



## THE EFFECT OF MOBILE PHONE SUBSCRIPTION RATE ON EXPORT-IMPORT COVERAGE RATIO

Selim AYKAÇ\*, Mustafa Emre CİVELEK\*\*

\* Istanbul Commerce University, Graduate Student

\*\* Istanbul Commerce University, Assistant Professor

E-mail: aykacselim@gmail.com, ecivelek@ticaret.edu.tr

Copyright © 2019 Selim AYKAÇ, Mustafa Emre CİVELEK. This is an open access article distributed under the Eurasian Academy of Sciences License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

In this research, the relationship between the mobile phone subscription and the import coverage ratio by export is examined. The main objective of this research is to examine the impact of the mobile phone subscription on the import coverage rate by exports. The research question inquires the effect of mobile phone penetration in a country on foreign trade. In this paper, the development of internet technology is mentioned. The concept of foreign trade has been examined. The import coverage rate by exports has been examined. The concept of globalization has been addressed as a factor affecting the concept of mobile phone penetration and foreign trade. A significant relation was found between the mobile phone usage and foreign trade as a result of analyses in this study. The hypothesis of the research is supported. This means that the effect of mobile phone subscriptions on export-import coverage ratio is statistically significant.

**Keywords:** Mobile Phone Subscription, Export-Import Coverage Ratio, Globalization, Foreign Trade

### MOBİL TELEFON ABONELİĞİNİN İHRACATIN İTHALATI KARŞILAMA ORANI ÜZERİNE ETKİSİ

#### ÖZET

Bu araştırmada cep telefonu aboneliği ile ihracatın ithalatı karşılama oranı arasındaki ilişki incelenmiştir. Bu araştırmanın temel amacı, cep telefonu aboneliğinin ihracatın ithalatı karşılama oranı üzerindeki etkisini incelemektir. Araştırma sorusu, bir ülkedeki cep telefonu kullanımının dış ticaret üzerindeki etkisini sorgulamaktadır. Bu çalışmada internet teknolojisinin gelişme sürecine ve dış ticaret kavramına değinilmiştir. Bununla beraber ihracatın ithalatı karşılama oranı incelenmiştir. Küreselleşme kavramı, cep telefonu girişim oranı ve dış ticaret kavramını etkileyen bir faktör olarak ele alınmıştır. Bu çalışmada yapılan analizler sonucunda cep telefonu kullanımı ile dış ticaret arasında önemli bir ilişki bulunmuştur. Araştırmanın hipotezi desteklenmektedir. Bu sonuca göre cep telefon aboneliği oranının ülkenin ihracatı üzerine etkisi istatistiksel olarak anlamlı bulunmuştur.

**Anahtar Kelimeler:** Cep Telefonu Aboneliği, İhracat-İthalat Kapsamı Oranı, Küreselleşme, Dış Ticaret



## 1. Introduction

The main objective of this research is to examine the impact of the mobile phone subscription on the import coverage rate by exports. While conducting this research, the development of mobile phone technology and the interaction of the internet with a mobile phone are also examined. With the development of mobile phone, internet technology is not considered independent of each other. Recently, there is a movement in companies providing mobile communication services. Important applications for mobile communication are WAP applications. This technology allows users to access the internet without any additional devices on mobile devices such as mobile phones, regardless of location (Aydın & Sarisakal, 2003).

The internet is a worldwide network of communications that many computer systems are connected to each other. The first steps of this technology started with the installation of ARPA. As a result of the scientific studies led by the ARPA company, Packet-Switching method has been developed. With this method, the data to be sent over the network will be sent to pieces and merged at the point of arrival (Civelek 2009) The internet, which was developed by ARPA, was first used only in the military field and opened for civilian use in 1969. Initially, the network distribution was used in only four regions. Today, it is scattered throughout the world and has reached millions of users (Civelek 2017).

The concept of mobile trading has emerged thanks to the rapidly evolving internet technology and wireless access. The global market has grown thanks to the fact that the Internet is accessible from anywhere and the mobile phone is available at any time. For example, the number of mobile subscribers in Japan and some European countries has passed the regular fixed-line telephone subscriber. Features such as cheaper prices, ease of use and convenience provided have increased the number of mobile users rapidly. Mobile internet services offered with the help of mobile tools provide more personalized content and special services to them, without requiring users to need a fixed port. (Aydın & Sarisakal, 2003).

The research question inquires the effect of mobile phone penetration in a country on foreign trade. In the light of this research question a hypothesis was put forward.

## 2. Definition and Development of Mobile Phone

At this point, it seems necessary to briefly summarize the development of mobile phones: for the first time in 1895, Marconi transmitted radio signals without using a cable. The next hundred years has been the scene of enormous progress. In 1941, the Motorola Company launched two-way car phones, where police cars could call both the police headquarters and be sought by the centre (Yıldız, 2006).

### 2.1. The Invention of Mobile Phone

The mobile phone is an electronic device that is used wirelessly and makes communication possible over long distances. Alexander Graham Bell invented the classic wired telephone in 1876. Martin Cooper invented the mobile phone in 1973 with the help of Motorola. In Turkey, mobile communication began in 1986 with an agreement between Turk Telekom and Nokia. (Bayraktar 2017). The mobile phone was first tested in New York with prototypes. Successfully passed the test, the weight of this mobile phone was two kilograms



(Teixeira 2010). The first mobile phones were called the “first generation” due to the fact that they were completely analogue. After that, the display technology was activated. With this period, messaging and radio features have entered our lives. These new technologies, which came with digital display, were named as the "second generation". The cellular data feature was added to the mobile phones that were rapidly developing. And internet access from mobile phones has become possible. This new era in which mobile phones have been introduced to the internet is named as the "third generation" (Oliphant 1992). With the advancing technologies, mobile phones have gained a lot of new features and attracted more and more attention from users. Over time, people began to see mobile phones as an indispensable requirement (Karaaslan ve Budak 2012).

## 2.2. Development of Mobile Phone

Especially those born in 1980 and later are growing with mobile technology. Previously, young people carrying their resources in bags, especially mobile phones and laptops constitute great convenience. In addition, new features on the mobile phone attracted more attention of young people with social media (Karaaslan ve Budak 2012).

The rapid development of mobile communication has attracted the attention of companies and led to the emergence of new marketing strategies. With the introduction of mobile communications into our lives, companies have begun to carry out their marketing strategies via SMS (Short Message Service) and MMS (Multimedia Message Service). Mobile applications along with smartphones have been added to advertising and marketing strategies carried out via SMS and MMS. (Bayraktar 2017).

Especially with the development of mobile data, the functionality of the mobile phone has increased considerably. Namely; According to The World Bank data, mobile data utilization rate in Europe was 189.6 million in 2000 and reached 391.5 million in 2010. Table 1 in Turkey, Europe and worldwide total mobile data usage is shown.

Table 1. Turkey in Europe and Worldwide Total Mobile Data Usage

Region/Year	2000	2005	2010	2015
Turkey	16.133.405	43.608.965	61.769.635	73.639.261
Europe	189.631.049	322.490.957	391.522.613	405.582.487
Worldwide	738.157.897	2.205.849.896	5.295.631.563	7.181.920.320

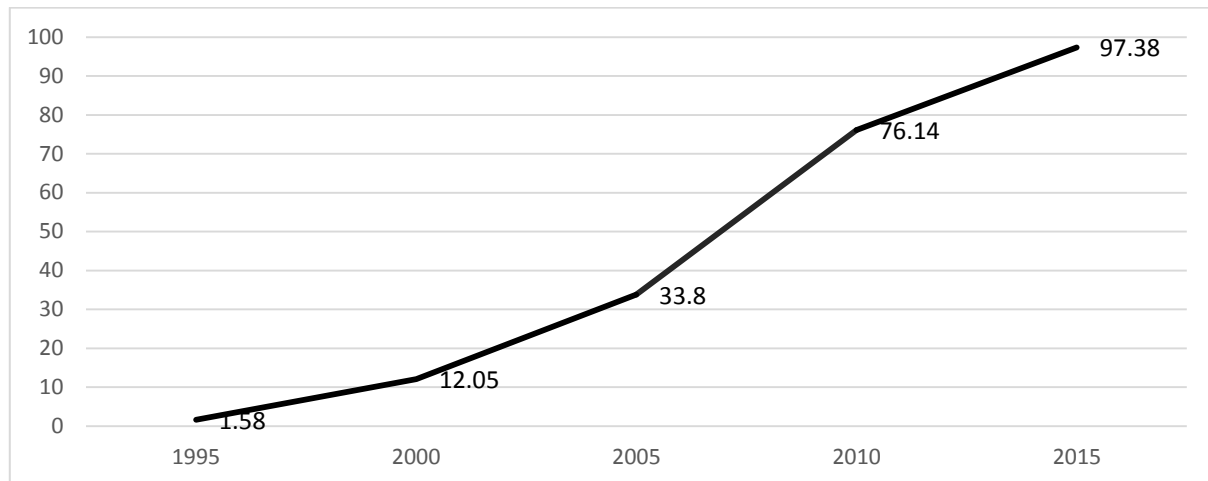
Source: (the world bank, Mobile Cellular Subscriptions 2018)

Again in 2015, this ratio reached 405.6 million in Europe. In the world, this rate rises much faster; the use of mobile data, which was 738 million in 2000, reached 7.1 billion in 2015. In Turkey in 2000 with 16.1 million mobile data usage has reached a level of 73.6 million in 2015 (The World Bank 2018).



### 2.3. Mobile Phone Subscription Rates

Mobile phone subscription refers to subscribers who connect to the network using cellular technology. Businesses have started activities in this field as a communication channel to reach new customers with mobile phones. With the widespread use of mobile phones, mobile commerce and mobile advertising have been born. (Usta 2009).



Source: (the world bank, Mobile Cellular Subscriptions (per 100 people) 2017)

Figure 1. Mobile Phone Subscription Rates

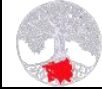
Mobile phone subscription rates have increased rapidly since 1995. In the world, telephone subscribers, which were 1,58 for every hundred people in 1995, reached 97,38 in 2015. Figure 1 shows the graph of the phone subscription change between 1995-2015 (TheWorldBank, 2018).

## 3. Definition and Elements of Foreign Trade

Adam Smith and David Ricardo have laid the foundations of the concept of foreign trade. Foreign trade; Can be examined in the form of classical foreign trade theories, neoclassical foreign trade theories, modern foreign trade theories and new foreign trade theories. Together with these concepts, it is necessary to examine the concept of globalization that has entered our lives.

### 3.1. Foreign Trade Concept and Historical Development

Foreign trade is the trade of goods or services between countries and international borders. In the classical period, the publication of Adam Smith's Book of "The Wealth of Nations" (1776) is thought to be the basis of foreign trade as well as economic sciences (Bayraktutan 2003). But in the modern sense, it owes the foundations of foreign trade to David Ricardo. Ricardo's book "On the Principles of Political Economy and Taxation" published in 1817 describes the basics and gains of foreign trade. (Ricardo 2001).



John Stuart Mill, on the other hand, analyzed the elements of demand that were neglected by his predecessors. Arguing the demand law, Mill argued that mutual demand would affect technological development (Mill 1848-1965).

The most criticized point in classical trade theories is that the labour-value theory does not mention the impact of inputs other than labour on foreign trade and cost. In the neoclassical period, economists used the concept of opportunity cost, which included the factors other than labour, and revised the Ricardo model without touching on the essence. (Bayraktutan 2003).

In his 1922 book, Marshall, using benefit-value theory, argued that cost was a value that would affect capital, but did not go beyond the concept of labour-value (Marshall 1923).

In the 1930s, modern theories of foreign trade began to emerge. In this period, two Swedish economists, contributions of Heckscher (1919) and Ohlin (1933) are observed. According to the Heckscher-Ohlin theorem, a country should produce in that area if it has a comparative advantage in its production resources. For products with scarce production resources, should be directed to imports (Bayraktutan 2003).

Keesing and Kenen have developed a "skilled labour" theory in their work. He argued that skilled workers should be specialized in products that can be used by rich countries. In this context, countries with unqualified labour have argued that more labour input should be used. (Seyidoğlu 2003).

### **3.2. Definition of Export**

Export is the sale of products or services to foreign countries. In other words, export, marketing goods or services to be shipped to another country. Exports can be done in two different ways as direct and indirect. An entity's use of an intermediary instead of selling its product or service to a business in another country is called indirect export. Instead of undertaking many risks, the entity implements the sale indirectly, thus eliminating problems. Businesses can do this by working with the intermediary, foreign representatives or general export companies (Canitez 2014). In doing so, the difference between the sales price and net profit is increasing. In order to reduce these differences, the company can establish an exporting company or direct export. The exporter company is established by the manufacturer and contacted the company abroad and the company performs the sale. Apart from this, direct contact and sales transactions without direct intermediation with another party are called direct exports. To undertake these risks, the company must establish a rigorous staff from employees to managers. In doing so, the entity may establish an in-house export department. They may also agree with mobile sales representatives or agree with major retailers. (Canitez 2014).



Table 2. Five Countries with Most Exports

Country/Year	2016	2017	2018
China	2.097.637.172	2.263.370.504	2.494.230.195
USA	1.451.023.530	1.546.272.961	1.664.055.581
Germany	1.340.752.046	1.450.214.838	1.557.176.334
Japan	644.932.439	698.132.787	738.188.768
South Korea	495.465.606	573.716.618	605.169.190

Source: (TradeMap 2019)

### 3.3. Definition of Import

Import can be defined as the free movement of a commodity. However, in order for a commodity to enter free circulation, it must meet the applicable customs legislation requirements. So import; the payment of the fee within the scope of customs regulations and start the actual importation (İlker ve Canitez 2014).

Imports can be examined in 3 different ways; paid import, free import and temporary import. The pay of the import price to the counterparty company is defined as the start of actual import transactions. The same definition is used when defining the concept of free circulation or import (İlker ve Canitez 2014). Free import is the fact that the importer does not pay for the product or service to be purchased from the counterparty. The granting party may present this grant to the importing party free of charge. On the other hand, the fact that the exporter company receives the payment within the borders of its own country is defined as free export (Kemer 2003). The fact that the product coming from abroad to the country cannot enter into free circulation by staying in customs for any reason is called temporary import. These insertion processes may have different reasons. Therefore, it can be defined as keeping a product at customs within the scope of the Transit Trade Regime (İlker ve Canitez 2014).

### 3.4. Export-Import Coverage Ratio

The division of exports into imports gives the proportion of imports to be met. In this context, it can be expressed as the percentage difference between export and import. Especially in open economies, this concept is considered one of the most important criteria. Given the different currencies of different countries or different time periods in the same country, the foreign trade deficit may not yield a healthy outcome. In this respect, it can be said that the ratio of exports to imports is more consistent. The share of exports in GDP is 10 per cent and the share of imports is 15 per cent; In the other, the share of exports in GDP is 35 per cent, while the share of imports is 40 per cent. Although the foreign trade deficit of the two countries is 5, the ratio of exports to imports for the first country is 67 per cent, while the



coverage rate in the other country is 80 per cent (Aydın, Başkaya ve Demiroğlu 2014). In Table 3, 4 countries with the highest foreign trade surplus are examined.

Table 3. Four Countries With The Highest Foreign Trade Surplus

Country	Export (2018)	Import (2018)	Foreign Trade Balance
China	2.494.230.195	2.134.987.265	359.242.930
Germany	1.557.176.334	1.287.199.098	269.977.236
Russia	449.347.157	238.151.375	211.195.782
South Korea	605.169.190	535.172.391	69.996.799

Source: (TradeMap 2019)

According to table 3, when the import value is deducted from the export value, foreign trade balance values emerge. Due to the exchange rate balance, time periods and other financial values, the countries do not achieve a fully healthy performance. In table 4, the export-import coverage ratio of 4 countries with the highest foreign trade surplus is examined.

Table 4. Export-Import Coverage Ratio of 4 Countries with The Highest Foreign Trade Surplus

Country	Export (2018)	Import (2018)	Export-Import Coverage Ratio
China	2.494.230.195	2.134.987.265	1,17
Germany	1.557.176.334	1.287.199.098	1,20
Russia	449.347.157	238.151.375	1,88
South Korea	605.169.190	535.172.391	1,13

Source: (TradeMap 2019)

When the data in table 3 is analyzed, it is not a clear result of foreign trade performance. Because the total volume and foreign trade surplus are not examined as a percentage of the results. However, in table 4, there is a rationing situation.



### 3.5. Globalization

The concept of globalization is the process of reducing, restricting and finally destroying the physical boundaries in the world above all. Economic integrations, which have a significant share in world trade, are becoming more holistic and globalisation gains momentum. According to the general opinion, the speed of international trade is the natural consequence of economic development. The reduction of transportation expenses also contributes to the development of foreign trade (Adda 2003).

The concept of globalization can be examined in economic, political, technological, environmental and cultural dimensions. The most impacting factor in international trade is the economic dimension. The total size of GDP on earth has increased by 6 times after the Second World War. Again, after the Second World War, the merchandise trade has increased by 20 times across the globe. With the end of the wars, the biggest reason for the rapid growth of trade in the world was due to the elimination of tax and other obstacles or the significant decrease in trade-reducing effects. Together with this period, multinational companies have begun to engage and the trade has gained momentum. Again, the rise of the qualified workforce is one of the main factors affecting international trade. (Bayar 2008).

One of the biggest triggers of globalization is technological developments. Technological developments are also described as the "third Industrial Revolution" in the literature. Technological factors that accelerate globalisation; the production of microprocessors is stated as easy storage and transmission of information. This description can be supported as follows; in 1930, a 3-minute phone call between New York and London costs \$300, while a phone call today is just 20 cents in the same way (Bayar 2008).

### 3. Research Model and Hypothesis

The conceptual research model is shown in Figure 1 aims to explore the effect of mobile phone subscription rates on export-import coverage ratio.

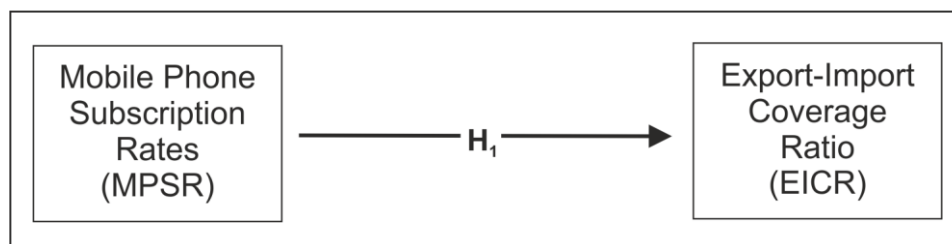


Figure 1. Conceptual Research Model

The following hypothesis has been proposed within the scope of the research question:

**H<sub>1</sub>:** Mobile Phone Subscription Rates has a positive effect on Export-Import Coverage Ratio





#### 4. Analysis Result

For testing the hypothesis, simple regression method was used. The effect of independent variable MPSR on the dependent variable EICR was tried to clarify. As seen in Table 5, model was generally found as significant.  $R^2$  and adjusted  $R^2$  values were found as 0,129 and 0,126 respectively as shown in Table 6.

**Table 5.** Anova Result

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	9,543	1	9,543	56,346	0,000
Residual	64,696	382	0,169		
Total	74,239	383			

**Table 6.** Model Summary

Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
	0,359	0,129	0,126	0,41153

The sample consists of five years data for 60 countries. In Table 7, regression coefficient of the relationship is shown. According to the result of the analysis, relationship between mobile phone subscriptions and export-import coverage ratio was found statistically significant in the 5% significance level. Thus,  $H_1$  hypothesis is supported.

**Table 7.** Relationship Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	,247	,094		2,620	,009
Mobile phone subscriptions	,006	,001	,359	7,506	,000

As shown in Table 7, the model is statistically significant at the 5% significance level.

#### 5. Conclusion

A significant relation was found between the mobile phone usage and foreign trade as a result of analyses in this study. The hypothesis of the reseach is supported. This means that the effect of mobile phone subscriptions on export-import coverage ratio is statistically significant. Internet and mobile phone penetration cannot be thought differently because mobile use increases internet penetration. Thanks to the internet feature added to mobile



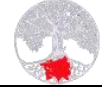
phones, mobile commerce is more in our lives. Several softwares trigger of mobile trading. Mobile trading is accessible from anywhere, as well as to remove boundaries around the world.

Mobile phone penetration essentially increases the intergration of a country with the world. Throughout the world, increasing mobile phone usage also increase the globalization. Foreign trade is a concept that is directly related to the globalization. The concept of globalisation was born with the acceleration of economic integrations. One of the biggest reasons for globalization to gain momentum is the rapid development of information technologies.

In the globalizing world, access to a large number of people by means of the internet and mobile technology has been provided. Owing to the development of new marketing strategies, firms have become able to market their products more easily and cheaply. The development of these technologies, firms have grown their market share. Consumers had the opportunity to access more products more easily. In addition, consumers have become less affected by the costs incurred in transport. Developments in mobile communication technology have made mobile tools secure trading and payment tools. Thus, the concept of mobile trading is improving around the world.

## REFERENCES

- Adda, J. (2003). *Ekonominin Küreselleşmesi*. (S. İnci, Çev.) İstanbul: İletişim Yayınları.
- Aydın, M. A., Sarısakal, M. N. (2003). E-ticaretin Yeni Arayüzü Mobil Ticaret. *Havacılık ve Uzay Teknolojileri Dergisi*, 83-90.
- Aydın, M. F., Başkaya, Y. S., & Demiroğlu, U. (2014). Türkiye’de İhracatın İthalatı Karşılama Oranı. *Ekonomi Notları*, 1-10.
- Bayar, F. (2008). Küreselleşme Kavramı ve Küreselleşme Sürecinde Türkiye. *Uluslararası Ekonomik Sorunlar*, 25-34.
- Bayraktar, Ö. (2017). *Dijital İşletme Bilimi*. İstanbul: Selis Kitaplar.
- Bayraktutan, Y. (2003). Bilgi ve Uluslararası Ticaret Teorileri. *C.Ü. İktisadi ve İdari Bilimler Dergisi*, 176-177.
- Canitez, M. (2014). İhracat Kavramı ve Temel Esasları. *Dış Ticaret İşlemler ve Uygulamalar* (p. 1-54). Ankara: Gazi Kitabevi.
- Civelek M. E. (2009). *İnternet Çağı Dinamikleri*. İstanbul: Beta Basım.
- Civelek M. E. (2017). *E-ticaret Web Sitelerinde Müşteri Memnuniyeti*. İstanbul: Beta Basım.
- İlker, A., & Canitez, M. (2014). İthalat İşlemleri ve Dokümantasyon. *Dış Ticaret İşlemler ve Uygulamalar* (p. 141-145). Ankara: Gazi Kitabevi.
- Karaaslan, İ. A., & Budak, L. (2012). Üniversite Öğrencilerinin Cep Telefonu Özelliklerini Kullanımlarının ve Gündelik İletişimlerine Etkisinin Araştırılması. *Journal of Yaşar University*, 4549-4550.
- Kemer, O. B. (2003). *Bir Dış Ticaret Politikası Aracı İhracat Teşvikleri: Teori-uygulama*. İstanbul: Alfa Basım Yayım.



- Marshall, A. (1923). Money, Credit, and Commerce. London: Macmillan & Co.
- Mill, J. S. (1848-1965). Principles of Political Economy. New York: Kelly.
- Oliphant, M. W. (1992, Ağustos). The Mobile Phone Meets The Internet. Kansas, Wichita, Amerika.
- Ricardo, D. (2001). Principles of Political Economy and Taxation. Kitchener: Batoche Books.
- Seyidođlu, H. (2003). Uluslararası İktisat. İstanbul: Güzem Can Yayınları.
- Teixeira, T. (2010, Nisan). Meet Marty cooper-the inventor of the mobile phone. BBC News: Retrieved from <http://cellphonesfacts.yolasite.com/resources/Meet%20Marty%20Cooper.docx>
- The World Bank. (2017). Mobile Cellular Subscriptions (per 100 people). Retrieved from <https://data.worldbank.org/indicator/IT.CEL.SETS.P2>.
- The World Bank. (2018). Mobile Cellular Subscriptions. Retrieved from <https://data.worldbank.org/indicator/IT.CEL.SETS>.
- Trade Map. (2019). Trade Map Provides.
- Usta, R. (2009). Üniversite Öğrencilerinin Mobil Reklamcılığa Karşı Tutumları. Dođuş Üniversitesi Dergisi, 294-296.
- Yıldız, M. (2006). Kamu Siyasaları Açısından Cep Telefonu Teknolojisi ve Mobil Devlet. Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 241-263.