media/SharedDocuments/sectorraporu/2019_sektor_tr.pdf) Retrieved on 10 November 2020
- INSAMER (2020). Russia's Strategy in Libya Jul 8, 2020 [https://insamer.com/en/russias-strategy-in-libya\\_3078.html](https://insamer.com/en/russias-strategy-in-libya_3078.html) Retrieved on 10 November 2020
- Işeri, E. and Bartan, A.Ç. (2019). Turkey's Geostrategic Vision and Energy Concerns in the Eastern Mediterranean Security Architecture: A View from Ankara, The New Geopolitics of the Eastern Mediterranean: Trilateral Partnerships and Regional Security Edited by: Zenonas Tziarras, ISSN: 978-82-7288-966-0 (print) 978-82-7288-967-7 (online) 114-115
- İzmir Ticaret Odası (Izmir Chamber of Shipping) (2019). Libya Ülke Raporu <https://silo.tips/download/zmr-ticaret-odasi-lbya-lke-raporu> Retrieved on 28 July 2020
- KAS (Konrad-Adenauer-Stiftung) (2020). Eastern Mediterranean in Uncharted Waters: Perspectives on Emerging Geopolitical Realities Editor: Prof. Michaël Tanchum [https://www.kas.de/documents/283907/10938219/Eastern+Mediterranean+in+Uncharted+Waters\\_KAS+Turkey.pdf/6f554da1-93ac-bba6-6fd0-3c8738244d4b?version=1.0&t=1607590823989](https://www.kas.de/documents/283907/10938219/Eastern+Mediterranean+in+Uncharted+Waters_KAS+Turkey.pdf/6f554da1-93ac-bba6-6fd0-3c8738244d4b?version=1.0&t=1607590823989) Retrieved on 28 January 2021
- Lun Y.H.V., Lai K., Cheng T.C.E., (2010). Shipping and Logistics Management, Springer, London ISBN 978-1-84882-996-1 DOI 10.1007/978-1-84882-997-8
- Lun Y.H.V., Wong WYC, Lai KH, Cheng TCE (2009). Port Development., Shipping and Logistics Management. Springer, London. [https://doi.org/10.1007/978-1-84882-997-8\\_16](https://doi.org/10.1007/978-1-84882-997-8_16) [CrossRef]
- Lun Y.H.V., Wong WYC, Lai KH, Cheng TCE, (2008). Institutional perspective on the adoption of technology for security enhancement of container transport. *Transport Rev* 28(1):21–33 [CrossRef]
- Maritime Database (2019) <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjB7J2107LuAhVDAmMBHeQmAdsQFjAAegQIBRAC&url=https%3A%2F%2Fwww.maritime-database.com%2F&usg=AOvVaw38BOgbAEqjCfEt4oVGT958> Retrieved on 13 July 2020
- MFA (2019). Sorumluluk ve Vizyon: 2014 Yılına Girerken Türk Dış Politikası [Responsibility and Vision: Turkish Foreign Policy entering 2014, Ankara: TBMM Genel Kurulu. <http://sam.gov.tr/wpcontent/uploads/2013/12/sorumlulukvevizyon-2014.pdf>. Retrieved on 13 July 2020
- Notteboom T.E., Rodrigue J.P. (2005). Port regionalization: towards a new phase in port development, *Merit Policy Management* 32(3):297–31 [CrossRef]
- Open Democracy (2021). What exactly is happening in Libya? <https://www.opendemocracy.net/en/north-africa-west-asia/what-exactly-happening-libya/> Retrieved on 13 February 2021
- RoRo lines in the Mediterranean (2020). <https://www.google.com/search?q=RoRo+lines+in+the+Mediterranean+map&tbm=isch&ved=2ahUKEwiC8J3Dw7LuAhWV> Retrieved on 23 January 2021
- Open Democracy (2020). What exactly is happening in Libya? 28 September 2020 <https://www.opendemocracy.net/en/north-africa-west-asia/what-exactly-happening-libya/> Retrieved on 28 September 2020
- RUSI (Royal United Services Institute) (2020). Russia's Strategy in Libya, Turkey, Russia, Libya, Global Security Issues, Peacekeeping and Peacebuilding, Samuel Ramani Commentary, 7 April 2020 <https://rusi.org/commentary/russias-strategy-libya> Retrieved on 28 July 2020
- SETA (2020). Federal German Libya Policy, 1 July 2020 <https://www.setav.org/almanyanin-libya-politikasi/> Retrieved on 13 February 2021
- Telesur (2015) Analysis Libya <https://www.telesurenglish.net/analysis/Libya-Before-and-After-Muammar-Gaddafi-20200115-0011.html> Retrieved on 13 February 2021
- Tziarras Z. (2019). Cyprus's foreign Policy in The Eastern Mediterranean and the trilateral Partnerships: A Neoclassical Realist Approach, The New Geopolitics of the Eastern Mediterranean: Trilateral Partnerships and Regional Security Edited by: Zenonas Tziarras, ISSN: 978-82-7288-966-0 (print) 978-82-7288-967-7 (online) 77-78
- Turkish Embassy in Trablus (2018). Libyan Economy <http://www.mfa.gov.tr/libya-ekonomisi.tr.mfa> Retrieved on 28 July 2020
- Turkish Ministry of Commerce (2020). Libyan Market <https://ticaret.gov.tr/data/5ee9fd9113b876df9419962d/Libya%20Pazar%20Bilgileri.docx.pdf> Retrieved on 28 July 2020
- Thompson Router (2020). Practical Law, Construction and projects in Turkey: overview Overview of the construction and projects sector [https://uk.practicallaw.thomsonreuters.com/w-019-2661?transitionType=Default&contextData=\(sc.Default\)&firstPage=true#co\\_anchor\\_a975973](https://uk.practicallaw.thomsonreuters.com/w-019-2661?transitionType=Default&contextData=(sc.Default)&firstPage=true#co_anchor_a975973) Retrieved on December 2020
- TPQ (2020) Turkey's Libyan Intervention Heightens Franco-Turkish Systemic Rivalry, 20 June 2020 <http://turkishpolicy.com/blog/50/turkeys-libyan-intervention-heightens-franco-turkish-systemic-rivalry> Retrieved on 28 July 2020
- Ugboma C, Ugboma O, Damachi B (2009), A comparative



- assessment of service quality perspectives and satisfaction in ports: evidence from Nigeria. *International Journal of Shipping Transportation Logistics* 1(2):172–193
- UNCTAD (2020). *Maritime Transportation Report 2020* ISBN 978-92-1-112993-9
- UNDP (United Nations Development Programme) (2010). *Human Development Report* [http://hdr.undp.org/sites/default/files/reports/270/hdr\\_2010\\_en\\_complete\\_reprint.pdf](http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf) Retrieved on 20 April 2021
- United Nations Security Council (UNSC) (2016). UNSC Resolution S/RES/2292 (2016) Resolution 2292 (2016) Adopted by the Security Council at its 7715th meeting, on 14 June 2016
- United Nations Security Council (UNSC) (2020). UNSC Resolution R/ /RES/2560 (2020) 29 December 2020, Threats to international peace and security caused by terrorist acts Letter from the President of the Council 5 June 2020, The situation in Libya SC/2526
- World Bank (2020a). World Bank in Libya, Libyan Economy 01 May 2020 <https://www.worldbank.org/en/country/libya/overview> Retrieved on 29 July 2020
- World Bank (2020b). World Bank in Turkey, Turkey Economy 16 April 2020 <https://www.worldbank.org/en/country/turkey/overview> Retrieved on 29 July 2020
- Yapi.com.tr (2020). Turkish Contractors Return to Libya, 13 Aug 2020 [http://www.yapi.com.tr/haberler/turk-muteahhitler-libyaya-donuyor\\_181265.html](http://www.yapi.com.tr/haberler/turk-muteahhitler-libyaya-donuyor_181265.html) Retrieved on 29 December 2020