

Berksoy, İrem (Ed.); Dane, Kutlu (Ed.); Popović, Milenko (Ed.)

## Proceedings

# Institutions & Economic Policies: Effects on Social Justice, Employment, Environmental Protection & Growth

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# Institutions & Economic Policies

Effects on Social Justice, Employment, Environmental Protection & Growth



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**İrem Berksoy, Kutlu Dane & Milenko Popovic**

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*(Edited by: İrem Berksoy, Kutlu Dane, Milenko Popovic)*

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## Introduction

### The Rule of Law

*İrem Berksoy*

The Nation as a juridical person is called the State (Carré de Malberg, 1920). The relevant perception of State was used by the liberal revolutionaries in their fight against the despotism of the monarch first (Pierré-Caps, par. 22-23), and the Parliament secondly (Jouannet, 2007, par. 9). Therefore, institutionalisation is legitimate only if the people express their right to self-determination throughout (Pierré-Caps, 2014, par. 24). Once the three preconditions for the institution of a State- a people, a territory and the will to live together (Kaboğlu, 2017, p. 78-79)- are assured, the exercise of the constituent power, in other words the drafting of the Constitution materializes that legitimacy (Pierré-Caps, 2014, par. 24).

The Constitution is the highest imperative norm which recognizes the human rights on the basis of human dignity (Kuçuradi, 1998, p. 24; Kaboğlu, 2002, p. 25) (1), composes the bodies in charge of realizing these rights (2) and limits them by the guarantees of the rule of law in order to protect human rights from arbitrariness (3).

1. Human rights are grouped in three according to their appearance in history (Kaboğlu, 2002). The first catalog appeared throughout the liberal revolutions conducted towards the nobility and clergy with all the tax privileges. Although the Revolution was made by the Third Estate, in this first period, human rights were shaped by the needs of the bourgeois class which kept the economic power in its hands: property right, freedom of trade, equality before the law, the right to resist against the political power, physical liberty and intellectual freedom (Tanör, 1978, p. 46-47). While criticising the liberal doctrine, the Marxist doctrine defended the integrity of human rights by asking a basic question: What does press freedom mean for an illiterate person? (Mourgeon, 2003, p. 10). The property right and the freedom of trade do not make neither sense for the

masses who don't have any wealth (Tanör, 1978, p. 51). On the other hand, political rights are only granted to male proprietors (Tanör, 1978, p. 49-50), and employee organizations are forbidden (Tanör, 1978, p. 53). In other words, liberalism allowed the political and economic competition only to its own class (Berksoy, 2014, fn 562). The collective and global fight of the employees empowered them to participate in this competition by the labour factor in order to get their part of the national wealth and other human rights. In that process, some economic systems have evolved into socialism, while for some others the bourgeois class has made a compromise with the working class regarding the addition of social rights in constitutions to keep the economic system liberal (Tanör, 1978, p. 121). Nevertheless, thanks to the socialist revolutions, the working masses acquired their primary needs irrevocably in the form of rights. Social rights and the principle of equal opportunity meet the most legitimate demands which "break the weakest link in the chain"<sup>1</sup> of the liberal economy: job security, fight against unemployment, fair wages, not to become permanently disabled or dead as a consequence of bad working conditions, social security. Although it has been narrowed following the collapse of the socialist bloc, everyone is conscious of the fact that she/he has a social security right. The first chapter of *Institutions & Economic Policies*, written by Müge Yetkin Ataer and Gözde Nalbant Efe gives an economic analysis of the legislative change in Turkey under the name of social security reform, by correlating it with the reform proposals made prior to the change. The second chapter, written by Aysel Arikboğa, elaborates the constriction process of social rights, this time from a macro perspective. These two chapters shed light on the diffusion of neoliberalism in Turkey. As for the third catalogue, it includes the right to development- first of all, of the societies which no longer have wealth, therefore right, to share in the nation-state, those which until recently were colonies- the right to peace and the right to the environmental protection as part of a common life philosophy taking into account future generations, animals and nature (Kaboğlu, 2003, p. 533 et seq.). Since their realization depends on the cooperation of the human family, the third-generation rights are named as solidarity rights. The third chapter written by Erkan Kılıçer and İmren Peker, analysed the financial measures which can be adopted to reduce the consumption of red meat and dairy products in order to protect the nature.

2. It is the legislative body that will specify the primary provisions for the sole purpose of realizing the aforementioned human rights and allocate them the necessary resources;

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<sup>1</sup> The expression in quotation marks is inspired by Lenin's "the weakest link in the chain" theory.

the executive body, which will render service according to the primary provisions and the judicial body, which will check compliance with the legislation.

3. The establishment of the rule of law concluded with the establishment of the constitutional courts against fascism. The rule of law protects the human rights against arbitrariness by its material and mechanism guarantees. The material guarantees of the rule of law are the legality as well as the necessity and proportionality in a democratic society of all provisions which affect human rights. The provisions that do not meet these criteria lose their validity via constitutionality check. Legality is the clarity, predictability, impersonality, accessibility and being in line with the public interest of a provision. A democratic society is a pluralistic society in which everyone can express her/his opinion without worrying and tolerates the presence of the other. Proportionality in a democratic society requires above all that a restriction measure can be adopted only if it is necessary in order to maintain a democratic social order, then, if it provides the proportional use of a convenient mean for that objective (European Court of Human Rights (ECHR), 1979, par. 50). The material guarantees of the rule of law are enforced through the hierarchy of rules which is a mechanism guarantee. The hierarchy of rules guarantees that an administrative arrangement and its superior- the law- cannot contradict the constitution and other high standards, in the composition of which the common-sense knowledge and the collective reason play the role and which give constitutional judges the opportunity to advance the law towards human rights because of their abstract nature. As for the hierarchy of rules, it is enforced through the separation of powers which is another mechanism guarantee of the rule of law. The separation of powers means the separation of legislative and executive powers and the independence of the judicial power. It provides for a system of checks and balances. The guardian of the mechanism norms are the constitutional courts.

Thus, by the human rights and their guarantees, the rule of law limits the politics-including the economic policy- which contain the risk of arbitrariness regarding both negative and positive obligations, as far as possible. The negative obligations arise mainly in regard to the rights that the State should not interfere with: "Do not touch my trade union rights!". On the other hand, the positive obligations arise mainly in regard to the rights that the state should interfere: "Ensure my right to a life compatible with human dignity!" Politics is therefore what the Law lives behind. The positive obligations of State in economics, are planning and -if public interest justifies- incentives and subsidies (Günday, 2004, p. 22). The State can engage directly in economic activities in the fields where it sees public interest or choose to subsidize the

private sector. Within this framework, the public interest in subsidizing innovation is questioned in the fourth chapter written by Elif Akgün, Burak Kozalı and Osman Geyik. As for the planning, it is a Government's duty that includes foreseeing the social needs and offering alternatives to the legislative organ in this direction (Günday, 2004, p. 23). A current problem regarding the State's positive obligation of planning is the tax on robots- which are an indicator of the contributory capacity- intended as a measure against the negative effect of technological change on employment. The fifth chapter written by M. Mustafa Erdoğan and Coşkun Karaca sheds light on this subject.

The rule of law is the precondition of democracy because the participation without worrying is possible only in an environment in which legal and social security are provided and the channels for accessing to information -the freedoms of thought, speech, organisation, demonstration and press- are not restricted.

### **The Rule of Law in Economy**

In order to purify economic liberalism from its failures and crisis, theories with different names have been put forward during its history. Each of them reflects the initiative of reducing the complexity and diversity of the social into a unified and easily manipulated order (Foucault as cited in Hugon, 2014, p. 167). One of them, which is quite popular lately is the institutionalism. It defines the rule of law, which is the precondition of democracy, also as a precondition of economic development. Accordingly, the "developed" countries remind the others that they should ensure the legal security in the economic domain so that the developed ones may enter their country. Because, uncertainty, instead of institutions, creates the risk of distorting the market equilibrium in favour of some actors, and against some others. The legal meaning of the occurrence of that risk is the violation of the prohibition of discrimination with regard to property right (Berksoy, 2016, 83).

It would be useful to provide some concrete examples of the application of the rule of law provisions in the economic domain. Predictability, a sub-criterion of legality which is one of the material guarantees of the rule of law principle, requires the legal status to have a certain stability. But this requirement is frequently omitted in the field of taxation. The instability of the legal status can arise from the continual changes of the provisions or of the jurisprudence as well as from the use of tax and enforcement proceedings as a threatening tool in order to obtain private benefits (Berksoy, 2016, p. 74). The non-repetition of tax auditing for the identical period is a measure taken by



some countries for providing the legal security (Yaich, 1992, p. 92). This brings to mind the example of a newspaper opponent in Turkey, which was been subject to a tax auditing a second time for the same period after that it published some contentious news. As for Russia, whose case constitute a stunning example, the Hague's Permanent Court of Arbitration stated in its judgement later reversed, that the main aim of the Russian authorities was to prevent M. Khodorkovsky, the controlling shareholder of one of the largest oil companies and also the richest man in Russia, to enter politics and to bankrupt him (Permanent Court of Arbitration, 2014, par. 77). Another sub-criterion of legality is clarity. It requires a provision to be precise in a way which allows people to adjust their behaviour accordingly (ECHR, 1979, par. 49; ECHR, 1983, par. 87-88). The complexity of the tax legislation doesn't cause a big difficulty for large corporations. But it creates a serious insecurity for small businesses and NGO's which do not have the ability to employ experts (Fouquet, 2008: 7). Furthermore, the complexity of tax legislation precludes monitoring the government's economic policy as a whole (Fouquet, 2008, p. 7).

The sixth chapter of the *Institutions & Economic Policies* written by Serdar Göcen, Vildan Kısıtık and Alp Bayhanay seeks an answer to whether institutions has an effect on growth in the developing countries.

### **Socialist Affirmations**

As mentioned in the seventh chapter written by Julia Dobрева, it's stated that the legal security's reflection to the labour market will create an improvement in the distribution of incomes and wealth. The legal security's reflection to the labour market is nothing but the right to job security covered by the right to employment. Actually, securing this right effects the growth positively as pointed out in the last chapter of *Institutions & Economic Policies* by Başak Ergüder. However, one must be prudent bearing in mind the reality that one often refers to socialist claims to legitimize theories.

As a matter of fact, as stated by Commons who established the institutionalist theory in the field of employment security, the objective here is "to seek the rules of collective action that will put reticent people on the way, not of an impracticable ideal, but of a

İrem Berksoy

(Introduction: *The Rule of Law*)

reasonable idealism” (Commons, 1934, p. 874). It is uncertain<sup>2</sup> to what extent the working masses will find their place in this “reasonable” ideal<sup>3</sup>.

İrem Berksoy

November 2017

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<sup>2</sup> Italicized to highlight the principle which lies at the heart of the institutional theory.

<sup>3</sup> Kaboğlu (1999, p. 172-179) says Turkey is politically repressive and economically unregulated. In this sense, Turkey is close to neither the liberal nor to the Marxist ideal.

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# 1 The Evaluation of the Social Security Reform in Turkey in Terms of Restoring the Actuarial Balance and Fighting Against Poverty

*Müge Yetkin Ataer*  
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## **Abstract**

*In Turkey, the improper practices of governments ruined the actuarial balance of the social security administrations whose budgets required transfers from the general budget continuously. To maintain a financially sustainable social security system, the Government put into force some revenue-increasing and expenditure-reducing measures simultaneously as a prescription of the neoliberal practice. The aim of this paper is to show what the reform has brought in terms of its alleged reasons, the restoration of the actuarial balance and protection against poverty, from the economic perspective. We found out that, although it has been relied on constitutional provisions such as equality and social security, the reform has been concretized in higher premiums and lower repayments.*

***Keywords:** social security reform, actuarial balance, poverty, human dignity, redistribution, neoliberalism, retirement age, premium collection, premium amnesties, informal employment, informal income, preventive health expenditures.*

## 1. Introduction

The objective of a social security system is to protect individuals from social risks in order to provide a standard of living consistent with human dignity<sup>1</sup> (Kantarıcı, 2003, p. 78) by redistribution<sup>2</sup> (Ulbricht, 2003, p. 400; Rosen & Gayer, 2014, p. 225).

In the Post-World War I era, economic and social insecurities resulted worse than wars. It has been understood that permanent peace can only be established on the basis of economic and social justice (Canıklıoğlu, 2012, p. 159). With the effect of the socialist constitutional movement, a part of the world was transformed into the socialist economic system. In the remaining parts, constitutions began to socialize. Social rights, in other words, the social obligations of states, appeared in constitutions alongside economic and intellectual liberties (Kaboğlu, 2017, p. 6-8). The recognition of social

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<sup>1</sup> This objective can't be fulfilled by the private sector for some reasons. Firstly, the asymmetric information problem causes public intervention. Within the market mechanism, individuals have asymmetric knowledge, because of two reasons: the costs of acquiring information and the uncertainty about the future, caused by bankruptcy risk etc. (Stiglitz, 2000, pp. 358-359). Furthermore, private insurers wouldn't insure the sick individuals with low life expectancy, or they would impose high premiums. On the other hand, unlike the life insurances, private insurers prefer insuring the individuals who are unhealthy and have high death risks, in the annuity insurances (Rosen & Gayer, 2014, p. 223). Another problem that arises when private insurance companies can't distinguish between individuals exposed to different risks is adverse selection. Insurance companies need information about the health status of the people they insure, but people know their health conditions better. Holders of good risks are low on insurance claims, holders of bad risks are those who require high insurance and who want to perceive the benefits of insurance. The private insurance company raises the premiums to avoid damage in this case, and these high premiums further reinforce the problem of adverse selection, leading to bad risks to the market (Stiglitz, 2000, pp. 360-361; Rosen & Gayer, 2014, p. 224). In addition, the social security system is a costly and complicated system to operate. Individuals may not want to make voluntary contributions to the redistribution (Yılmaz, 2014, p. 18) In emerging countries with high inflation, it is also difficult to protect the real value of the funds. The decline in the birth rate and aging of the population, unemployment, increases in the costs of health services and the expansion of the informal sector are other variables to manage (Stiglitz, 2000, p. 359).

<sup>2</sup> That means there is no direct link between benefits provided and premiums received. Priority is given to social justice and preventing imbalances in income distribution (Kirmanoğlu, 2011, p. 207).

rights has been defined as a kind of reconciliation between the capitalist class and the masses of working people to conserve the liberal economic order (Tanör, 1978, p. 121).

The concept of social security undertook an important place in the politics of countries after the great economic crisis of 1929 (Mutluer, Öner, & Kesik, 2013, p. 169). National and international documents reflected the initiative to determine the scope of the right (Caniklioğlu, 2012, p.159). In 1952, the International Labor Office defined social security as “the protection which society provides for its members, through a series of public measures, against the economic and social distress that otherwise would be caused by the stoppage or substantial reduction of earnings resulting from sickness, maternity, employment injury, unemployment, invalidity, old age and death; the provision of medical care; and the provision of subsidies for families with children.” (ILO, 1984, pp. 2-3). However, the real acceleration in this area was realized after the World War II (Caniklioğlu, 2012, p. 159). In the post-World War II period, social security systems, which developed very rapidly, especially in industrialized countries, went through a actuarial crisis in time (Mutluer, Öner, & Kesik, 2013, p. 169). With the weakening of the socialist bloc from 1980, the power of representation of the popular masses has weakened (Kaboğlu, 2017, p. 8) and the increasing expenditures of social security systems have begun to be discussed in terms of pension plan maturation, aging of the population, cost increases in health services, continuous and high rate unemployment and extended social benefits (Alper, 2011, p. 9).

The aim of this paper is to show the Turkish case of that global phenomenon through the so-called social security reform. In this respect, we briefly summarize what the reform has brought in terms of its alleged reasons, (1) the restoration of the actuarial balance and (2) protection against poverty, from the economic perspective.

## **2. Results of the Social Security Reform Regarding the Restoration of the Actuarial Balance**

Turkish governments ruined the actuarial balance of the social security administrations by misusing their funds, and this eventually led to serious deficits of these administrations (Yılmaz, 2015, p. 5). In the stand-by agreements signed between the Republic of Turkey and the International Monetary Fund (IMF) at various dates

following the crises of 2000 and 2001, the social security system is defined as an area that disrupts the budget balance, and should be subject to a reform<sup>3</sup>.

Accordingly, The Prime Ministry of Turkey published a report regarding the reform<sup>4</sup>. This report- which supposed to analyze the problems of the social security system considering its title- gives to a large extent some elementary information on market economy, such as giving explanation about the case in which an increase of interest rates and a decrease of growth rates occur, when the revenue needed to compensate an increase in the public spending falls short, and thus internal borrowing becomes necessary.

After making a serious effort to understand the contents of the report regarding the social security reform, one can see that in order to regain the actuarial balance of the social security system which was lost as a consequence of extrinsic interventions, the reform focuses on revenue enhancing and cost reducing measures like: (2.1.) raising the retirement age, (2.2.) litigation and enforcement, in order to ensure revenue collection and to prevent prescription, (2.3.) abolition of discounts and amnesties, (2.4.) prevention of informal employment, (2.5.) reduction of the health expenditures. Among these, (2.2.), (2.3.), and (2.4.) are measures that require the legislative and executive bodies to fulfill their duties.

## **2.1. The Effect of the Increase in the Retirement Age on the Actuarial Balance will be Monitored by 2036**

One of the most important variables which must be taken into consideration for actuarial balance is the distribution of population by age groups in a pay-as-you-go system<sup>5</sup> like Turkey's. Under normal circumstances, the retirement age must be

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<sup>3</sup> The arguments on the social security reform are included in the letter of intents given to the IMF. <http://www.imf.org/external/np/loi/2005/tur/042605.pdf>

<sup>4</sup> Sosyal Güvenlik Reformu: Sorunlar ve Çözüm Önerileri (The Social Security Reform: Problems and Solution Suggestions, hereafter abbreviated as report), Kamu Yönetiminde Yeniden Yapılanma: 9, T.C. Başbakanlık, Ankara 2005, <http://www.igb.gov.tr/Kutuphane/2005%20KYYY%20IX%20Sosyal%20Güvenlik%20Reformu%20Sorunlar%20ve%20Çözüm%20Önerileri.pdf> (10.11.2017).

<sup>5</sup> There are two main funding methods for financing the social security systems. These are the distribution method (Pay As You Go), in which every active generation finances the former



adjusted to a point, in which the premiums of every four employees finance one pension. The most fundamental change within the context of the reform was made in the old age insurance. According to the clause b of the 28th article of the Social Security and Universal Health Insurance Law<sup>6</sup> (hereafter abbreviated as Law 5510), the age of retirement for both female and male insureds will have been increased to 65 by 2048.

**Table 1: Retirement Age by Years as Predicted by the Reform**

Years	Female	Male
2005-2035	No Change (47-60)	No Change (44-58)
1.1.2036-31.12.2037	59	61
1.1.2038-31.12.2039	60	62
1.1.2040-31.12.2041	61	63
1.1.2042-31.12.2043	62	64
1.1.2044-31.12.2045	63	65
1.1.2046-31.12.2047	64	65
After 1.1.2048	65	65

## 2.2. Premiums are not Collected

Premium collection is the task of social security administrations organized under the executive body. For this purpose, the necessary system for collecting the premiums on time must be established and premiums must be collected in this way, with the help of administrative controls (Caniklioğlu, 2012, p. 173). According to the report, one of the most substantial legs of the reform will be the premium collection. The following table shows the collection of the premiums in the payment stage.

The out-of-the-financial-system recording of the receivables of the Social Security Administration that are to be litigated and enforced, hinders the presentation of the financial reports and the accounting system in a precise and correct way, results to incapacities in the connection between the accrual and the collection processes, and precludes the closing of a substantial part of the collections after being linked with the accruals (Court of Accounts, 2016, pp. 7-9). The debtors who are the beneficiaries of

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generation and the needy individuals of the society, and the funding method (Capital Accumulation), which envisages savings for generations to meet their social security expenditures (Hyman, 2011, p. 276).

<sup>6</sup> 5510- 31.5.2006 (R.G. 16.6.2006- 26200).

debt restructuring are excluded from the enforcement proceedings, and they cannot be submitted to the same proceedings in case of recurrent default. The current debt numbers do not reflect the reality, since the updating of the debt that's excluded from the restructuring coverage is not made automatically. The enforcement / accrual ratio decreased in 2008, 2011 and 2015, which are the years the restructuring was made. Moreover, the debt collection ability of the Social Security Administration is being reduced because of the fact that the enforcements are made completely by the discretion of the presidency of the Social Security Administration instead of being made automatically without any need of further action, and also because of the fact that it was done only once in 2015 (Court of Accounts, 2016, pp. 9-10).

### **2.3. Discounts and Amnesties were not Ceased**

The fall in the rate of premium payments as a consequence of frequent discount and amnesty implementations, was shown among the main reasons of the reform. While mentioning that reason, it was promised to put an end to discounts and amnesties for unpaid premiums. But, the course of premium amnesties after the publication of this report is as follows: Act No. 5458<sup>7</sup> in 2006, Act No. 5763<sup>8</sup> in 2008, Act No. 6111<sup>9</sup> in 2011, Act No. 6552<sup>10</sup> in 2014, Act No. 6736<sup>11</sup> in 2016, and Act No. 7020<sup>12</sup> in 2017. In total, 6 acts, that include premium amnesties were introduced in 12 years.

### **2.4. The fight against informal employment and income is insufficient**

The new measure of the Act No. 5510 on preventing informal employment is the liability it brought to public agencies and banks. By means of the electronic infrastructure provided by the Administration, public agencies and banks are liable to control whether a transacting person is registered as an insured or not, and are obligated to give notice to the Social Security Administration, regarding the people they identify as uninsured (art. 8/7). The informal employees, detected by way of the information provided via the banks and the public agencies, constitute a significant part of the total

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<sup>7</sup> 5458- 22.02.2006 (O.J. 04.03.2006- 26098).

<sup>8</sup> 5763- 15.05.2008 (O.J. 26.05.2008- 26887).

<sup>9</sup> 6111- 13.02.2011 (O.J. 25.02.2011- 27857).

<sup>10</sup> 6552- 10.09.2014 (O.J. 11.09.2014- 29116).

<sup>11</sup> 6736- 03.08.2016 (O.J. 19.08.2016- 29806).

<sup>12</sup> 7020- 18.05.2017 (O.J. 27.05.2017- 30078).

informal employees, identified each year. In 2016, 50.979 of 139.398 informal employees were detected via the information provided in this way. The number of informal employees detected by the social security inspectors in the same year was only 24.960<sup>13</sup>, since the number of workplaces inspected was only 45.755<sup>14</sup> (The 2016 Annual Report of the Social Security Administration, p. 91), which is the 2,61% of the total number of workplaces<sup>15</sup>.

Another innovation of the Act No. 5510, was to reduce the employers' contribution in the insurance premiums of the employees who work according to the article 4/1/a, in other words, the ones employed by one or more employers via a labour contract (hereafter abbreviated as 4/1/a workers). This decrease was financed by the State, namely, from the public revenues (art. 81/i) The amount transferred in this context from the Treasury is as below:

**Table 2: Public Contribution (2008-2016)**

Years	2008	2009	2010	2011	2012	2013	2014	2015	2016
State Contribution (Thousand TL)	1.719	10.879	15.170	21.176	23.537	27.471	30.512	37.526	46.457

*Source: Derived from SGK statistics*

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<sup>13</sup> Social Security Administration, Activity Report 2016, p. 66, <http://www.sgk.gov.tr/2016FaaliyetRaporu.pdf> (10.11.2017).

<sup>14</sup> *Ibid.*, p. 91.

<sup>15</sup> Total number of workplaces is 1.749.240 (SGK statistics, December 2016).

**Table 3: Size of Informal Employment in Turkey (2002-2016)**

Years	Informal Employed Population (thousand)	Total Employed Population (thousand)	Informal Employment Rate (%)
2002	11133	21354	52,14
2003	10943	21147	51,75
2004	9843	19632	50,14
2005	9666	20067	48,17
2006	9593	20423	46,97
2007	9423	20738	45,44
2008	9220	21194	43,50
2009	9328	21277	43,84
2010	9772	22594	43,25
2011	10139	24110	42,05
2012	9686	24821	39,02
2013	9379	25524	36,75
2014	9069	25933	34,97
2015	8937	26621	33,57
2016	9111	27205	33,49

Source: Derived from SGK statistics

Although the rate of inspection is quite low, and discounts and amnesties are implemented biennially, the transition of 4/1/a workers to registered employment gained momentum as a result of the premium support for employers implemented and ever increasing since 2008. The informal employment by years is as follows:

In addition to informal employment, underreporting income also significantly reduces the revenue base of the social security system. This problem is especially prevalent in small business owners who make up the majority of the enterprises in the Turkish economy (Özsuca & Toksöz, 2003, p.32). By year 2016, number of total insureds is 19.445.417. The number of 4/1/a workers is 13.775.188 for the same year. 40,95% of the 4/1/a workers, pay their contributions at the lowest limit. This ratio, corresponds to 5,6 million insureds<sup>16</sup>. The number of the insureds working according to the article 4/1/b of the act, in other words, the ones who are self-employed without a labour

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<sup>16</sup> In 2016, the lowest limit for daily income was 54,90 TL, and the upper limit was 356,85 TL, 6,5 times the former (SGK statistics, 2016).

contract (hereafter abbreviated as 4/1/b workers) is 2.794.132, 98,9% of which pay their contributions at the lowest limit due to 2016 data. The same was 94% in 2010. With the introduction of the new system which is based on declaration, the contribution payments at the lowest limit became widespread (SGK Statistics, 2016).

## **2.5. The Rationalization of the Health Expenditures could not be Ensured**

According to the World Health Organization Data, Turkey has the second lowest per capita health expenditure among the countries which have lands in the continent of Europe, following Romania<sup>17</sup> Therefore, it's impossible to define the problem regarding the health expenditures in Turkey, as the excess of these expenditures. The problem is the omission of the preventive health services. The reducing of the preventive health care expenditures, causes an increase in the curative health care expenditures (Yentürk, 2012, p. 38). The augmentation of the share allocated for preventive health care services will make the members of the society become ill less often and also reduce the treatment costs of the Administration in the long term.

In 2013, only 14,58% of the health care expenditures is allocated for the preventive health care and administrative services, while 85,24% is allocated for medicine and curative services. The share of the health expenditures must be increased, starting with the preventive health care services (KAHİP, 2014).

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<sup>17</sup> World Health Organization, Global Health Expenditure Database, <http://apps.who.int/nha/database> (10.11.2017).

**Table 4: Revenues and Expenditures of Social Security Administration (2003-2016)**

Years	TOTAL REVENUES	Premium Revenues	State Contribution	Other Revenues	TOTAL EXPENDITURES	Health Expenditures	Pension Expenditures	Other Expenditures	Compensation Rate of Total Expenditures by Total Revenues (%)	Compensation Rate of Total Expenditures by Premium Revenues (%)	Compensation of Total Expenditures by State Contribution (%)
2003	27.917	21.178	-	6.738	41.336	10.662	25.174	5.500	67,5	51,23	-
2004	34.689	27.424	-	7.265	50.622	13.150	30.661	6.811	68,5	54,17	-
2005	41.249	30.882	-	10.367	59.941	13.608	38.537	7.796	68,8	51,52	-
2006	53.831	41.620	-	12.211	71.867	17.667	45.076	9.125	74,9	57,91	-
2007	56.875	44.052	-	12.823	81.915	19.984	52.312	9.620	69,4	53,78	-
2008	67.257	54.546	1.719	10.993	93.159	25.346	59.137	8.677	72,2	58,55	1,85
2009	78.073	54.579	10.879	12.614	106.775	28.811	68.604	9.361	73,1	51,12	10,19
2010	95.273	66.913	15.170	13.190	121.997	32.509	78.957	10.531	78,1	54,85	12,43
2011	124.480	89.561	21.176	13.743	140.715	36.500	91.615	12.599	88,5	63,65	15,05
2012	142.929	99.359	23.537	20.032	160.223	44.111	105.294	10.819	89,2	62,01	14,69
2013	163.014	118.729	27.471	16.814	182.689	49.889	119.162	13.639	89,2	64,99	15,04
2014	184.329	135.239	30.512	18.578	204.400	54.551	134.392	15.457	90,2	66,16	14,93
2015	220.102	159.480	37.526	23.096	231.546	59.411	151.990	20.145	95,1	68,88	16,21
2016	255.880	184.446	46.457	24.977	276.536	67.993	185.156	23.386	92,5	66,70	16,80

Source: SGK Fiscal Statistics 2016.

In order to make use of the health care services within the context of the general health insurance embodied by the Act No. 5510, contribution collection from the insureds is envisioned. This share is a fixed amount for the outpatient care examinations while it is defined proportionately for other treatments and medicines given in the outpatient care in order to reduce unnecessary usage (art. 68).

We have examined the changes made in order to ensure the actuarial balance. Moreover, the overall picture can be observed in tables 4 and 5.

The revenues and expenditures of the Social Security Administration is shown above. The main objective of the reform is to defray the expenditures with the revenues in order to minimize the budget transfers. As it can be seen in the compensation rate of total expenditures by total revenues column, the revenues to expenditures ratio

increased largely between 2003 and 2016, from 67,5% to 92,5% respectively. The main reason for this increase is the share of the State subsidy<sup>18</sup> whose effect can be observed in 2009. Actually, we can evaluate the real objective of the reform by subtracting the State subsidy from the total revenues. Although a relative recovery is observed since year 2003<sup>19</sup>, we can conclude that if the State contribution is omitted the measures taken in order to make the revenues satisfy the costs are useless, and therefore the gap is met by the budget transfers.

**Table 5: Budget Transfers To Social Security Administration (2002-2016)**

Years	Social Security Administration Budget Transfers (Thousand TL)	Annual Rate Of Change (%)	Rate of GDP (%)
2002	9.684.000	75,3	2,76
2003	15.883.617	64,0	3,49
2004	18.830.000	18,5	3,37
2005	23.322.000	23,9	3,59
2006	22.892.000	-1,8	3,02
2007	33.060.241	44,4	3,92
2008	35.016.403	5,9	3,52
2009	52.599.691	50,2 <sup>20</sup>	5,26
2010	55.244.258	5,0	4,76
2011	52.772.218	-4,5	3,78
2012	58.728.293	11,3	3,74
2013	71.263.763	21,3	3,94
2014	77.335.890	8,5	3,78
2015	79.038.817	2,2	3,38
2016	108.073.487	36,7	4,17

*Source: Derived from BUMKO statistics*

<sup>18</sup> The State subsidy increased to 10,19% in 2009, from 1,85% in 2008.

<sup>19</sup> The reason why we drew attention to this as a relative improvement is the increase of the premium collection for the years in which the amnesties and discounts are implemented. A more detailed analysis shows that the revenues to expenditures ratio increases in these years.

<sup>20</sup> The increase of %50 in 2009 reflect also the effect of the 2008 economic crisis. Factors such as the decline in the number of insured people due to the crisis and the increase in the number of retired people due to the increasing uncertainty during crisis periods have been effective. In addition, the State contribution increased substantially in 2009.

With the influence of the State subsidy as well as the global crisis that began in 2008, the transfers from the budget to the social security administrations by years, is shown in Table 5.

### **3. Results of the Social Security Reform Regarding Poverty Reduction**

The explanatory report published by the Prime Ministry, declares the 2nd motive of the reform as poverty reduction, but again, without correlating poverty with social security. In this manner, the report includes general statements about poverty and poverty statistics. In the same report, the high poverty rates despite the allocation of 11,7% of public spending to social security, was attributed to the inability to spend this money efficiently<sup>21</sup>. However, Turkey is the country which allocates minimum amount to the social security and -as a part of this - to the social aid expenditures among European countries, including even those which have lower national income levels compared to Turkey<sup>22</sup>.

Social security needs public funding. But, the limited amount allocated by the parliament to social security will not be discussed under this title; the will of the parliament on poverty reduction will be examined just in terms of the social security reform it accepted. In order to do this, we will seek an answer on (3.1.) whether the reform resolved previous shortcomings or not, and (3.2.) which groups' burdens are exacerbated in order to ensure the actuarial balance.

#### **3.1. With Regard to Whether it has been Successful in Compensating the Deficiencies of the Pre-Reform System**

The report which justifies the social security reform lays emphasis on (3.1.1.) unemployment and informal employment, and (3.1.2.) the lack of coverage of the social security system.

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<sup>21</sup> See report, p. 39.

<sup>22</sup> See EUROSTAT, Social Protection Statistics, [http://ec.europa.eu/eurostat/statistics-explained/index.php/Social\\_protection\\_statistics](http://ec.europa.eu/eurostat/statistics-explained/index.php/Social_protection_statistics) (10.11.2017).



### 3.1.1. Unemployment and Informal Employment Continues

Financing problem of the pre-reform social security system was mainly related to two problems: unemployment and informal employment (Güzel, 2005, p. 73), which were not directly related to the system itself. Eliminating these two social risks for gaining an actuarial balance, is the positive obligation of the State in its struggle against poverty. Accordingly, the State is obligated to take measures in order to prevent unemployment (Tanör, 1978, pp. 364-365; Kaboğlu, 2002, p. 462), and to make inspections, along with deterrent punishment in order to prevent informal employment (Tanör, 1978, p. 283 et seq.)

The year by year evolution of the informal employment in Turkey is given in the Table 3 above. Below, Table 6 gives the general unemployment and youth unemployment rates.

**Table 6: General Unemployment Rate and Youth Unemployment Rate (2005-2016)**

Years	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Unemployment Rate	9,7	8,9	9,2	12	11,9	10	8,5	8,8	9,1	10,3	10,2	11,7
Youth Unemployment Rate	17,8	16,7	17,4	21,9	20,6	18,4	15,4	16,9	16,4	18,9	17,9	21,6

*Source: TURKSTAT data.*

### 3.1.2. The Lack of Coverage of the Social Security System Continues

Another reason mentioned in the same report is the inability of the pre-reform system to provide enough coverage (p.46). As a consequence of the separation of the social insurance payments and the delivery of health care services, two separate insured categories emerged in the Act No. 5510: insured under the social security insurance and insured under the general health insurance. The 4th article of the act regulates the concept of the “socially insured person” with regards to gaining rights such as the benefits for temporary incapacity, disablement, death as well as old age and widow’s pensions; whilst the 60th article regulates the concept of “insured person by general health care” who benefits from the delivery of health care only (Caniklioğlu, 2012, p. 166). A non-contributory regime has not been regulated yet.

According to the Act No. 5510, among the 4/1/b workers, those entitled to income tax immunity but registered as a trader or craftsman, are not counted as insureds if their monthly operating revenue are less than 30 times of the daily lower base to premium. The costs related to the activity are deducted to calculate the monthly income (art. 6/1/). It is the same for the self-employed in agriculture (art. 6/1/i). The regulation deprived the poorest part of the society<sup>23</sup> of the social security right, on the grounds that they have low income (Caniklioğlu, 2012, p. 167).

The regulation has another negative effect. It makes compulsory insurance almost optional, since underreporting income<sup>24</sup> is high in the country (Caniklioğlu, 2012, p. 167).

The table below, gives the decline in the active/passive ratio of 4/1/b workers.

**Table 7: Insured / Pensioner Ratio of 4/1/b Workers (2007-2016)**

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Insured/Pensioner Ratio for 4/1/b	1,95	1,87	1,78	1,67	1,50	1,40	1,30	1,28	1,17	1,16

Source: SGK Statistics Annuals, Statistics of Workplaces and Insureds, 2016

<sup>23</sup> “Informal employment is widespread mostly amongst those working as unpaid family workers in agriculture (...) 32 percent of the informal employment consists of the self-employed (...) When analyzed together with the results of the poverty study conducted by Statistical Agency, it is seen that those employed informally constitute the poorest segment of Turkey” (Report, pp. 92-93). After that the report stated this fact, the reform, instead of securing that poorest segment by measures like inspection, took them out of the social security umbrella.

<sup>24</sup> The estimate for the shadow economy in 2015 is 26,5 percent (Ministry of Development, 2015). <http://www.kayitliekonomiyegecis.gov.tr/sites/all/themes/themetastic/EylemPlanı/2015-2017%20Kayıt%20Dışı%20Ekonominin%20Azaltılması%20Programı%20Eylem%20Planı.pdf>

**Table 8: Scope of Social Security (2002-2016)**

Years	Insured Population (thousand)	Total Population (thousand)	Insured Population Rate (%)	Out of Scope Population Rate (%)
2002	46319	66402	70%	30%
2003	48094	67187	72%	28%
2004	50139	68010	74%	26%
2005	52391	68861	76%	24%
2006	54667	69730	78%	22%
2007	56424	70586	80%	20%
2008	57338	71517	80%	20%
2009	58592	72561	81%	19%
2010	61527	73723	83%	17%
2011	64089	74724	86%	14%
2012	62899	75627	83%	17%
2013	62789	76668	82%	18%
2014	65061	77696	84%	16%

*Source: Derived from SGK Statistics.*

When it comes to the general health insurance, we might say that the only aspect of the Act No. 5510 that could be called as reform is that it established the general health insurance in order everyone living in the country to benefit from the health care services (Caniklioğlu, 2012, p. 173-174). However, the general health insurance does not cover informal workers, the number of whom is given above in Table 8.

### **3.2. With Regard to the Social Groups, the Burden of Which is Wished to be Increased in order to Acquire the Actuarial Balance**

The reform affects primarily the (3.2.1.) pensioners, (3.2.2.) the disabled and (3.2.3.) the disadvantaged groups in the society.

#### **3.2.1. The Pensioners**

The reform is mainly based on the reduction of the right to a pension (Caniklioğlu, 2012, p. 169 et seq.). The access to retirement was made more difficult, and pensions were reduced.

The change in the retirement age was shown under title “The Effect of the Increase in the Retirement Age on the Actuarial Balance will be monitored by 2036” above. In terms of pensions, the payments will be calculated by multiplying the value found by updating the premiums paid by the insured throughout the working life by the pension rate (Act No. 5510, art. 29/2,3). In the study conducted by Arabacı and Alper (2010), when the salaries calculated according to the regulation of the Act No. 4447 are accepted as 100, the pension payments that will be calculated according to the Act No. 5510 will be reduced 65%, at best, they can be 91. The insureds will never receive a monthly payment as it was under the Act No. 4447<sup>25</sup> (Arabacı & Alper, 2010, p. 111).

### **3.2.2. The Disabled**

Article 25 of the Act No. 5510 defines the disabled as the one who has 60 percent loss of work capacity or the one who lost her/his ability to earn a living in a profession by 60 percent as a consequence of a work accident or illness. The Act No. 5510 maintained the premium payment period of 1800 days in order to put a disabled person on salary, and added a 10 years of waiting period to that precondition (art. 26).

### **3.2.3. The Disadvantageous Groups**

Contemporary social security systems include 3 main tools: social insurance, social assistance and social services. Social insurance provides social security based on premiums, whilst social assistance and social services provide non-contributory social security services (Connolly&Munro,1999, p. 291; Şener, 2006, p. 395; Gruber, 2013, p. 322) for needy individuals who are unable to work and cannot be covered by social insurance as a consequence of having very low wages (Arın, 2002, p. 73; Çelik, 2002, p. 10). Social security expenditures, mainly through the non-contributory expenditures

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<sup>25</sup> Pension insurance has had a significant impact on insurers' labor supply decisions. First of all, those who deserve the right to have pension payments prior the reform - those who want to benefit from the high pension rates of the old system - demanded their retirements. This created a sudden and significant increase in the number of passive insured persons and created an opportunity for some administrations to conduct a recruitment processes as a result of populist policies due to the leave of the current staff. In some institutions, trained and qualified staff were taken from the workforce in early stages, resulting in a decrease in job quality and productivity (Yılmaz & Susam, 2006, p. 98).

but also as a whole, have a poverty reduction effect<sup>26</sup> (Berksoy, 2014, p. 154). However, the poverty reduction feature of the social security system as a whole, depends on whether it is financed by redistribution. In other words, the funding system must really transfer wealth to society's disadvantageous groups from the advantageous ones (Berksoy, 2014, p. 155). The percentage increase of taxes- in a tax system which operates according to the contributory capacity principle- as well as the integration of taxes on high income groups dedicated directly to the financing of the social security system bring a solidarity character to the system, which makes it efficient in combatting poverty. On the other hand, implications like financing the social security system to a large extent with contributions or the private insurance, individualize the social security system (Berksoy, 2014, p. 155).

The regulation, which lowers the employer's premium and compensates for its cost by public revenues, can be interpreted in light of this information and by comparing it with examples of good practice. In Sweden, workers do not pay premium; in France the premium paid by employers is 2,1 times more than the employees' while the Europe average is 1,8 (Berksoy, 2014, p. 156). In Turkey, the premium rates are defined in the 73rd article of the former Social Insurances Act<sup>27</sup> and the 81st article of the Act No. 5510. It can be seen that these rates are relatively close to each other in the Turkish case where the average is 1,46 (20,5 (employer)/ 14 (employee)). Taking into account the 5 points of State contribution, this ratio decreases to 1,1. Also, under a tax system which does not operate according to the contributory capacity principle, the financing of the social security expenditures by taxes, does not help realizing the objective of reducing poverty<sup>28</sup>.

Another leg of the reform which must be mentioned under this title is the general health insurance. Instead of the European type healthcare model which is financed by taxes and provided by State, the reform adopted the premium based model which Southeast Asia and Latin America countries are trying to adopt under the guidance of World

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<sup>26</sup> Without a social security program, it is believed that many people will not have enough money to finance their consumption during the retirement period (Rosen & Gayer, 2014, p. 223).

<sup>27</sup> 506- 17.07.1964 (R.G. 29, 30, 31.07.1964-01.08.1964- 11766-11779).

<sup>28</sup> About the violation of the right to equal protection regarding the contribution burden to public expenditure, see Berksoy, 2014, p. 226 et seq.

Bank<sup>29</sup> (Güzel, 2005, p. 70; Yentürk, 2012, p. 44). Because the right to health is closely linked to the right to live, the general health insurance regulation must be separately analyzed. In the 67th article of the Act No. 5510, the completion of the number of days to pay premium and absence of premium debts are ranked among the conditions for benefiting from healthcare services.

Only the premiums of the 60/c/1 workers, formerly known as the “green card holders”<sup>30</sup>, who earn 1/3 or less of the minimum wage<sup>31</sup> will be financed by public revenues. It should be noted that the 1/3 of the nominal minimum wage is 592,5 TL in 2017<sup>32</sup>. Premium collection is the task of the Social Security Administration. Creating the legal framework by using the relatively better country examples and the specialized knowledge willingly provided by universities and civil society organizations in order the Social Security Administration to fulfill this task, is the obligation of the Parliament. Other obligations of the Parliament are allocating adequate resource to the inspection, and follow up its use in accordance with the budget principles, relevant legislation and the performance requirements by means of the Court of Accounts’ reports<sup>33</sup>. People’s right to healthcare shouldn’t be hindered because of the fact that the legislative and executive organs do not fulfill their obligations<sup>34</sup>.

The non-contributory regime which has a direct effect on poverty reduction hasn’t been regulated yet. This reflects the political will on maintaining the social aid field within the charity approach, instead of a rights based one, and the arbitrary use of resources (Buğra&Adar, 2007, p. 33).

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<sup>29</sup> For detailed information, see Gosta Esping-Andersen: *Altın Çağ Sonrası? Küresel Bir Ekonomide Refah Devleti İnkilemleri (After the Golden Age? Welfare State Dilemmas in a Global Economy)*, pp. 55-100 and Bob Deacon: *Küreselleşme ve Sosyal Politika: Hakkaniyetli Refaha Tehdit (Globalization and Social Policy: The Threat to Equitable Welfare)*, pp. 101-158.

<sup>30</sup> See the Act on issuance of green cards for the citizens who are incapable to pay for healthcare services (Act No. 3816, 18.06.1992 (R.G. 03.07.1992- 21273) (hereafter abbreviated as the former Act No. 3816).

<sup>31</sup> See the former Act No. 3816 art. 2/1 and Act No. 5510 art. 60/c/1.

<sup>32</sup> See the Minimum Wage Determination Commission’s decision (2016/1- 29.12.2016 (R.G. 29.12.2016- 29934)).

<sup>33</sup> See Berksoy, 2014, p. 55.

<sup>34</sup> See Caniklioğlu, 2012, p. 173.

#### 4. Conclusion

We tried to reveal what the changes in the social security system of Turkey brought about in terms of the two reasons that the Government asserted as the reasons of the need for change- redressing of the actuarial balance of the Social Security Administration and poverty reduction. In Turkey, since the poverty rates before and after the social security expenditures are not measured seperately as they are measured in many countries<sup>35</sup>, we think such a study is worthwhile. During our study, we had difficulties in finding data regarding Turkey, could not find some of the data that we seek, and had difficulty in analysing some data as a consequence of its complexity. On the other hand, we have realized that the Public Spending Monitoring Platform (Kamu Harcamalarını İzleme Platformu), which is an NGO in Turkey, has a very significant role in making the public expenditures in Turkey transparent. We also realized that the warnings of the Chamber of Accounts, which has a central role in this regard, are disregarded by relevant administrations. A further research analysing the changes in the healthcare system that run parallel to the changes in the social security system, will integrate our findings.

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<sup>35</sup> See Berksoy, 2014, p. 157.

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# 2 Financial Liberalisation and Public Social Expenditures: The Case of Turkey<sup>1</sup>

*Aysel Arıkboğa*

## Abstract

*The practices of financial liberalisation became widespread concurrently with the proposals of the Washington Consensus, and the prevailing policies particularly affected the so-called emerging market economies. In line with the neoliberal discourse, financial liberalisation process enabled a favourable environment for financialisation. Eventually the implementation of the structural adjustment policies and the goal of fiscal discipline following the severe crises that were argued to be linked with the financial liberalisation process, have critically affected the level and the composition of the public expenditures. In this framework, the relation between liberalisation practices, financialisation process and crises will be evaluated with respect to their effects on the public social expenditures in Turkey.*

**Keywords:** *neoliberal economic policies, financial liberalisation, financialisation, public social expenditures.*

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## 1. Introduction

The aim of this paper is to analyse the possible links between the financial liberalisation process and the pattern of public social expenditures in the case of Turkey. The process will be analysed both for the “normal” times and during and after the crisis periods. Financial liberalisation has been in effect with its divergent practices in most of the developing countries, predominantly since the late twentieth century. Debates concerning the impacts of the financial liberalisation intensified as a result of the crises of the late 1990s and early 2000s in most of the so-called emerging markets. Austerity policies have been the outcome that put the burden of adjustment on labour incomes. Although there has been a wide range of research on the impacts of the financial liberalisation, and particularly on various aspects of macroeconomic issues, there are relatively few studies on how it affected public social expenditures<sup>2</sup>.

It is noteworthy that the practices of financial liberalisation were extensively implemented concurrently with the prevailing proposals of the Washington Consensus that have particularly affected the “emerging markets”. Capital account was liberalised in 1989 in Turkey, without exception, compatible with the policy prescriptions of the Washington Consensus; main pillars of which were liberalisation, deregulation, fiscal discipline and privatisation (Câmara Neto & Vernengo, 2004-2005, p. 334). During this process, restructuring of the economic role of the state has significantly affected fiscal policies. Regarding the proposals of the Consensus that were of significant importance to the problems of public finance and fiscal policy; reordering public expenditure priorities, fiscal discipline, tax reform and privatisation have been effective in terms of the neoliberal restructuring of the state. Financial liberalisation process and deregulation practices enabled a favourable environment for financialisation (Arıkboğa, 2012: pp. 88-89), public sector securities and foreign exchange deposits were the initiating instruments in the 1980s (Yeldan, 1997, p. 85) and the process has gone further, particularly via the soaring public debts during the 1990s and most recently via the rise in private sector debt since the 2000s. Meanwhile, the frequency and the severity of the financial and fiscal crises raised concerns about the sustainability of fiscal balances.

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<sup>2</sup> See for example, Akyüz & Cornford (1999); Stiglitz (2000) for the effects of the financial liberalisation on the developing economies and see Fine (2012) for an analysis of financialisation process and social policy.

The neoliberal turn of the 1980s supported financial liberalisation and deregulation practices that, in turn, affected the role of the state, hence the scope and the composition of the fiscal policy<sup>3</sup>. The domination of the structural adjustment policies and the goal of fiscal discipline following the severe crises since the financial liberalisation process, have critically affected the level and the composition of the public expenditures. In this framework, the relation between neoliberalism, liberalisation and deregulation practices, financialisation process and crises will be evaluated with respect to their effects on public social expenditures. Sawyer (2014, p. 15) emphasises that financial liberalisation and deregulation have been two significant elements of the financialisation process. In analysing the pattern of public social expenditures in the case of Turkey, two distinctive -yet interrelated- periods have been striking; the 1990s were characterised by the high level of public debts and the 2000s have been characterised by the rapidly rising indebtedness of the private sector both at the corporation and the household level. In analysing the impacts of the financialisation process on social expenditures; the aim is to explore how the budgetary process in terms of the social expenditures has been effective in legitimising the costs of the financialisation of the accumulation process and socialising the costs of crises during the neoliberal transformation of the state in Turkey.

The prevailing arguments favouring financial liberalisation practices emphasised on the goal of efficient use of resources that would lead to spurring growth.<sup>4</sup> The expectation was that financial liberalisation would be a panacea for inadequate domestic savings -or the saving-investment gap- of the developing countries. However, the outcomes were not as expected and the capital flight issue has been a serious obstacle for the developing countries to cope with. Albeit mainstream arguments of liberalisation were basically related to efficiency concerns, there was a major exception to this perception; the motto has been “minimising the economic role of the state” up until the 2007-2009 crisis during which various expansionary policies were implemented, and not surprisingly as the “financial crisis” was transformed into a fiscal crisis, these policies were followed by austerity measures that have been effective since 2010. Eventually, fiscal austerity affected the welfare budgets. (Bayliss, Fine, & Robertson, 2016, p. 25). Therefore, minimisation of the economic role of the state has been an effective tool for

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<sup>3</sup> For a discussion on the relationship between neoliberalism and austerity please see Whiteside (2016).

<sup>4</sup> This approach was advocated primarily by McKinnon (1973) and Shaw (1973).

redistributing income in favour of capital via monetary and fiscal policies rather than the promotion of a neutral state that based upon some prominent concepts as accountability, transparency, sustainability etc.

Financial liberalisation and financial integration restricted autonomous policy making process of the national economies and as a result of the restraint on the implementation of counter-cyclical fiscal and monetary policies, recessions have been both deep and prolonged, a significant outcome of which has been rising long-term unemployment. (United Nations Department of Economic and Social Affairs, 2007, p. 33). The World Bank's emphasis is also noteworthy that the financial liberalisation did not contribute to growth as oppose to the expectations, rather contributed to the increasing frequency of crises (The World Bank, 2005, p. 21). However, according to the proponents, financial liberalisation would lead to a rise in the quantity and a progress in the quality of investment as a result of the increasing efficiency gains in credit allocation (Sawyer, 2014, p. 13).

Policies and practices implemented since the financial liberalisation process will not be elaborated here as there are plenty of literature focusing on the issue. Rather, the aim of this paper is to analyse the pattern of public social expenditures in Turkey since the capital account liberalisation. In this context, the financial liberalisation process will be evaluated as an integral part of the neoliberal transformation of the state in the first part. In the second part, financial liberalisation, financialisation process and the crises in Turkey will be analysed. Financial liberalisation and the pattern of public social expenditures will be explored in the third part. And the fourth part concludes.

## **1. Financial Liberalisation Process: An Integral Part of the Neoliberal Transformation of the State**

As of 1970s discretionary interventions as part of the Keynesian demand management policies were subordinated to tight monetary and fiscal policies; thereby interventionist state paradigm for welfare purposes changed considerably. The responses to the problems of development have also been affected and the state's dominant role during the development process was criticised based on the efficiency considerations. The prevailing policies of the period were the rules based policies versus discretionary policies, the emphasis has been put on the state's indispensable role in providing a legal framework and progress in institutional structure.

The policy proposals of the Washington Consensus, declared elements of which were; fiscal discipline, reordering public expenditure priorities, generating a broad tax base with moderate marginal rates, which was advocated under the term of “tax reform”, liberalisation of interest rates, competitive exchange rate, liberalisation of trade, liberalisation of inward foreign direct investments, privatisation, deregulation, and property rights (Williamson, 2004, p. 3, 2004-2005, p. 196), have altered and redesigned the fiscal policies. In terms of the public social expenditures; fiscal discipline, reordering public expenditure priorities, tax reform, and privatisation were of critical importance. Fiscal discipline was asserted to be the advantage of the poor with the argument that the budget deficits led to balance of payments crises and high inflation, devastating effects of which would be felt primarily by the poor. Reordering public expenditure priorities; which was announced as providing basic services such as health, education, and infrastructure for pro-poor and pro-growth purposes (Williamson, 2004, p. 3); were also significant in terms of the public social expenditures. In a nutshell, the elements of the Consensus were rationalised with the justification that the policy proposals would be beneficial to the whole society. Regarding the other elements related to public finance and fiscal policy mentioned above, in fact, tax reform was basically an attempt of increasing the regressivity of the tax system via the rising share of indirect taxes and privatisation of state economic enterprises paved the way for privatisation - hence commercialisation- of social services. Policy proposals of the Washington Consensus were implemented in most of the developing countries throughout the 1990s. However the expectations about the unfettered markets became highly controversial as severe crises occurred in the developing world in the late 1990s and the early 2000s.

The already expected outcome of these elements of the Consensus has been the design of a policy stance which will promote poverty management rather than the public provision of social services in a right-based manner. However, the rise in inequality and poverty also rationalise the increasing role of corrective social policy (Fine, 2009, p. 3). Indeed, the overall impact of these policies has been the promotion of financialised capitalism with an outcome of the redistribution process in favour of capital incomes. Deteriorating conditions for labour incomes and increased resources for finance have been remarkable issues. (Bayliss, et.al., 2016, p. 21). It is noteworthy that the financial

liberalisation process has been associated with the increasing financialisation<sup>5</sup> of the economy. The state has to promote the financialisation process -which is the distinguishing feature of the neoliberal era- besides has to deal with the instabilities and the crises associated with this process particularly since the 1990s. During the crises, public expenditures were increased for the rescue of capital; however, that increase would not be expected to be devoted to education, health and welfare in “normal times” (Fine, 2009, pp. 4-5). The significance of subsidies provided to capital is pointed out by the United Nations Department of Economic and Social Affairs (2007) as: “When observers claim that Governments cannot afford the public social spending that would overcome the economic insecurity of the disadvantaged, they should look closely at the extent and *distribution* of subsidies provided by the State” (p. 36).

Real public expenditures and the means of financing these expenditures have been affected considerably throughout the financial liberalisation process. There has been a wide-ranging research on financialisation particularly since the last decade<sup>6</sup> and there has also been a growing research on its impacts on public finance and fiscal policy particularly in the context of the crisis of financialised capitalism.

The transformation of the developmental state into mostly a regulatory body; basic elements of which can be summarised as the provision of legal and regulatory framework for the smooth functioning of markets and the provision of basic education and health services, improving infrastructure along with poverty alleviation policies, have been generally advocated by the mainstream approach. These broad set of policies comprised the framework of the role of the state, particularly in the last three decades, 2007-2009 crisis of capitalism being a major exception. The process of restructuring the economic role of the state has also been supported by the international institutions. Market-friendly approach that was brought to the agenda by the World Development Report of 1991 (The World Bank, 1991) was among them. This policy stance comprised of a set of compatible policies also in Turkey similar to the other “emerging markets”. These

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<sup>5</sup> According to Epstein (2005, p. 3), financialisation can be defined as; “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies.”

<sup>6</sup> See for example, Epstein (2005); Fine (2013-2014); Lapavitsas (2009, 2010); Sawyer (2014); Stockhammer (2004, 2010).



policies were the main pillars of the Washington Consensus<sup>7</sup> and they have been associated with efficiency objectives.

Restructuring of the economic role of the state and the subsequent rise in public debts have significantly affected fiscal policies in Turkey (Arıkboğa, 2013, p. 64). In a financially liberalised economy, debt service cannot be fulfilled easily by raising taxes on capital, and particularly on financial assets since there is a high risk of capital flight as a result of which instability increases and crises occur. In this conjecture, taxes are imposed on the less mobile factors -notably on labour incomes- along with the pressures on social expenditures and increasing privatisation efforts to service the debt (Altwater, 1997, p. 66; United Nations Department of Economic and Social Affairs, 2007, p. 35). Consequently, the burden of the resulting crises fell mostly on labour incomes. A research on the impact of fiscal consolidations on various types of government expenditures reveal that between 1990 and 2012 in the European Union<sup>8</sup>, government spending on defence, public order, health, education, and social protection was significantly decreased and fiscal consolidations have detrimentally affected public social expenditures. Meanwhile, as cutting down of the public debt is one of the targets of the fiscal consolidations, the reductions in other government expenditures would be a prevalent policy (Castro, 2017, p. 149).

Globalisation in general and financial globalisation in particular has had critical economic and social impacts. There are various explanations regarding the effects of the globalization process on the role of the state. Genschel (2004) compiles these explanations in three groups; according to the first argument, the crisis of the welfare state is attributed to the increasing globalisation process; the second argument, on the contrary, does not define a link between the welfare state crisis and the globalisation; and finally, the third view, argues that the globalisation process is both the outcome of and also a way of overcoming the crisis of the welfare state.

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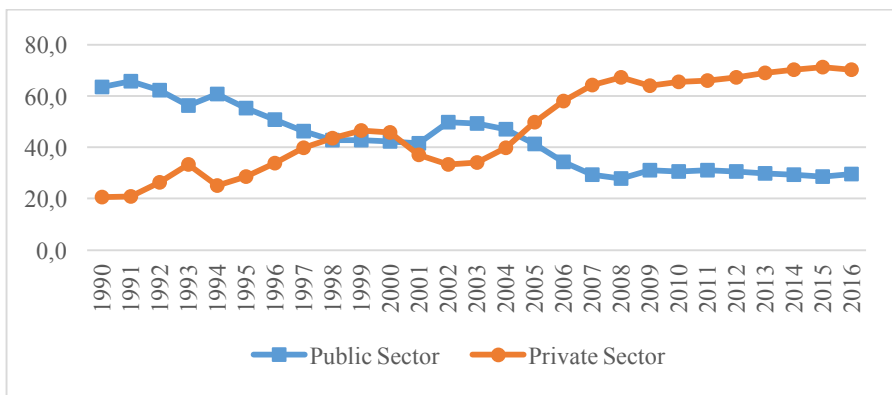
<sup>7</sup> Stiglitz (2003, p. 53) emphasised that fiscal austerity, privatisation and market liberalisation were the main pillars of the Consensus.

<sup>8</sup> The research included Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

## 2. Financial Liberalisation, Financialisation Process and the Crises in Turkey

The practices of liberalisation initiated with the trade liberalisation process in Turkey and the accumulation regime was transformed to export promotion in the 1980s, following the period of import substitution. Throughout the process, several liberalisation and deregulation practices took effect gradually regarding the current account and the capital account respectively (Arıkoğça, 2015, p. 157). Regarding the financial sector, some of these practices were; the elimination of legal ceilings on deposit interest rates, liberalisation of the foreign exchange regime, reduction in liquidity and reserve requirements during the 1980s, and finally liberalisation of the capital account in 1989 (Yeldan, 1997, pp. 82-83). Minimising the economic role of the state and increasing the role of the private sector were the maxim of the period and substantial benefits were provided to various capital groups among which export oriented firms were the major beneficiaries initially. As part of the export promotion policy; wages were repressed in order to gain “competitiveness” via low wage costs in the international markets. Thus, there has been an extensive state intervention in favour of capital rather than a minimised role in the economy (Arıkoğça, 2015, pp. 157-158).

Graphic 1: External Debt Stock by Borrower (1990-2016)



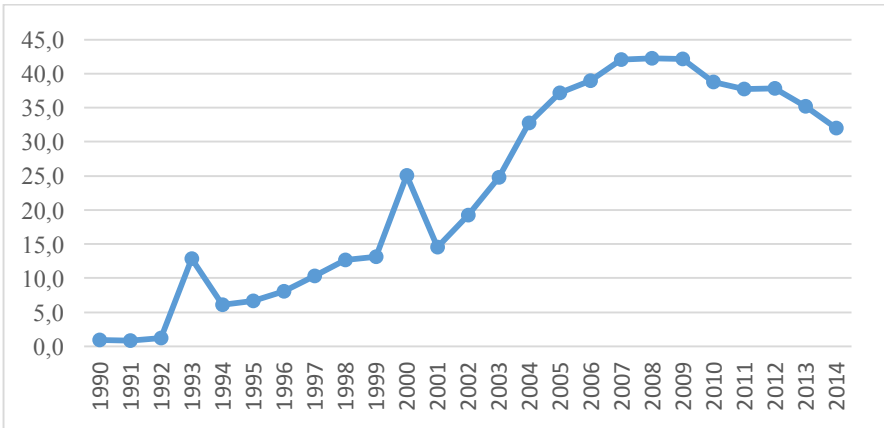
Total external debt stock of the Central Bank is not included in the graphic.

Source: Republic of Turkey Prime Ministry Undersecretariat of Treasury, Gross External Debt Stock of Turkey.

Following the capital account liberalisation, the public debt stock increased to unsustainable levels; 1994 crisis was the first breaking point and the 2000-2001 crisis was one of the most severe crisis, devastating effects of which continued for years. Banks played a critical role during the 1990s in Turkey; their share in total government domestic debt instruments were at considerably high levels (Yeldan, 2001, 149). There was a gradual decline in public debts until 2008 -with the exception of the crises of 1994 and 2001- however, the trend of decline could not be sustained following the reflections of the global crisis in 2009 and the decline had been insignificant since 2010. It is also noteworthy that the private sector debt increased remarkably during the last decade (see Graphic 1).

The soaring debts of the firms and the households can significantly affect households in case of a crisis via rising unemployment and especially through consumer debt defaults. The share of households in total credits of the deposit banks has increased enormously, particularly since the early 2000s in Turkey. (see Graphic 2).

**Graphic 2: Percentage Share of Households  
in Total Credits of the Deposit Banks (1990-2014)**



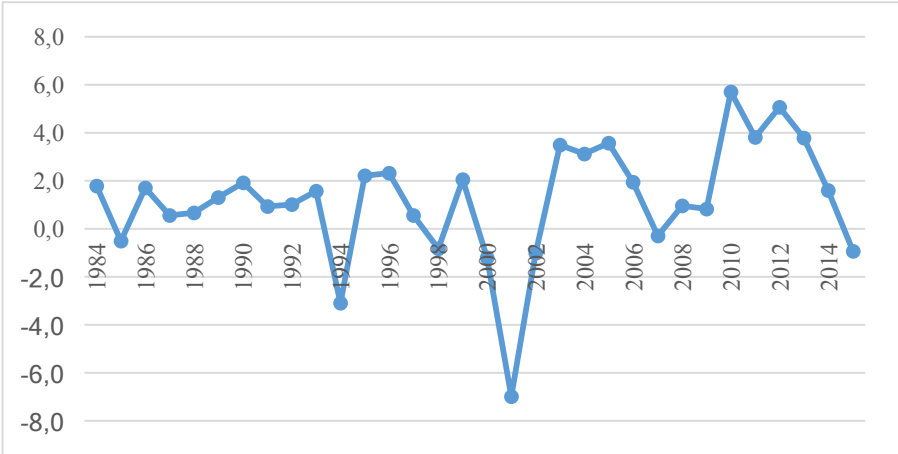
*Source: Republic of Turkey Ministry of Development, Economic and Social Indicators.*

The period since the capital account liberalisation in Turkey has been characterised by the massive inflows of capital provided that domestic markets can offer relatively high returns compared to other “emerging markets”. This conjuncture of inflows has also

been subject to the availability of international liquidity on the supply side. Financial liberalisation enabled and precipitated financialisation process; however, the crises of 1994, 2000-2001 and 2007-2009 occurred, during which the fragility and the instability of the economy intensified. It is important to note that with the exception of the most recent crisis, the previous ones were accompanied by a fiscal crisis (Arıkboğa, 2015, p. 158). Hot money flows which can be defined as the short-term capital flows seeking arbitrage (Boratav, 2003, p. 17; Boratav & Yeldan, 2006) predominantly shaped the period. Brazil and Turkey were pointed out to offer the highest return on hot money flows (Onaran, 2006, p. 17). Massive inflows, enabled the sustainability of the current account deficit and of the public debts. However, massive outflows unfolded serious crises which were followed by strict austerity measures (Arıkboğa, 2016, p. 62). Graphic 3 depicts hot money flows as a percentage of GDP in Turkey for the period of 1984-2015. Accordingly, the course of the hot money flows has been striking since the 1990s as the volatility increased significantly with the most critical year of 2001 in terms of the outflows. Besides, the upsurge of the capital inflows was remarkable, particularly in the last decade.

According to a research by Furceri & Loungani (2015), practices of capital account liberalisation increase inequality and also labour share of income decreases in the short and the medium term following the liberalisation process. The structural problems of the economy, such as, low domestic savings rate, current account deficit, unemployment and high share of informal employment definitely have destabilizing impacts on the economy and the society as a result of which a well-designed social policy would be needed.

**Graphic 3: Hot Money Flows<sup>9</sup> as Percentage of GDP (1984-2015)**



Source: Author's calculation from the Central Bank of the Republic of Turkey, Balance of Payments Statistics for hot money and The World Bank, World Development Indicators Database for GDP.

### 3. Financial Liberalisation and Public Social Expenditures in Turkey

Titmuss, categorized models of social policy as; the residual welfare model, the industrial achievement-performance model, and the institutional redistributive model. Accordingly, the residual welfare model of social policy is defined as a model where social welfare institutions are exclusively called for when market mechanism fails.<sup>10</sup> In the industrial achievement-performance model, provision by social welfare institutions is closely related to the productivity of labour. The institutional redistributive model, finally, is defined as a model where social welfare institutions provide universalist services on the basis of need (Titmuss, 1974, pp. 30-31). The elements of the social functions of the state in the twentieth century is pointed out by Piketty as education, health, and replacement incomes and transfer payments; accordingly, the enlargement

<sup>9</sup> For the components of hot money flows in the balance of payments capital account see İnandım (2005, pp. 110-112).

<sup>10</sup> Based on this conceptualisation, we can argue that, the elements of the Washington Consensus were in harmony with the residual welfare model.

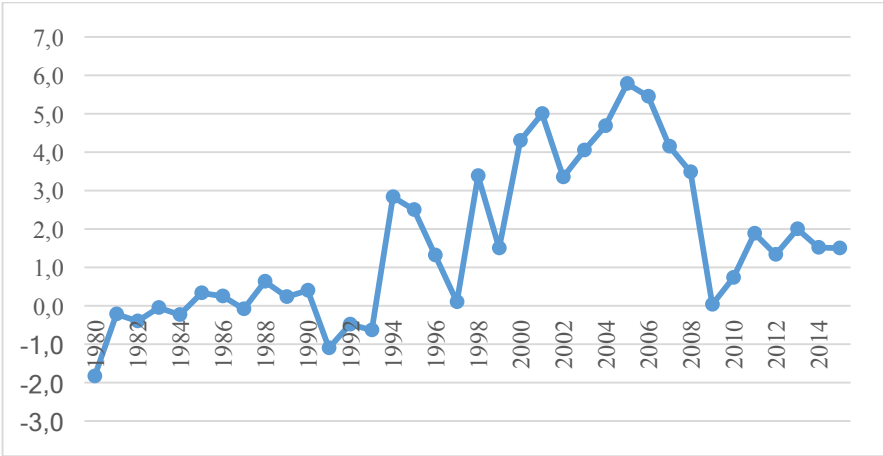
of the “fiscal state” as a result of the rising tax revenues was fundamentally a reflection of the constitution of the “social state” (Piketty, 2014, pp. 477-479). Social policy is defined, by Esping-Andersen (2003, p. 36), as the “public management of social risks”. The significant functions of social policy are; to sustain a progress of the productive capacity of the country, to support the social and the physical reproduction process, to sustain solidarity and legitimacy of the social system (Manning, 2007, p. 491). According to Erdoğan (2013, pp. 70-71), the distinctive feature of the public social expenditures is the external benefits provided by these services; in other words, inadequate social expenditures have external costs. Social policy has serious implications on redistribution of income, social justice and social protection. The emphasis on the increasing role of social policy since the early 2000s is attributed to the changes in development thinking, since in the late twentieth century the focus of development theory was economic growth that resulted in a perception of social policy as a residual item (Ortiz, 2007, p. 6).

The indispensable elements of the neoliberal policies since the 1980s have been financial liberalisation and deregulation practices that eventually affected the role of the state and therefore the scope and the composition of the fiscal policy. The domination of the structural adjustment policies and the goal of fiscal discipline following the severe crises since the financial liberalisation process in Turkey had significant impacts on the level and the composition of the public expenditures.

Following the financial liberalisation practices, various crises occurred in Turkey and the period accompanied by the structural adjustment programmes and the concomitant goal of fiscal discipline particularly via rising primary surplus. With respect to the impacts on social policy two periods can be distinguished; the 1990s were characterised by the high level of public debts and the 2000s have been characterised by the rapidly rising debts of the private sector (see Graphic 1 and Graphic 2). During the 1990s soaring of the public debts raised concerns about the fiscal sustainability issues. Tax revenues of the government were allocated to the interest payments and the real public expenditures were reduced as the debt service had to be fulfilled. In order to service the debt, governments targeted primary surplus, particularly under the terms of structural adjustment programmes (Yeldan, 2004, p. 369). The endeavour of obtaining primary surplus (see Graphic 4) had been an effective element of the rules based fiscal policy in particular and fiscal discipline in general. The goal of primary surplus was reached at the expense of decreasing real public expenditures. Public sector wages, public sector

employment, public investment and social expenditures (International Monetary Fund, 2001, pp. 18-19) detrimentally affected as a result of these policies. The target of obtaining primary surplus that was rationalised by the rising public debts, particularly following the crises of 1994 and 2001, was the main instrument of the austerity policies. (Arıkboğa, 2013, pp. 66-71).

**Graphic 4: Primary Surplus as Percentage of GDP (1980-2015)**



*Central Government Budget has been considered as of 2006.*

*Source: Author's calculation from the Republic of Turkey Ministry of Finance, General Directorate of Budget and Fiscal Control, Economic Indicators (1950-2017).*

Following the 2001 crisis, throughout the adjustment process, public debts and budget deficits decreased substantially which were the main outcome of the responses to the crisis that put the burden of adjustment on labour. Policy responses to the crisis were basically rising the share of indirect taxes in total tax revenues, privatisation, increasing the flexibility of labour markets, and limiting the role of the Central Bank to obtaining price level stability (Dufour & Orhangazi, 2009, p. 102, p. 120). During the period, the private pension system was introduced by the state. Throughout the financialisation process, one of the striking attempts was the privatisation of the social services, e.g. via the private pension system which took effect in 2001 by the Private Pension Savings and Investment System Law that was announced to be complementary to the social security system. One of the amendments that took effect at the beginning of 2013 has

been the provision of state subsidy as of 25 percent of individual savings. As emphasised by Esping-Anderson (1994, p. 24), government subsidies supported the growth of these instruments everywhere. The most recent practice in Turkey has been the compulsory -gradual- contribution of the private and public sector employees to the private pension system since the late 2016. According to the Confederation of Turkish Trade Unions (Türk-İş) (2017); the hunger threshold for a family of four people as of May 2017 is TL 1529, the poverty line is TL 4979; whereas the minimum wage is around TL 1400. In such a condition it is not easy to expect that this practice would lead to increases in saving level. These instruments, in general, have been promoted for the “financial deepening” process, but also have been the main instruments for the commercialisation of the social policy. The state has been effective for the expansion of the financial markets via the promotion of the private pension system with a rationale of rising domestic savings; yet the savings are at their lowest levels during the last decade.

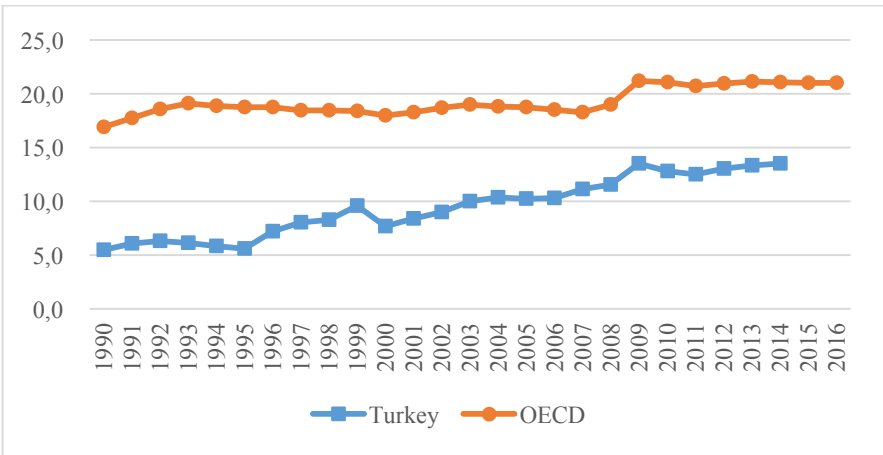
It is pointed out that the privatisation of social services such as education and health, would cost the rich people only some part of their income, whereas these privatised services would cost both the time and a significant part of the income of the poor. Moreover the rich would have the opportunity to get high quality and diverse private services, while the poor would most likely get a low quality public service and devote more of their time to reach these services (United Nations Department of Economic and Social Affairs, 2007, pp. 36-37). As a result of the commercialisation of health and education services there has been an increasing polarisation regarding both the quality and the quantity of the services provided to the various income groups of the society (Boratav, Yeldan, & Köse, 2000, p. 30). By the same token, private firms introduced “complementary” health insurance schemes -supplemented by a pre-determined rate of government provision- to people already insured by the Social Security Institution (SGK).

Since there is not a consensus on the scope of the social expenditures and because of the data availability problems of some countries for the long-term -as the case of Turkey- working on social policy and social expenditures becomes a toilsome task. Erdoğan (2013), points out the issue and analysis the scope of social expenditures in Turkey in depth. Regarding the social expenditures, there are three basic international data sources provided by various institutions; Organisation for Economic Co-operation and Development (OECD) provides Social Expenditure Database (SOCX), the European Union’s statistical office Eurostat provides the European System of Integrated Social



Protection Statistics (ESSPROS), and the International Labour Organization provides Social Security Inquiry (SSI) Database on social protection. ESSPROS was developed by the Eurostat and the representative of the European Union Member States in the late 1970s. (Eurostat, 2016, p. 4). A significant difference between the Social Expenditure Database (SOCX) and the European System of Integrated Social Protection Statistics (ESSPROS) is that the former includes public expenditure on active labour market programmes, however ESSPROS does not include that data (Buğra & Adar, 2007, p. 15). The Social Security Inquiry (SSI) also includes active labour market programmes along with data on basic education expenditures. Erdoğan (2013, p. 63), criticises the comprehensiveness of the Social Expenditure Database (SOCX) since the education expenditures are not covered, and this is emphasised as a significant deficiency for countries like Turkey in terms of inequality issues, labour productivity and human capital. Another distinction between these three methodologies is that data on financing of social expenditure can be found only in ESSPROS and SSI (Adema, & Ladaique, 2009, p. 9).

**Graphic 5: Public Social Expenditures as Percentage of GDP (1990-2016)**

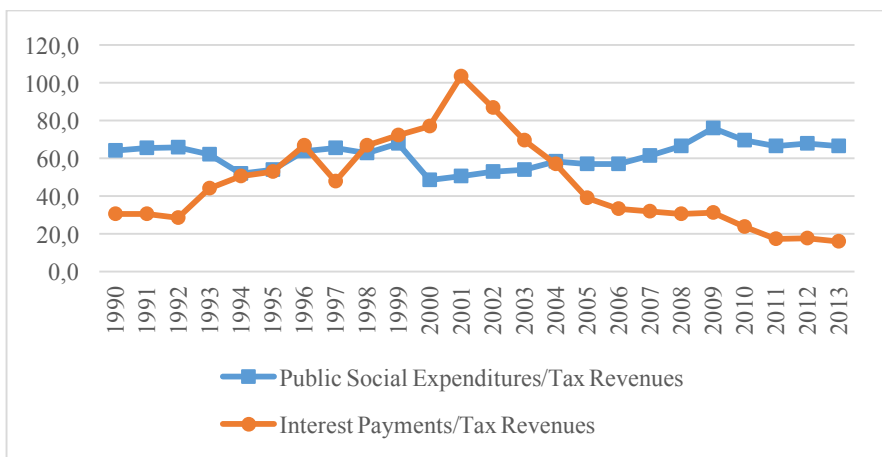


*Data for Turkey is available until 2014.*

*Source: Organisation for Economic Co-operation and Development, Social Expenditure Database (SOCX).*

Data in Graphic 5 was gathered from the Social Expenditure Database of the Organisation for Economic Co-operation and Development. OECD definition of public social expenditures includes (Organisation for Economic Co-operation and Development, Social Expenditure Database); old age, survivors, incapacity related, health, family, active labour market programmes, unemployment, housing, and other social policy areas. Graphic 5 depicts the public social expenditures as percentage of GDP for Turkey and the OECD average. Although public social expenditures in Turkey have been increasing since the mid-1990s and particularly in the last decade, the ratio is still lower than the OECD average which is above 20 percent.

**Graphic 6: Public Social Expenditures and Interest Payments as Percentage of Tax Revenues (1990-2013)**



*Source: Author's calculations from the Organisation for Economic Co-operation and Development, Social Expenditure Database (SOCX) for social expenditures, and the Republic of Turkey Ministry of Development, Economic and Social Indicators for interest payments and tax revenues.*

The allocation of tax revenues provides insights on the scope and the extent of the social functions of the state. Accordingly, Graphic 6 depicts the ratio of public social expenditures and interest payments to total tax revenues in Turkey. Although the percentage share of public social expenditures in GDP has increased in the last decade, there is not a striking difference between the 1990s and 2000s, regarding the percentage

share of public social expenditures in total tax revenues. It is also noteworthy that the financial and the fiscal crises that were accompanied by soaring public debts resulted in the allocation of tax revenues to interest expenditures and this was a means of redistribution of income in favour of capital.

Taylor (2006, p. 19); emphasised that the problems regarding the sources of finance for social programmes in Turkey were a reflection of unwillingness or being unable to raise taxes. Herein, states' power to tax capital in a financially globalised world should also be questioned.

The classification of the government expenditures according to the functions has been put into effect by the year of 2006 in Turkey for compatibility with the international standards. However Table 1 covers the years 2008-2015, as the data for the general government expenditures has been provided since then. Data in the table is from the International Monetary Fund's Government Finance Statistics - Expenditure by Function of Government (COFOG) Database.

The public social expenditures can be compiled in three basic functions of the government, as expenditures on health, education, and social protection. This is, in fact, a narrow scope of social expenditures since expenditure on environment protection or housing also has social characteristics. According to the Table 1, social protection expenditures have a relatively high share when compared to health and education expenditures. However, the problems regarding the comprehensiveness and the effectiveness of the social security system are evident given the extent of informal employment in Turkey. The general attitude can be summarised as the retrenchment of the social security expenditures whereas rising social aid (Erdoğan, 2013, p. 92). The international policy agenda regarding the social policy has shifted predominantly to the poverty management since the late 1990s. The discourse on social policy and the pattern of public social expenditures in Turkey have been in harmony with this broad perspective.

**Table 1: General Government Expenditure by Functions as Percentage of GDP (2008-2015)**

Expenditure by Functions of Government	2008	2009	2010	2011	2012	2013	2014	2015
Total Expenditure	34.82	40.48	38.07	35.79	36.67	37.71	37.51	38.87
Expenditure on general public services	7.77	8.28	6.98	5.82	5.15	6.56	5.67	5.58
Expenditure on defence	1.56	1.75	1.56	1.44	1.52	1.53	1.61	1.54
Expenditure on public order and safety	1.64	1.82	1.85	1.84	2.06	1.99	2.18	2.32
Expenditure on economic affairs	3.96	4.21	4.68	4.24	4.65	4.14	3.99	3.45
Expenditure on environment protection	0.34	0.34	0.35	0.40	0.38	0.37	0.38	0.42
Expenditure on housing & community amenities	1.26	1.32	1.29	1.25	1.17	0.97	1.27	0.88
Expenditure on health	3.82	5.39	4.89	4.44	4.17	4.46	4.65	6.24
Expenditure on recreation, culture, & religion	0.73	0.78	0.81	0.83	0.88	0.89	0.94	0.98
Expenditure on education	3.50	3.98	4.02	4.05	4.38	4.10	4.38	4.46
Expenditure on social protection	10.24	12.62	11.64	11.48	12.31	12.71	12.43	12.99

*Source: International Monetary Fund, Government Finance Statistics (GFS).*

#### 4. Conclusion

Neoliberal economic policies were the underlying force of the global policy shift towards both trade and financial liberalisation, almost simultaneously in most of the so-called emerging market economies. The justification behind the financial liberalisation process, in general, has been the inadequacy of domestic savings and the need for foreign exchange of the developing countries for increasing their investment levels. However, financial liberalisation has been associated with hot money inflows and outflows as a result of which several serious crises occurred. On the other side, advocates of financial liberalisation attributed the cause of the crises to the inadequacy of institutional reforms.

Financial liberalisation process in Turkey is analysed with respect to its effects on the financialisation of the economy and the crises linked to this process. Prevalence of liberalisation practices compatible with the neoliberal discourse was accompanied by

the redesign of fiscal policy. A prominent alteration in fiscal policy design was the emphasis on fiscal discipline and austerity policies. As discretionary fiscal policies of the Keynesian period were replaced by the rules-based fiscal policies and equity concerns subordinated to efficiency goals, social functions of the state and therefore, public social expenditures also affected indispensably.

Liberalisation policies in general were advocated for the efficiency gains which would lead, primarily, to high growth rates. However, the expectations were not met, furthermore financial and eventually fiscal crises had been so common during the 1990s. Turkey was also one of these economies. Regarding the case of Turkey, 1990s were characterised by the rise in public debts, so that in 2001 interest payments exceeded tax revenues of the government (Republic of Turkey Ministry of Development, Economic and Social Indicators). The response of the government based on implementing tight fiscal policies, the main instrument of which was sustaining primary surplus. Following the gradual decline in budget deficits and public debts throughout the 2000s, private sector debts soared. As part of the poverty management policy, social expenditures did not shrink, yet has been well below the OECD average.

The pattern of public social expenditures is analysed considering the structural problems of Turkey in a financialised world economy. The structural problems of Turkey such as low savings, current account deficit, import dependency of the export oriented industries, reliance on short-term capital inflows -including also the hot money flows-, high level of unemployment particularly in the form youth unemployment, working poor, low level of women's participation in labour force, high share of informal employment and so on reflects the need for a well-designed social policy as well as the difficulties along this process which are so crucial that the rise in social expenditures for the last decade in order to offset these issues also becomes disputable. If the quality of the public services is to be improved basic source of financing these expenditures -direct taxes- has to be increased. On the other hand, along with the regressivity of the tax structure already low effective tax rates as a result of the so-called international tax competition -which has been used to rationalise shifting of the tax burden on labour incomes as if states were forced to race to the bottom in capital taxation in order to increase competitiveness and draw in international savings- raise concerns about improving the progressivity of the tax system. (Arikboğa, 2015, p. 156).

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# 3 Fiscal Policies for Controlling Consumption of Red Meat and Dairy Products (An Evaluation in the Context of Environmental Protection)

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## **Abstract**

*The livestock industry is one of the important industries that causes the increase of greenhouse gas emissions in the world. This industry also leads to other environmental problems such as degradation and inefficient use of lands, degradation of biodiversity and water pollution. Therefore, in order to cope with climate change and reduce environmental problems to a minimum level, it's needed to focus specifically on the industrial livestock sector and the consumption of meat and dairy products which should be controlled by the global demand. For that reason, the aim of this study is to examine how to create fiscal policies to reduce this demand. In this study, the production and development of red meat and dairy products are handled, the negative effects of red meat and dairy products on the environment are examined and value added tax (VAT), meat tax, carrot and stick policies, food store incentives which are market-based fiscal instruments are discussed so as to control the consumption of red meat and dairy products.*

*Keywords: red meat, dairy products, environmental protection, meat tax, fiscal policies.*

## **1. Introduction**

**I**ndustrial farming and factory farming are known as two types of modern agriculture even though there are no exact definitions of these industries. Industrial agriculture is described as the production of intensive plant-based harvesting whereas factory

farming is described as the production of industrial animals ([www.sustainabletable.org](http://www.sustainabletable.org)). Livestock is a significant component of the growth of world agriculture (UNFAO, 2006, p. 45). Since red meat production has been departed from conventional farming methods, livestock raising is carried out in factory farming. This new process is known as Animal Feeding Operations<sup>1</sup> ([www.epa.gov](http://www.epa.gov)). Meat consumption was 166 million tons in 1987/89 and reached 300 million tons in 2015, it is estimated that it will reach 376 million tons in 2030. Worldwide dairy products consumption, which was 387 million tons in 1967/69, almost doubled to 715 million tons in 2015. Developing countries have a big share in the increase of meat and dairy products consumption worldwide<sup>2</sup> (UNFAO, 2015, p. 162-163). Livestock production is responsible for almost 18 percent of global greenhouse gas emissions from all human activities. This has a higher share than transportation which is responsible for 14 percent of global greenhouse gas emissions (CIWF, 2008, p. 6). Confining the surge of greenhouse gas emissions in the agricultural sector is also needed, especially in the production of livestock. Thus, interfering in this sector to prevent global warming will become crucial (McMichael et al., 2007, p. 1253). Dr. Pachauri (2008, p. 7) points out the rapid growth of beef production and says that two pounds of beef are responsible for the amount of CO<sub>2</sub> emission which used up 150 miles of average drive of a car. Lamb produces 39.3 kg of carbon dioxide per kilogram during production and consumption and has the greatest environmental impact (EWG, 2011, p. 28). Beef has the second highest emission rate and leads to 36.4 kg CO<sub>2</sub> emissions per kilogram of consumption (Pachauri, 2008, p. 8). Cheese leads to 13.5 kg of CO<sub>2</sub> emissions per kilogram. At the same time, two pounds of yogurt cause 2.12 kg of CO<sub>2</sub> emissions during production and consumption (EWG, 2011, pp. 34-35). Animal manure, animals' digestion and mineral fertilizer create the majority of nitrous oxide and methane (CIWF, 2008, p. 6).

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<sup>1</sup> AFOs are the agricultural enterprises where animals are kept and raised ([www.epa.gov](http://www.epa.gov)). The Concentrated Animal Feeding Operation (CAFO) is defined by the number of animals in operation. Both large and medium CAFOs (factory farmings) vary according to the number of animals. A large CAFO contains 700 mature milk cows (milk or dry), 1000 calves, 1000 cattle (700 dairies) and 2500 pigs. A medium-sized CAFO has 200-699 dairy cows, 300-999 calves, 300-999 cows, and 750-2,499 pigs (USEPA, 2012).

<sup>2</sup> The livestock sector constitutes 40 percent of the agricultural gross domestic product, employs 1.3 billion people and livelihoods. Due to generate income and support the livelihoods of millions of poor people, livestock production sector has a social and political importance (Steinfeld et al., 2006; Van Eenennaam, 2013, p. 55).

It is estimated that 37 percent of methane emissions and 65 percent of nitrogen oxide stem from livestock production (McMichael, et al. 2007, p. 1259). Animal wastes are stored in huge lagoons where millions of gallons of liquid manure can be held. In this sense, if the lagoons are crumbled (Starmer, 2007, p. 2). While animal foods are being produced, pesticides are used to obtain yields as high as possible. Pesticides cause biodiversity losses in agricultural ecosystems and it also harms all living creatures (Greenpeace, 2015, p. 13). Chemical fertilizers are employed to produce meat and milk as much as possible. Hence, soil is separated from its nutrients. In addition to losing soil fertility, soils in this cropland are eroded at very high rates due to heavy application of chemical fertilizers (McCauley, 2009). Wider grassland and cropland are required to provide current meat and dairy consumption levels. The need for cropland and grassland refer to deforestation and semi-natural grassland transformation (Westhoek, et al., 2011, p. 17). Green Peace's report underlines that the most important reason of deforestation is the livestock industry (McCarthy, 2009). Water required to produce animal products corresponds to one-quarter of the world's clean water consumption and this is even greater than any crop product (Hoekstra, 2012, p. 3). Livestock consumes 8 percent of the world's water and 88 percent of water is used so as to yield animal feed crops (WSPA, 2008, p. 11). It's needed 900 liters water to produce two pounds of corn, 3000 liters for rice, 3900 liters for poultry, 4900 liters for pork and 15000 liters for beef (QCEA, 2010, p. 7). On the other hand, a cow drinks 990 liters water to produce one liter of milk (WSPA, 2008, p. 11).

## **2. The Fiscal Policies For Controlling The Consumption of Red Meat and Dairy Products**

Whereas the world urgently reduces consumption of meat and dairy products, this trend goes to opposite direction. Meat consumption goes up all over the world, especially in emerging economies such as China. While meat consumption is expected to increase by 75 percent and milk consumption by 65 percent up to 2050, grain consumption is estimated to increase by 40 percent (The Guardian, 2014).

Suppose that there is 40 percent increase in the global population by 2050 and there is no improvement in the implementation of greenhouse gas reduction due to animal husbandry, global meat consumption needs to decline average 90 g / day per person. In this sense, it is expected that there will be a significant decrease in meat consumption in industrialized countries. At the same time, it is necessary to limit the increase in red

meat demand from animals that are especially ruminant (methane producing animal) in developing countries (McMichael, et al. 2007, p. 1254).

Policies should be designed to eliminate negative environmental effects of livestock production and also coped with the underlying causes of environmental issues. Negative externalities of harmful inputs in livestock production are not involved in market prices. For that reason, red meat and dairy products should be taxed higher (Steinfeld, De Haan, and Blackburn, 1997). Regulations should be established by means of fiscal market-based instruments such as taxation and subsidies to control the consumption of meat and dairy products. Differentiated VAT, meat tax, carrot and stick policy and food store incentives can be employed as fiscal instruments to control the consumption of red meat and dairy products.

### **2.1. Differentiated VAT**

While climate friendly and plant based foods must be subject to lower VAT; meat, dairy products, and heavily processed foods may be subject to higher VAT. Additional income from increased VAT rates for red meat and dairy products can be used to lower the VAT rate for activities that have less disruptive impacts on the environment and the climate (such as public transport, organic food). In this sense, the option of applying a standard VAT rate to dairy products, red meat, and red meat products should be considered when organic production requires a possible exemption or subsidy. Nowadays, within the VAT system, differences are made without taking into account the social distribution of environmental causes or ecological positive-negative externalities. In fact, an important feature of the tax is to influence taxpayer behavior. In this sense, the European Parliament has proposed a new VAT strategy for energy efficiency and environment friendly products and services in order to balance unfair competition derived from negative externalities (European Parliament [EP], 2011, p. 6).

From an environmental point of view, taxes internalize negative externalities to absorb social costs. In this context, the environmental tax should encourage to reduce the use of some products or services which damage environment and it motivate consumers to replace substituted goods instead (Greene and Braathen, 2014, p. 5). VAT rates can be differentiated according to the environmental effects of certain products. While VAT is applied low rates or zero rates for energy and resource effective products such as durable



goods and recycled products. It can be applied at high rates for energy-dense products such as meat and dairy products (Green Budget Europe, 2011). There may also be negatives effects of increasing the VAT rates on meat and dairy products. Low-income consumers are likely to have difficulty adjusting their nutrients against price changes and may be moving towards cheaper product varieties. This measure may not be adopted by farmers working to compete with a more competitive market. Individual consumers can oppose government intervention due to taxing their basic needs and values (IVM, 2008, p. 9).

Evidences suggest that price elasticities of meat demand change between -0.2 and -0.6 and also price elasticities of dairy products change between -0.2 and -0.4. This is to say, 12 percent increase of price is supposed to reduce the demand for meat between 2 percent and 7 percent and also demand for dairy products between 2 percent and 5 percent in the EU. These results show a significant reduction in greenhouse gas emissions and these also indicate that release of CO<sub>2</sub> reduces between 9.2 and 27.5 million tons for meat and between 3.4 and 6.9 million tons for dairy products (Institute for Environmental Studies [IVM], 2008). Even if most EU members carry out lower tax rates; Bulgaria, Denmark, Estonia, Lithuania, Romania and Slovakia have raised their standard tax rates at least 20 percent for foods. Alternatively, consumptions of organic meat and dairy products should be supported by reduction of VAT rates for EU members (Walkowiak and Wilts, 2015, p. 8). However, the Federal Environment Agency of Germany (Umweltbundesamt [UBA]) calls for increasing the VAT on meat and dairy products. Because the VAT rate of food products in Germany is lower than the rest of the world. In this context, the UBA proposes that meat and dairy products should be taxed VAT rate of 19 percent (<http://www.tax-news.com>).

## 2.2. Meat Tax

A specific tax on meat will be a way to internalize negative externalities and could be implemented in EU members. In a survey conducted by the Swedish Ministry of Agriculture, it was reported that meat is the most sensitive food ingredient and consumers turn to poultry meat when prices increase in red meat. In order to design a specific tax on meat, it is necessary to consider different environmental influences (Naturvårdsverket, 2011). Sweden has many reasons for debating on meat tax. Because the total level of greenhouse gas emissions from Swedish meat consumption exceeded 6 million tons in 2009, which is close to 8 percent of total emissions from Swedish consumption and 32 percent of total emissions from food consumption. Total

consumption increased from 460 thousand tons to 7251 thousand tons between 1990 and 2009, which indicates 58 percent increase in consumption (Säll and Gren, 2012, p. 5).

Meat tax implementation will raise awareness about the environmental impact of livestock production, affect the consumption attitude of meat, and improve health condition (Randall, 2014). Also, placing a meat tax supports the theory of double dividend. According to this theory, taxes sweep away the negative externalities and create additional receipts and thus give incentives for healthy foods (Simon, 2013). Wirsenius-Hedenus and Mohlin emphasize that a meat tax should be applied differentially. This is to say, given ruminants contribute a larger proportion of greenhouse gases into the atmosphere and so meat from cattle and sheep should be taxed at a greater percentage. In this context, ruminant meat should be taxed at 16 percent, pork at 5 percent, and poultry at 4 percent (Wirsenius, Hedenus and Mohlin, 2010). Receipts of meat tax can be used to subsidize environmental friendly foods.

According to the Common Agricultural Policy Regional Impact (CAPRI) model which is used by European agricultural sector, taxes on meat consumption and production are implemented in a way that the margin increases between producer and consumer's price. As a result, consumption will decrease by target percentage. And then, a subsidy is applied as much as the same margin in pulses and their consumptions increase 2 percent of meat consumption. To ensure the necessary reduction in meat consumption, recommended meat tax should be 7 percent (Helming and Kuhlman, 2015). Because of fear for losing jobs and incomes, there can be serious reaction from meat producers and their lobby groups and thus they will oppose a reduction of consumption as well as some politicians will reject a meat tax due to loss of votes. However, meat tax can be considered regressively, and it actually affects low income groups (Simon, 2013).

### **2.3. Carrot and Stick Policy**

Price policy hardly ever indicates the environmental dimensions. Carrot and stick policy is designed by subsidizing environmental friendly activities and taxing non-environmental activities. Activities polluting water resources are taxed in some countries. For example, Netherlanders drains groundwater for their personal needs without tax even though farmers are charged taxes for livestock production. And also in Belgium, exemptions are given for one-half of water consumption whereas most

livestock farmers pay wastewater tax (Steinfeld et al., 2006, p. 246). Excess employment of subsidies leads to destroy environment. Thus, many countries remove away some subsidies for preventing environmental damages resulted from livestock production. For example, in New Zealand, comprehensive subsidy reforms were placed in 1980, and subsidies for agriculture were abolished to save forest areas and increase water quality, and also decrease erosions. This position has caused pressures on grassland to decrease, especially in the higher countries of North Island (Environmental Performance Index, 2014).

The most important policy challenge is to involve the environmental costs arised from the livestock sector in prices. Therefore, it is not easy to apply the principle of “polluter pays principle”. Additionally, it’s difficult to measure the environmental costs, and it can cause a reaction because consumer prices will rise. Furthermore, the high degree of self-sufficiency in livestock products through the development of a modern livestock industry is a primary policy objective in many developing countries and the prospect of success will be low when this principle is applied (De Haan, Steinfeld, and Blackburn, 1997).

#### **2.4. Food Store Incentives**

Food stores can make it easier for consumers to make more rational choices. Tax reductions may apply as an incentive for stores where provide certain conditions. For example, food stores in where organic foods are sold can benefit from tax incentives. Industrially produced meat, dairy products and plant-based foods are all organics (Naturvårdsverket, 2011, p. 46). Thus, farmers who produce organics can also be supported by establishing the organic food stores and marketing networks (O’Donoghue et al., 2017, p. 129).

New policies can be set up by means of fiscal incentives. For example, public authorities offer tax credits or tax holidays to encourage businessmen to open new food stores and encourage people to purchase organic foods. Environmental friendly and healthful products are indirectly supported with these incentives. The purpose of taxation is to change consumer’s behavior by altering the prices (Landes, 2009, p. 3).

The Austrian Environment Ministry which is in cooperation with other ministries, retailers and NGOs hold the Annual Sustainability Weeks Event to promote organic and locally-produced goods under the theme of “That’s the Way to do It: Sustainably”.

Likewise, the German Development Cooperation Ministry arranged a large scale campaign (€3.3 million) to promote consumption of fair trade goods under the theme of “Fair Feels Good” (OECD, 2008, p. 22).

### **3. Conclusion**

The industrial livestock sector has an important role for the growth of the world agriculture sector. The world food economy has been rapidly shifting from diets and food consumption patterns to livestock products. Red meat and dairy products have a crucial place for human protein intake and also become a potential remedy for malnutrition. However, production of meat and dairy products cause serious destruction upon the natural resources. In this context, it is crucial to control the consumption of these products with fiscal policies. Differentiated VAT rates practice can be one of these policies. While climate friendly and plant based foods are subject to lower VAT; meat, dairy products, and heavily processed foods may be subject to higher VAT. Differentiated VAT rates basing on environmental impacts and targets can be a way to include environmental costs and enable even better choice between products or services. Additional income from increased VAT rates can be used to lower the VAT rate for activities that have less disruptive impacts on the environment and the climate such as public transport, organic food. However, low income consumers would probably have difficulties in adjusting their food diet in response to a price change. There may be a strong political and social resistance to VAT increases due to taxation of basic needs.

A specific tax on meat can be a way to price negative externalities that are related to the livestock industry. Meat tax implementation is important with regard to carry into effect the theory of the double dividend. In order to implement meat tax effectively it is necessary to explain the environmental problems which caused by meat consumption in a good way. Therefore, education and awareness campaign should be run efficiently. Environmentally sensitive activities like organic farming can be subsidized and the non-environmentally sensitive activities like water supplied for livestock production can be taxed with carrot and stick policies. Also providing tax incentives for environmental friendly food stores could be supported in the existing policies. This policy suggestion makes consumers pick environmental friendly choices in the stores. As a result, consumptions of environmental friendly food will be supposed to increase while policy proposals of this study carry on.

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# 4 Innovation and Growth Performances of The EU Countries and Turkey through the Scope of the Fourth Industrial Revolution

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## **Abstract**

*Innovation-driven economic understanding becomes more substantial in economic growth. It is observed that many countries have increased their production quality, resource utilization efficiency and productivity levels through innovation activities. In recent years, governments believing that innovation affects sustainable growth and development, increased their share of expenditures allocated for this purpose. In this context, the innovation index of the European Commission is a significant indicator to compare innovative production initiatives of such countries. This study aims to assess the innovation index scores and growth performances of European Union (EU) countries and Turkey through the fourth industrial revolution perspective and make recommendations for the future innovation policies of these countries.*

**Keywords:** *the fourth industrial revolution, innovation index, growth and development, the internet of things.*

## **1. Introduction**

In the current environment, certain countries have successfully achieved rapid economic growth and development. Yet, other countries are struggling in this area. Although various underlying reasons exist, it is reasonable to claim that innovation is a significant factor. Prosperity and living standards in a country are directly proportional to the increase in competitiveness. Enhancing competitiveness, innovation, and productivity are linked to the ability to innovate (Acs, 2002, p. 169).

Considering available resources, countries can achieve higher output through innovation. The main reason is that innovation is used as an apparatus to transform resources into goods and services that can be marketed and sold. Regardless of countries' production factors, advances in science, technology, and innovation can realize high and strong economic growth (Turanlı, 2010, p. 91).

In today's world, countries, firms, and individuals fall behind such change unless they innovate. Constantly changing technology compels countries to choose between—on a global scale—being different by engaging in innovations or being invisible.

This study evaluates the notion of innovation in a conceptual manner. Subsequently, historical evolution, components, and innovations of the fourth industrial revolution—triggered by innovation activities—are investigated and possible outcomes are analyzed. In the last section, countries' innovation and growth performance are assessed.

## **2. Fourth Industrial Revolution or Industry 4.0 and the Concept of Innovation**

Innovation, which has become a broadly acknowledged concept, is derived from the Latin word “innovates,” which means “using new methods in social, cultural, and administrative environment” (Elçi, 2006, p. 1).

Joseph Schumpeter constituted the conceptual framework of the innovation phenomenon as producing new goods or launching goods to the market in a new form; using new production techniques; setting up new markets; achieving new resources; and using new industrial organizations (Gaffard, 2009, p. 13).

The Oslo Manual has systematically defined the basic concept of innovation and has explained the notion of innovation in a broader sense. In the Oslo Manual, innovation is described as any type of novel advancement in the fields of manufacturing products,

marketing these products, workplace organization, and firms' external relations (Güravşar Gökçe, 2010, p. 1).

Several definitions related to innovation have been developed since the 1960s. Some of these definitions can be summarized as follows (Elçi, 2006, pp. 24-26):

Schmookler (1966): A firm makes a technical change if it develops a new product or manufacturing technique for itself. The firm that makes a certain technical change for the first time is considered the innovator and the action is called an innovation.

Becker/Whisler (1967): Innovation is using an idea for the first time among organizations with similar objectives.

Knight (1967): Innovation is the realization of a new change for an organization and its environment.

Downs/ Mohr (1976): Innovations are different practices in organizations.

Freeman (1982): Although the notion of innovation is used to defined all processes (production, distribution, marketing, and others), in an economic sense, innovation simultaneously occurs with the first commercial transaction involving a new product, process, methodology, or trend.

Robert Lawrence Kuhn: Creativity is the first component of innovation, and finding new ways with the assistance of innovative management, innovative enhancements, and creative ideas is handled through new approaches (Khun, 1993).

Bruce D. Merrifield: The innovation process consists of three stages: invention, transformation, and commercialization (Merrifield, 1986). In other words, innovation is the process in which new ideas are transformed into commercial benefit. That is, innovation is the combination of creativity and commercial mastery (Mercan, Gökteş & Gömleksiz, 2011, p. 32).

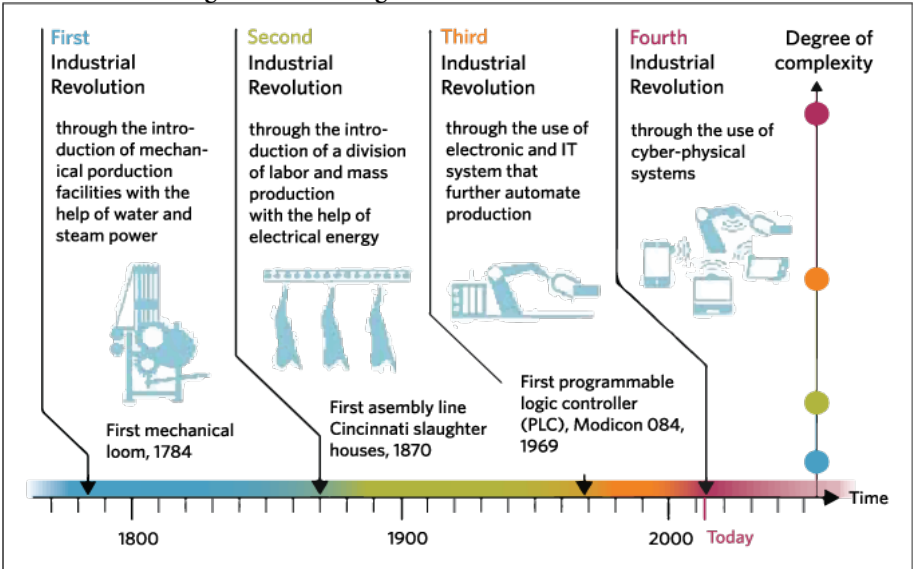
Considering the definitions of innovation, the relationship between the fourth industrial revolution and innovation can clearly be seen. Increasing technology networks and innovation initiatives constitutes the basis of the fourth industrial revolution. Therefore, the current period is important for countries. Countries must understand the current period and pursue the right policies to show the desired development in the fields of competition, economic growth, and welfare. For this

reason, a more thorough examination of the dynamics and possible effects of the fourth industrial revolution is useful (Kagermann, 2013, pp. 13-14).

## 2.1. Historical Context

Figure 1 illustrates the four stages of the industrial revolution. The first industrial revolution started in the late 18<sup>th</sup> century. In this period, water and steam power were used in mechanical production facilities. The second industrial revolution began in the early 20<sup>th</sup> century through the introduction of the division of labor and electrical energy in mass production, and ended in the 1970s with the emergence of the third industrial revolution. The third industrial revolution was based on the automation of manufacturing processes by electronic and information technology systems. In this era, machines took over not only a substantial proportion of the “manual labor” but also some of the “brain work.”

Figure 1: Four Stages of the Industrial Revolution



Source: DFKI, 2011.

The fourth industrial revolution has already started. Many areas face rapid and disruptive changes, whereas others are evolving slowly and steadily. Physical objects are being integrated into the information network. The Internet and intelligent machines are being combined. Briefly, the fourth industrial revolution is the period in which all productive units are being digitalized and linked (Dujin, Geissler & Horstkötter, 2014, p. 7).

## **2. 2. Driving Forces of Revolution**

Many driving factors affect the fourth industrial revolution. Table 1 summarizes these factors into six sub-headings. Factors that affect the fourth industrial revolution are also observed to shape the future. To understand how the process continues, cyber-physical systems, the Internet of Things, big data, and cloud system (computing) are analyzed, respectively.

Cyber-physical systems (CPS) are key enablers of Industry 4.0 and are defined as systems in which natural and human-made systems (physical space) are tightly integrated with computation, communication, and control systems (cyber space) (Lee, Bagheri, & Kao, 2015: 18). The degree of integration determines future technology developments. CPS enable a high degree of automatization in manufacturing processes and are widely used in many sectors, such as automotive, aerospace, civil, railways, medical, and manufacturing (Gill, 2008). The application of CPS in fields such as security, energy, water, and health care make significant contributions to quality of life and provide more efficient solutions to challenges that humans face. For instance, modern smart health systems create a history file for all patients, enabling doctors to review patients' former diagnoses and administer the most accurate treatment using available data. Diversified implementations of CPS stimulate rapid economic and social changes (Geisberger & Broy, 2015, p. 33). Moreover, a CPS is an embedded system that enables data exchange over a network, and a CPS connected to the Internet is referred as the Internet of Things (IoT) (Jazdi, 2014).

**Table 1: Key Determinants of the New Industrial Landscape**

<b>Cyber-physical systems and marketplace in Industry 4.0</b>	Cyber-physical systems create a world in which intelligent objects interact with each other.
<b>Smart robots and machines in Industry 4.0</b>	In Industry 4.0, robots and humans will work together. Moreover, smart robots and machines will replace humans because they can work beyond the human spectrum of ability.
<b>Big Data</b>	Data are the raw materials of the 21 <sup>st</sup> century. Because big data can be transformed into meaningful information to meet business objectives, innovative methods need to be created to handle big data and to tap the potential of cloud computing.
<b>New quality of connectivity</b>	At the beginning of the 21 <sup>st</sup> century, connectivity was a feature of the digital world. In Industry 4.0, machines, systems, and humans are interconnected via Internet protocol. This interconnection optimizes the production process because once a machine produces a part, the rest of the machines are automatically informed and adjust themselves to the new situation.
<b>Energy efficiency and decentralization</b>	Limited resources and climate change affect businesses' future policies. Because they are cost efficient, renewable energies come into prominence. In the future, even production sites may generate their own power.
<b>Virtual industrialization</b>	Launching a new product is both difficult and expensive, requires pre-testing, trials, and others, and causes interruptions in the manufacturing process. Before physical production, in Industry 4.0, every process is first stimulated and verified virtually. Once verification has been completed, all of the necessary information is uploaded into physical machines and production continues without interruptions.

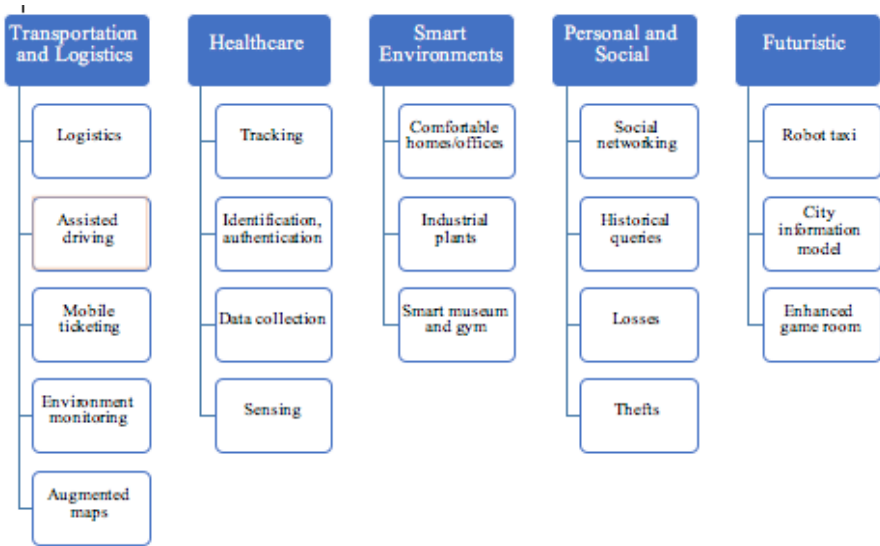
Source: Dujin, A., Geissler, C. & Horstkötter, D. (March, 2014), *Industry 4.0: The New Industrial Revolution How Europe Will Succeed*, Roland Berger Strategy Consultants, pp.7-9. Edited by the authors.

The IoT acts as a bridge between physical and digital implementations of Industry 4.0 (Schwab, 2016, pp. 27-28) and provides flexibility and energy efficiency in production processes by connecting machines, warehousing systems, and goods, allowing these systems to control each other through the Internet without requiring manual interventions (Imtiaz & Jasperneite, 2013, p. 503). The implementation of IoT is not limited by production. IoT products, such as Internet-enabled appliances, home automation components, and energy management devices, are carrying us toward a vision of the “smart home.” IoT systems, such as networked vehicles, intelligent traffic systems, and sensors embedded in roads and bridges, move us closer to the concept of “smart cities” (Rose, 2015, p.1).

Figure 2 specifies different application fields of IoT. The applications in transportation and logistics, healthcare, smart environments, and personal and social domains are quite realistic. They either have already been realized or can be put into practice in a short or long period because the required technologies are already available. Information relative to these domains can be monitored using real-time information processing technology. Roads and transported goods are equipped with sensors that send important information to traffic control sites and transportation vehicles to improve the routing of traffic. Sensor devices on patients provide real-time information on a patient’s health indicators, and so on. Futuristic applications of IoT are not yet possible because the necessary technologies are too complicated to be deployed (Atzori, 2010, p. 2794).

Big data and cloud systems are among the propelling forces of the fourth industrial revolution. The term big data refers to huge and complex data sets that cannot easily be stored or analyzed given traditional tools (Tu et al., 2017). Manufacturers should adopt to new available technologies, such as advanced analytics and CPS, to compete with their opponents and become more efficient. In this context, big data and cloud systems come into prominence (Lee, Lapira, Bagher & Kao, 2013, p. 1; Wang, Törngren & Onori, 2015, p. 521).

Figure 2: Applications Domains and Relevant Major Scenarios



Source: Luigi Atzori, Antonio Iera, & Giacomo Morabito, p. 2794.

### 2.3. Adapting to Advancements

All countries should take certain steps to adapt their industries to the fourth industrial revolution process. These steps require regulations relative to production in terms of sectors and determining national policies. Within this framework, arrangements specific to industry are as follows. (i) Standardizing systems and building a reference architecture assure connections and integrations of different companies and factories. (ii) Efficient management models should be established. (iii) Industry 4.0 requires building reliable, comprehensive, and high-quality communication networks and an industrial broadband infrastructure. (iv) Production facilities and the product itself should not pose a threat to people and the environment. (v) As the pressure of climate change increases, green production becomes more essential; therefore, work should be organized to ensure automation, green production, and management. (vi) Enterprises are obliged to establish lifelong learning and continuing professional development programs that enable workers to meet new demands on their jobs and to use their skills.



(vii) Innovations are inevitably accompanied by new challenges, such as enterprise data, personal data, liabilities, and trade restrictions. For this reason, it is necessary to establish a regulatory framework. (viii) Taking precautions when using new materials, processes, and technologies may increase resource use efficiency and decrease the environmental damage caused by resource use inefficiency (Zhou, Liu & Zhou, 2015, p. 2148).

Keeping pace with new technological advancements, taking advantage of opportunities brought by the fourth industrial revolution, and being able to survive global competition require setting up new national policies. Table 2 illustrates the steps taken by some countries to comply with the fourth industrial revolution.

The data in Table 2 indicate that countries took concrete steps after the fourth industrial revolution notion was first mentioned at the Hannover Fair in 2012. Governments prepared strategic plans and established new public policies in accordance with the process and allocated the required economic resources to implement these plans and policies.

**Table 2: Public Policies to Comply with the Fourth Industrial Revolution**

<b>United States</b>	Since 2011 the United States government began a series of national-level discussions, actions, and recommendations, called the Advanced Manufacturing Partnership, to ensure that it is prepared to lead the next generation of manufacturing.
<b>Germany</b>	In 2012, Germany put into action the High-Tech Strategy 2020 plan, which annually sets billions of Euros aside for the development of cutting-edge technologies. Project Industrie 4.0 stands for Germany's objectives in the manufacturing sector.
<b>France</b>	La Nouvelle France Industrielle, a strategic review for France, specified the country's industrial policy priorities.
<b>United Kingdom</b>	In 2013, the United Kingdom prepared a strategic plan, Future of Manufacturing, which designates a roadmap for its manufacturing sector up to 2050.
<b>European Commission</b>	The new contractual Public-Private Partnership (PPP) on Factories of the Future was introduced in 2014. PPP aims to make available approximately 80 billion Euros in funding from 2014 to 2020.
<b>South Korea</b>	In 2014, the South Korean government announced Innovation in Manufacturing 3.0, which emphasized four strategies and assignments for a new leap by Korean manufacturing.
<b>China</b>	The Chinese government issued the Made in China 2025 strategy along with its 2015 Internet Plus plan. This plan prioritizes 10 fields in the manufacturing sector to accelerate informatization and industrialization in China.
<b>Japan</b>	In 2015, the Japanese government adopted the 5th Science and Technology Basic Plan, through which particular attention is paid to the manufacturing sector for realizing its world-leading Super Smart Society.
<b>Singapore</b>	In 2016, the Singaporean government committed \$19 billion to its RIE 2020 Plan (Research, Innovation, and Enterprise). Eight key industry verticals have been identified within the advanced manufacturing and engineering domain.

*Source: Liao, Y., Deschamps, F., Loures, E. F & Pierin Ramos, L. F. (2017). Past, Present and Future of Industry 4.0-A Systematic Literature Review and Research Agenda Proposal, International Journal of Production Research, pp. 1-21.*

### 3. The Effect of Innovation on Economic Growth

Technology and innovation policies have an important effect on economic growth and development. It can be stated that innovation activities have a positive impact on countries' global competitiveness, production quality, and—by extension—the ability to innovate (Gaffard, 2009, p. 29). Countries that implement innovation based global competitiveness policies are tend to achieve higher level of economic growth and development (Şener & Sarıdoğan, 2011). Altered consumption preferences, expectations, and needs necessitated creating new things. Countries grow through innovation and sustain this growth by establishing regional science-and technology-based innovation policies. Governments aware of the fact that economic growth is possible yet not sustainable without innovative initiatives are beginning to allocate more resources to innovation expenditures and are making decisions that provide long-term returns.

There is no consensus on the impact of innovation and technology on economic growth. Research conducted by Gordon, assert that the golden era of growth has come to an end and the great contributions made by science, technology and innovation will no longer be as effective in the future as they were in the past (Gordon, 2010: 15). According to Gordon (2012), the upward trend in growth that lasted more than 250 years after reaching its peak in middle of 20th century, might be expired. Although this study covered only United States, it is possible to imply that similar results are derivable for other countries to some extent. Factors triggered economic growth are exhausted. For example, as demographic reason, participation of women into labor force between 1965 and 1990 led faster economic growth. Involvement of women in labor force generated a rebound in economic growth for one time only. High level of educational fees discourages people who cannot afford to go to college and cause a steady decrease in college graduates number. Increasing income inequality and debt also diminish the growth rate. Wang (2013) like Gordon (2012) concluded that the innovation has no positive impact on some countries, while the positive effect still exists for Japan and Australia. Based on empirical results, he concluded that, first, inventions made in the recent period might not be influential enough to create a significant growth effect in economy since they are mostly just slightly better versions of previous inventions or recent innovations. Second, innovations made recently have not been evolved adequately and economies have not faced their long-term impact yet. Third, the conjuncture of economy is likely to be responsible for the decreasing impact of

innovations on economic growth. On the contrary to these results, Aristizabal-Ramirez et al. (2015) found a non-linear relationship between innovation and economic growth. They claimed that high level of innovation has a positive and significant impact on economic growth while low level of innovation has no impact.

From the perspective of the fourth industrial revolution, a knowledge and innovation-oriented economic understanding emerged with the discovery of the role of knowledge and technology in economic growth. Knowledge that covers human capital and technology is the essential element of the economy and can be regarded as the basis of the new industrial revolution (Çetin & Ecevit, 2012, p. 205). American economist W. W. Rostow claimed that the approach that divided economic growth into stages has made these stages a part of the process by applying them to public branches. Rostow stated that the first stage consists of infrastructure investments (technological infrastructure) and human capital (education) (Bulutoglu, 2004, p. 198).

Various factors affect economic growth. The most important factor is considered to be new information and technological innovations. Today, access to raw materials and energy resources is inadequate for economic growth. Creating new smart systems, managing technology, and cyber system innovations are other tools of modern growth and development (Malerba & Orsenigo, 2009, p. 293). The OECD investigated and evaluated economic growth models in the 1990s and the effects of innovation and information technologies on technologic growth, and confirmed that gross national product per person in member states was not converging (Elçi, 2006, p. 32). This evaluation represents the following concept: although significant GNP increases occur among the member states that produce innovation and conduct innovative activities, countries that use traditional methods and technology networks in the fourth industrial period have not shown significant improvements and no convergence has been observed among these countries.

After the global crises, countries' growth performance has declined. Countries that were growing were insufficient in terms of necessary employment rates, and discussions on this subject were initiated. In this sense, positive views exist on the effects of innovation activities on growth and employment, but no consensus exists in the literature on the effect of the fourth industrial revolution on employment rates. In this respect, it is important to mention the discussions on the fourth industrial revolution and employment.

It is expected that technological changes behind the fourth industrial revolution and digitalization will significantly change the nature of employment in all sectors. Yet, a unified notion of the direction of this change is uncertain. In particular, it is unclear how advanced automation systems will be substituted for the workforce, how long this change will take, and the outcomes presented. Two opposing effects on employment may occur. First, technological advancements and automation systems will replace labor with capital. In this scenario, workers will be unemployed or will use labor in other fields. Second, the effect will create new products and service fields. Thus, new occupations and sectors will be born and new employment fields will be created (Schwab, 2016, pp. 44-45).

A review of the literature shows that studies exist that support both views. Evangelista et al. (2014) investigated 27 EU countries in the 2004-2008 period. The result of the study on digitalization shows that labor efficiency, economic growth, and increases in employment represent significant driving forces. In addition, these forces can contribute to closing the gap between the most preferred and disadvantaged percentage of the population with comprehensive policies (Evangelista, Guerrieri & Meliciani, 2014, p. 819).

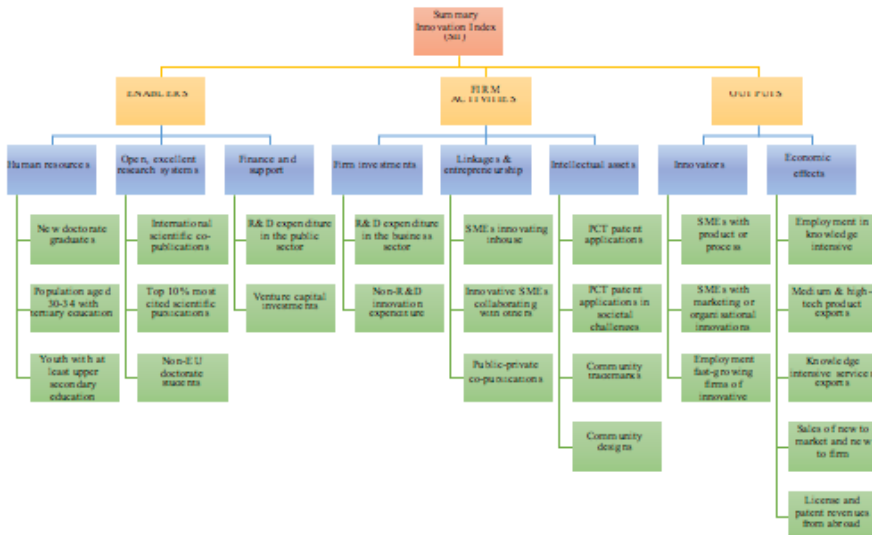
Frey and Osborne (2013) conducted a study on the risks to occupations from advancements in automation (computerization). This study investigates the possibility of being subjected to the automation of 702 different occupations. The occupations are grouped as high, medium, and low risk. The result of the study showed that 47% of total U.S. employment is in the high-risk category. These occupations are estimated to be automated in the subsequent ten- or twenty-year period. However, the study concluded that a negative relationship exists between wage and education level and automatization (Frey & Osborne, 2013, pp. 44-45).

#### **4. Evaluation of Innovation and Growth Performances of EU Countries and Turkey**

The Summary Innovation Index published by the European Commission presents a comparative evaluation of research and innovation performance in EU countries and strong and weak sides of the innovation system. This summary helps member states evaluate the fields on which they need to focus to increase innovation performance. Innovation performance is measured using a single composite indicator formed from 25 indicators in the Summary Innovation Index. This index divides the countries into

four groups: innovation leaders, strong innovators, moderate innovators, and modest innovators.

Figure 3: Measurement framework of the European Innovation Scoreboard, p. 8.



Source: Hollanders, H., Es-Sadki, N. & Kanerva, M. (2016). European Commission, European Innovation Scoreboard 2016, Ref. Ares 3366176 - 13/07/2016, p. 8. <http://ec.europa.eu/DocsRoom/documents/17822>.

The measurement framework used in the European Innovation Scoreboard distinguishes between three main types of indicators and eight innovation dimensions, capturing 25 total indicators. The enablers capture the main drivers of innovation performance external to the firm and cover three innovation dimensions: human resources, open, excellent, and attractive research systems, and finance and support. Firm activities capture the innovation efforts at the firm level, grouped in three innovation dimensions: firm investments, linkages and entrepreneurship, and intellectual assets. Outputs cover the effects of firms' innovation activities in two

innovation dimensions: innovators and economic effects (Hollanders, Es-Sadki, & Kanerva, 2016: 8). The measurement framework is presented in Figure 3.

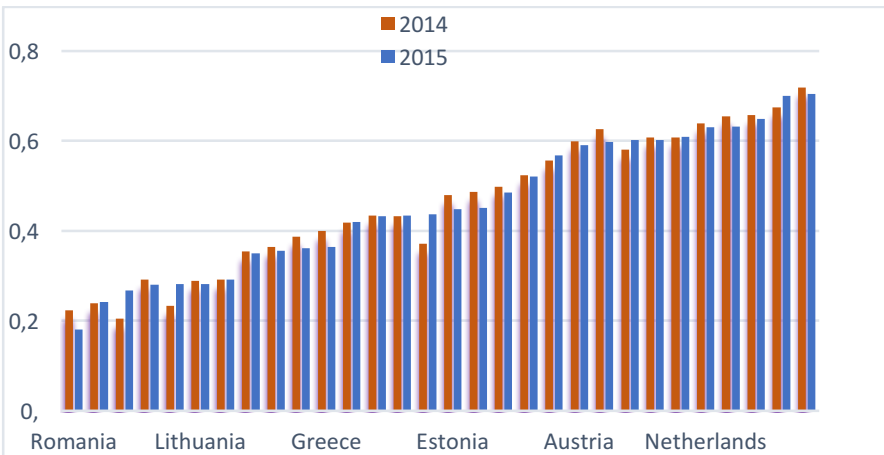
**Table 3: Innovation Index**

Country	2008	2009	2010	2011	2012	2013	2014	2015
Austria	0.583	0.598	0.608	0.577	0.581	0.604	0.599	0.591
Belgium	0.564	0.576	0.578	0.588	0.592	0.596	0.607	0.602
Bulgaria	0.219	0.209	0.230	0.238	0.240	0.210	0.238	0.242
Croatia	0.299	0.293	0.291	0.302	0.304	0.298	0.292	0.280
Cyprus	0.470	0.474	0.476	0.488	0.491	0.480	0.487	0.451
Czech Republic	0.413	0.412	0.422	0.440	0.442	0.421	0.433	0.434
Denmark	0.624	0.630	0.639	0.678	0.694	0.693	0.675	0.700
Estonia	0.416	0.441	0.469	0.468	0.505	0.490	0.479	0.448
Finland	0.663	0.668	0.671	0.651	0.651	0.642	0.658	0.649
France	0.539	0.550	0.560	0.562	0.566	0.560	0.556	0.568
Germany	0.624	0.636	0.654	0.655	0.667	0.661	0.655	0.632
Greece	0.370	0.364	0.368	0.371	0.375	0.386	0.399	0.364
Hungary	0.345	0.343	0.354	0.358	0.363	0.355	0.364	0.355
Ireland	0.584	0.596	0.617	0.619	0.627	0.601	0.607	0.609
Italy	0.389	0.400	0.407	0.418	0.416	0.425	0.434	0.432
Latvia	0.214	0.217	0.224	0.234	0.247	0.215	0.233	0.281
Lithuania	0.239	0.238	0.252	0.256	0.268	0.275	0.288	0.282
Luxembourg	0.632	0.646	0.632	0.619	0.623	0.646	0.626	0.598
Malta	0.342	0.354	0.351	0.326	0.334	0.379	0.371	0.437
Netherlands	0.549	0.563	0.573	0.580	0.586	0.631	0.639	0.631
Poland	0.290	0.298	0.299	0.291	0.296	0.286	0.291	0.292
Portugal	0.393	0.403	0.401	0.404	0.405	0.401	0.418	0.419
Romania	0.246	0.255	0.264	0.263	0.261	0.228	0.223	0.180
Slovak Republic	0.318	0.329	0.338	0.325	0.313	0.346	0.354	0.350
Slovenia	0.446	0.453	0.464	0.479	0.491	0.476	0.498	0.485
Spain	0.381	0.386	0.389	0.386	0.388	0.394	0.387	0.361
Sweden	0.697	0.709	0.718	0.714	0.717	0.722	0.719	0.704
Turkey	0.188	0.189	0.191	0.199	0.202	0.199	0.205	0.267
United Kingdom	0.525	0.529	0.542	0.560	0.566	0.569	0.580	0.602
EU	0.495	0.502	0.511	0.514	0.519	0.521	0.523	0.521

Table 3 shows the innovation index ranking and classification of EU member states and Turkey. These countries are separated into four categories: innovation leaders, strong innovators, moderate innovators, and modest innovators. Denmark, Sweden, Holland, Finland, and Germany are innovation leader countries; the United Kingdom, Luxembourg, Ireland, Slovenia, France, Belgium, and Austria are strong innovator countries; Romania and Bulgaria are modest innovator countries; and Turkey, Spain, the Slovak Republic, Portugal, Poland, Malta, Lithuania, Latvia, Italy, Hungary, Greece, Estonia, Cyprus, and Croatia are moderate innovator countries. Classification is made using the following formula:  $\text{Value} < 0.250$  modest innovators;  $0.250 < \text{Value} < 0.500$  moderate innovators;  $0.500 < \text{Value} < 0.600$  strong innovators; and  $\text{Value} > 0.600$  innovation leaders. The period of the index is determined as 2008–2015.

Figure 4 visualizes countries' innovation index scores for the years of 2014 and 2015. It is seen that Sweden, Denmark, Finland and Germany are innovation leaders in 2014 and kept their position in 2015 while Romania, Bulgaria, Turkey and Croatia are the countries that innovate least. Turkey and Latvia increased their innovation scores from 2014 to 2015, they are still well behind the EU average.

**Figure 4: Innovation Index Scores in 2014-2015**





Although countries are observed to change groups and moved up and down in the ranking, those in the innovation leaders group have sustained their success in the innovation index. The up and down mobility often occurs in the moderate innovator countries group. Countries that were among the top five innovator countries in 2008 had the same success in 2015. Romania, which was a modest innovator country in 2008, was included as a moderate country in 2009 and declined to the modest innovator countries group in 2012. An investigation into the innovation index data of Turkey in Table 3 show that the country was a modest innovator country between 2008 and 2014 but was included in the moderate innovator countries group in 2015.

**Table 4: Growth Index**

Country	2008	2009	2010	2011	2012	2013	2014	2015
Austria	1.547	-3.799	1.928	2.807	0.745	0.124	0.644	0.963
Belgium	0.747	-2.285	2.695	1.796	0.137	-0.067	1.653	1.500
Bulgaria	5.647	-4.219	0.054	1.915	0.030	0.862	1.328	3.617
Croatia	2.053	-7.383	-1.701	-0.281	-2.187	-1.063	-0.360	1.644
Cyprus	3.863	-1.772	1.317	0.321	-3.157	-5.952	-1.531	1.679
Czech Rep.	2.710	-4.841	2.295	2.004	-0.799	-0.483	2.715	4.535
Denmark	-0.512	-4.906	1.870	1.336	0.226	0.933	1.675	1.606
Estonia	-5.419	-14.724	2.259	7.597	4.307	1.415	2.822	1.444
Finland	0.720	-8.269	2.992	2.570	-1.426	-0.758	-0.631	0.268
France	0.195	-2.941	1.965	2.079	0.182	0.576	0.636	1.274
Germany	1.082	-5.618	4.079	3.660	0.491	0.489	1.595	1.720
Greece	-0.335	-4.300	-5.479	-9.132	-7.300	-3.241	0.352	-0.219
Hungary	0.889	-6.563	0.677	1.739	-1.602	2.117	4.047	3.148
Ireland	-4.373	-4.565	2.033	-0.040	-1.102	1.098	8.462	26.276
Italy	-1.050	-5.482	1.686	0.576	-2.819	-1.72	0.091	0.731
Latvia	-3.608	-14.332	-3.789	6.211	3.999	2.898	2.099	2.738
Lithuania	2.628	-14.814	1.639	6.049	3.834	3.506	3.495	1.778
Luxembourg	-0.843	-5.376	5.775	2.012	0.005	4.194	4.706	3.532
Malta	3.346	-2.462	3.542	1.822	2.851	4.472	3.460	6.154
Netherlands	1.699	-3.767	1.402	1.663	-1.057	-0.190	1.419	1.951
Poland	4.249	2.820	3.606	5.016	1.606	1.390	3.282	3.940
Portugal	0.199	-2.978	1.898	-1.826	-4.028	-1.130	0.893	1.595
Romania	8.458	-7.066	-0.798	1.056	0.640	3.531	3.076	3.662
Slovak Rep.	5.629	-5.422	5.041	2.819	1.657	1.490	2.570	3.831
Slovenia	3.300	-7.797	1.237	0.649	-2.689	-1.086	3.106	2.316
Spain	1.115	-3.573	0.013	-1.000	-2.929	-1.705	1.378	3.204
Sweden	-0.557	-5.184	5.988	2.664	-0.286	1.241	2.604	4.084
Turkey	0.658	-4.825	9.156	8.773	2.127	4.192	3.020	3.972
UK	-0.627	-4.327	1.915	1.509	1.313	1.911	3.070	2.194
World GDP	1.828	-1.703	4.327	3.117	2.413	2.534	2.726	2.716

Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of the gross value added by all resident producers in the economy plus any product taxes minus any subsidies not included in the value of the products. GDP is calculated without making deductions for the depreciation of fabricated assets or the depletion and degradation of natural resources.

An investigation of the correlation between growth ratios in Table 3 and Table 4 shows that a single-sided relationship may exist between two concepts. When the growth ratio of countries with innovative growth strategies is considered, a relationship exists between creating innovation and growth, but it is not significant on its own. Therefore, analyzing countries' growth ratio and innovation index values from a single direction can cause misinterpretation. For example, although Romania and Bulgaria are in the modest innovator countries group, their growth performance is better than that of many others.

As shown in Table 4, Ireland's significant 2015 growth rates are caused by a discount in national organizational taxes and increasing investments.

When global growth index rates are analyzed, these rates change by year, and the rate was 2.716 in 2015. Turkey's growth rate in the same period was 3.971. An evaluation of global growth index rates in Table 4 shows that Turkey is clearly lower than the global growth index in certain periods, but performed at a higher rate in the last three years.

**Figure 5: Growth rates of selected countries in 2014-2015**

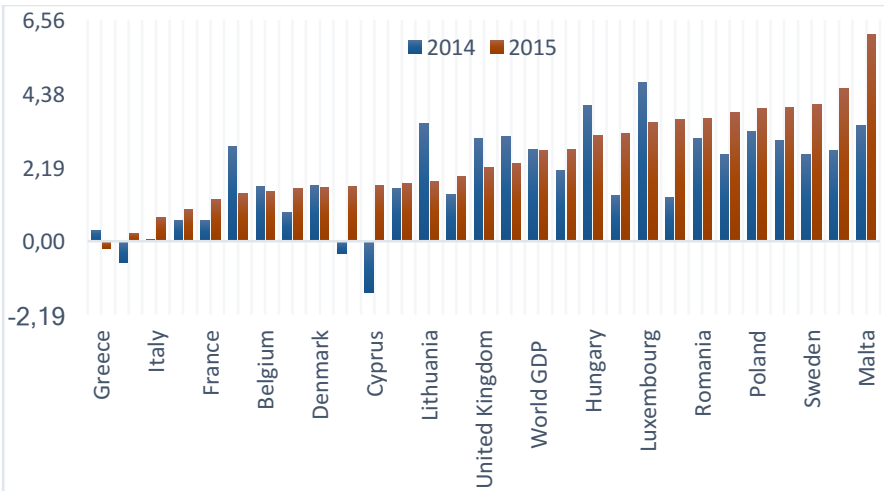


Figure 5 illustrates growth ratios of countries for the years of 2014 and 2015. A basic investigation between figure 4 and figure 5 shows that the relationship between growth and innovation does not hold for all the countries represented. For instance, Turkey's innovation index scores for both years is low while high level of growth was performed for both years. Finland which is among the innovation leader countries showed negative and very little growth in 2014 and 2015, respectively. Other years were not included in the graph for visual purposes. Including all the years in figure does not change the inference we made.

All in all, some of the high-ranking countries in the innovation index have a negative growth ratio. Although Finland, Germany, and Holland are in the innovation leader countries group, their growth rate is lower than that of modest innovator countries. Therefore, claiming that innovation has a positive relationship with economic growth is not correct.

## **5. Conclusion**

Creating innovation or simply innovating is considered a fundamental building block of the fourth industrial revolution. Acceptance of the fourth industrial revolution and the rapid popularity of this notion have been important subjects for innovation activities. Innovation can be defined as an initiative group, such as making a difference in production methods and automation with new technological networks.

Given the fourth industrial revolution and placing the innovation concept at the center of required technological innovation, creating new production systems, communication lines, cyber technologies, and interactive systems that form communication between objects is possible. To achieve this objective, research and development activities instead of creating innovations are required. To prevent any possibility of losing ground during the fourth industrial revolution, developing countries such as Turkey should emphasize innovative ideas, encourage science and technology, and adopt government policies under the legal framework.

This study, which evaluated the relationship between creating innovation, the innovation index, and growth, concluded that no significant relationship exists between innovation index data and growth rates. Using the innovation index and rankings of countries that are leaders in science, industry, and technology, innovation activities can

be mentioned as a reason or cause of development. Yet, mentioning a relationship between innovation skills and growth rates can be misleading.

Therefore, countries that aim for sustainable growth, that seek to follow fourth industrial revolution processes, and that want to follow the period should complete initiatives in science, technology, and innovation and should adopt structural reforms. Thus, achieving the desired well-being levels is possible. In the current economy, growth without science, technology, and innovation is difficult to achieve.

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# 5 The Fourth Industrial Revolution and a Possible Robot Tax

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## Abstract

*Industrial revolutions which took place in different time periods have brought major transformations that changed production processes and socio-economic structure. Thanks to the industrial revolutions, a superior production than what could have been done became possible. Currently, we are about to experience the Fourth Industrial Revolution (4th IR) that is likely to reshape the current production form substantially. Developed countries like Germany and USA have a significant share on the emergence of the 4th IR. Apparently, however, these countries are losing their competitive advantage to developing countries like China and India. In the previous three industrial revolutions, many developing countries fell behind the race mainly because they did not have competent developmental states, well-targeted human resources, adequate infrastructure, and strong capital structure. The premise of this chapter is that governments should govern the transition to be successful in the 4th IR era and play active roles particularly to build up necessary infrastructure and human resources. This study investigates implications of a possible robot tax and explores tax policies that prevent tax evasion caused by the changes that obstruct tax collection and improve a fair distribution of income at the same time.*

**Key Words:** *the fourth industrial revolution, transformation of employment, income equality, robot tax.*

## 1. Introduction

The founder of World Economic Forum, Klaus Schwab puts it succinctly that “[w]e stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another” (2016, January 14). The fourth industrial revolution (4th IR) that we are experimenting right now is the current and developing environment in which disruptive technologies and trends such as the Internet of Things (IoT), robotics, virtual reality (VR) and artificial intelligence (AI) are changing the way we live and work. It is characterized by a range of new technologies that are fusing the physical, digital and biological worlds, impacting numerous disciplines, industries, and economies (Vardhan, 2017, June 14). The 4<sup>th</sup> IR has a big promise to achieve huge gains in resource use and efficiency.

Like the previous three revolutions, it is expected that the 4th IR will not only expedite the development of productivity and materials, but also present challenges to individuals, the economy, society, culture, and politics (Lin, 2017). Many developing countries have had to follow up the previous three industrial revolutions behind the developed countries. The countries which do not want to face the same situation, need to take some measures to facilitate the transition to the 4th IR.

As a result of the technological changes we are seeing in the spheres of digital, connectivity, robotics and big data, it is expected that demand for specific groups of professions will decrease and the employment will change in favor of learning robots. Since advances in AI and robotics tend to rapidly reduce employment, it also looks inevitable that there will be a serious erosion of tax revenues that comes from workers. Dunlop (2017, March 12) puts the important point succinctly that “if robots replace workers but don’t generate tax revenue, it means not only that the funds available for government services are substantially diminished, but that inequality ... is likely to increase”.

There are important roles to play for public institutions in order to increase collective benefits from the changes that the 4<sup>th</sup> IR is bringing. For instance, governments may apply necessary regulations and take the necessary steps to make it easier for the workforce improving the skill level to keep up with the change. According to Borg (2016, January 28), “the most obvious way for policy-makers to meet technological disruptions is to increase investments in education and re-education.

In this study, we will seek an answer to our main question: How can states recover the possible loss of tax revenue that AI and robotics may cause while improving the income distribution? To find an answer to this question, this paper will focus on the means of production, which were not subject to taxation in the past, but can be taxed fairly and without leading to significant welfare losses in the future. In this context, the chapter will discuss the following; i) How taxes and tax issues will be levied on new production means to ensure efficiency and social justice; ii) How to prevent tax losses and tax evasion caused by the transformation; and iii) How to impose taxes to ensure a fair distribution of income when the 4th IR is taking place.

## **2. Challenges and Opportunities of the Fourth Industrial Revolution Era**

The 4<sup>th</sup> IR is an important industrial transformation involving innovative processes in technology and communication. During this processes, some important aspects can be counted as internet, smart factories, wireless sensor networks, cyber physical systems, large data analytics, cloud technologies, learning robots (artificial intelligence) and cyber security. One of the most innovative features that the 4<sup>th</sup> IR brought is the IoT. IoT is “a network of internet-connected objects able to collect and exchange data using embedded sensors” (Meola, 2016, December 19). Today, this communication has not been fully implemented yet, even though there are examples such as smart cities, intelligent networks, intelligent home systems, and autonomous driving (Shrouf *et al.*, 2014).

For all this above mentioned processes, gathering information and making them workable has great importance. In order to adapt this transformation to production, it is necessary to have information about the market and the users. Therefore, *large data* obtained from web servers, mobile operators, social media shares, blogs and network statistics needs to be analyzed. Due to this data, the enterprises can determine their investment areas and business strategies. Another significant innovation that the 4th IR has developed is *cloud technologies*. The cloud technology makes it possible that machines or smart devices performing their assigned tasks in all automation processes can be accessed from anywhere. The users can use the information they need in anytime they wish by means of cloud computing instead of keeping them in the facilities or in the data centers (Khyatin, 2016, p. 20).

Another stage of the 4<sup>th</sup> IR is artificial intelligence. Artificial intelligence means the information technologies or *learning robots* that learn quickly and improve themselves. Learning robots which are available at every stage from production to end-user dispatch, are now widely used. However, the greatest innovation that the 4<sup>th</sup> IR will bring with learning robots is that in case of the need for a robot being responsible for another transaction, the software will be updated and the same robot will be moved to another process point (Bloem, 2014). In other words, flexible production, which makes it possible to produce different parts and models in the same production line, will become possible.

Another concept that has become significant and meaningful together with this transformation is the concept of *cyber security*. With cyber security, the connection and communication protocols will be used more than they were used so far. However, cyber environments, virtual access possibilities and data stored in the cloud will also bring some security problems. Therefore, the protection of industrial processes, production and distribution lines, where machines communicate with each other, will often be on the agenda in the long-term (Jazdi, 2014).

## 2. 1. Opportunities

As in the previous industrial revolutions, the 4<sup>th</sup> IR is expected to make important improvements in the quality of life for populations around the world. Reducing transportation and communication costs, making global logistics and supply chains more efficient and reducing the cost of international trade are foreseen. At the same time, it is expected that the replacement of some workers by machines will reduce the returns to less-skilled labour and make changes in working methods, employment structures and possibly social structures (Millar *et al.*, 2017, p. 270).

The main motivation of companies is to produce highly demanded goods with the lowest cost possible so to earn the maximum profit. This is becoming easier with robots, since they do not get sick, rebel, can (due to lack of consciousness) take risks that humans cannot, and do not ever need to be switched off. As a consequence of competition companies prefer a capital intensive process which helps them reduce production costs, and therefore, worker layoffs are rational for them. The important

thing is that governments should take the necessary steps to make it easier for the employees to improve their skill levels to keep up with the change.

### **2. 1. 1. High Levels of Innovation**

Today, there is more innovation happening than any other time. It is not just information technology that we have in our smartphones, but nanotechnology, virtual reality, 3D printing and genetic engineering, and a wide range of technology exchanges like AI and robotics (Benioff, 2017, January 17). One of the key characteristics of the 4th IR is that it is “not defined by any particular set of emerging technologies themselves, but rather by the transition to new systems that are being built on the infrastructure of the digital revolution” (Schwab, 2016, January 14). The transformation that the 4th IR brings not only makes “traditional research tools more powerful, but also allows for new and near-costless types of innovation that require little or no R&D effort” (Baller *et al.*, 2016, p. xii). Nevertheless, these incredible technology developments can also affect our species and ecosystems in unpredictable and undesirable ways (Benioff, 2017, January 17).

### **2. 1. 2. High Levels of Efficiency**

The heart of the 4<sup>th</sup> IR is the convergence of the physical, digital and biological worlds, which offer significant opportunities to achieve great gains in terms of resource utilization and efficiency (Schwab, 2017). The development of robotics and AI raise efficiency, savings, and safety levels, provide enhanced level of services in the short to medium term. Simple automation and AI is producing huge efficiency gains across many sectors. Thanks to the IoT and intelligent assets, it is now possible to track materials and energy flows to achieve great new efficiency along the value chains. According to Bradley *et al.* (2013), Cisco estimates there will be \$14.4 trillion in economic benefits realized from the IoT in the next decade. Elimination of waste and improved processes in supply chains and logistics may provide 2.7 trillion in value and IoT-enabled solutions can reduce greenhouse gas emissions by 9.1 billion tons by 2020, representing 16.5% of the projected total for that year (Schwab, 2017).

## 2. 2. Challenges

Schwab (2016) suggests that “[w]e are at the beginning of a global transformation that is characterized by the convergence of digital, physical, and biological technologies in ways that are changing both the world around us and our very idea of what it means to be human.” The changes are historical in terms of size, speed and coverage. These individual technologies are everywhere and they will radically change our production, consumption, communication, movement, energy generation and our interaction with each other. Probably the biggest challenge or treat according to Kaminska (2017, February 22), is that “robots run the risk of becoming conscious one day, creating a robot revolution and/or robot rights risk for their owners”.

### 2. 2. 1. Radical Transformation of Employment

What is certain is that the 4<sup>th</sup> IR is initiating a radical change, especially on the supply side and that will change the employment life from the beginning to the end. It is often stated that there will be two opposing influences on employment at the same time. The first influence is that there will be huge unemployment due to advances in AI and robotics. The second influence is that the demand for new products and services will increase. Thus, it is certain that new business areas will be born.

The first view asserts that labour demand will fall and the firms will give up labour-intensive production owing to the more common and cheap automation in the future. Indeed, thanks to the automation systems that have been developed in recent years, computerized systems have taken the place of many employees, from cashiers to welders. The following table, published in *Financial Times* in 2014, confirms this assumption.

**Table 1: The Revenue and Employee Comparison of American Companies**

	Big 3 Car Companies in 1990	Big 3 Silicon Valley Companies in 2014
Revenues	\$250bn	\$247bn
Employees	1.2m	0.12m

Source: James Manyika and Michael Chui (2014 August 13). *Digital Era Brings Hyperscale Challenges*, *Financial Times*.

As seen in the Table 1, the Big 3 Car Companies in Detroit had a combined revenue of \$250 billion and 1.2 million employees in 1990. The three biggest technology companies in Silicon Valley generated roughly the same revenue (\$247 billion) in 2014. However, they accomplished this result with 0.12 million employees, 10 times fewer employees than their 1990 counterparts.

Today's technologies can automate many business functions, and the cost of these technologies is decreasing at a time when human labor costs are increasing. Along with improvements in the computer, AI, and robotics, this led experts to speculate that automation would lead to significant job losses and income inequalities (Abbott & Bogenschneider, 2017). According to estimates from Frey and Osborne (2013), 40-50% of all jobs will be transformed or disappear in advanced economies. It is apparent that automation is continuously replacing blue collar jobs. It should be expected that AI will do the same in white collar jobs (Buytaert & Raj, 2016, February 12).

However, there are optimistic views saying that the 4<sup>th</sup> IR will lead an increase in employment. Those who advocate this view argue that the 4<sup>th</sup> IR will open doors to new jobs and new sectors, and an opportunity for continued employment. The sectors which are the easiest in adaptation to the 4<sup>th</sup> IR contribute the most to the employment. For instance, as a pioneer in the development of new technologies, the Apple company offers employment for over 13 million registered developers for their products to be released to the market with over 2 million applications. As Borg suggest, the countries that will have an advantage in terms of lower unemployment rates and higher potential growth will likely to be the ones that best adapted to transfer labour resources from old contracting sectors to new and expanding ones (2016, January 28). However, it is becoming increasingly clear that creating jobs as new technologies disrupt industries will be far more challenging than in previous eras. The World Bank estimates that increasing automation will put 57% of the jobs in the 35 countries in the Organisation for Economic Co-operation and Development (OECD) at risk.

It is not possible to know exact effects of the 4<sup>th</sup> IR on employment. Nevertheless, we need an answer to this question: "What should be done to compensate the loss in employment that the 4<sup>th</sup> IR may bring?" To respond this question wisely, it is necessary to know the occupational groups that will be affected by the 4<sup>th</sup> IR the most. Frey and Osborne (2013) examined this question and identified 702 occupations with high and low risk of losing their jobs.

**Table 2. Occupations to be affected by Computerization**

Probability	Occupation
0.99	Telemarketers
0.99	Mathematical Technicians
0.99	Insurance Underwriters
0.99	Cargo and Freight Agents
0.99	Tax Preparers
0.98	Umpires, Referees, and Other Sports Officials
0.98	Packaging and Filling Machine Operators
0.98	Shipping, Receiving, and Traffic Clerks
0.98	Bookkeeping, Accounting, and Auditing Clerks
0.98	Models
<b>The Occupations Non Susceptible to Automation</b>	
Probability	Occupation
0.0030	First-Line Supervisors of Mechanics, Installers, and Repairers
0.0031	Mental Health and Substance Abuse Social Workers
0.0039	Dietitians and Nutritionists
0.0042	Physicians and Surgeons
0.0055	Human Resources Managers
0.0077	Anthropologists and Archeologists
0.0081	Clergy
0.0095	Teachers and Instructors
0.0120	Pharmacists
0.0140	Marriage and Family Therapists

Source: Frey and Osborne (2013, pp. 57-72).

### 2. 2. 2. Widening Inequality Gap

While the 4<sup>th</sup> IR is enabling extraordinary levels of innovation and efficiency, it is also contributing to a widening inequality gap. Today, the top 1% owns more than 50% of the world's wealth, while the bottom 50% has less than 1%. What is more, the richest 10% holds nearly 90% of the world's wealth and that gap is widening as technological disruption progresses (Oxfam, 2016, January 18). As Kaminska points out, the fruits of increased productivity trickled down in past industrial revolutions. Because people had jobs and got a salary. Today the same benefits are shared between far fewer people and



most of the profit is hived off as dividends to fictional shareholders in tax-havens (2017, February 22).

Benioff suggests that “without proper governance and incentives, technology will accelerate the pace of inequality” (2017, January 17). Wages that would have been earned by human workers, now displaced by robots, will go straight to profits, increasing the wealth gap between those who own the robots and the growing pool of unemployed workers (Dunlop, 2017, March 12).

### **3. The Impact of the Fourth Industrial Revolution on Tax**

Tax systems face both new challenges and new possibilities as a result of globalization and the 4<sup>th</sup> IR. Globalization and new technology may influence the way a country's tax system or particular taxes are designed and administered. Apparently, globalisation has assisted the movement of capital to the lowest tax regime, hence the increased share of profits to capital, and reduced share to labour.

In addition to facilitating business in the jurisdictions, digital technologies allow consumers to access products and services anywhere in the world. This, however, generate challenges in terms of collecting the appropriate amounts of consumption tax (OECD, 2014: 125). The negative impacts on tax revenues can potentially be reinforced by digitalization of retail sales and VAT.

The development of digital technologies has the potential to allow economic actors to operate in ways that avoid, remove, or significantly reduce, their tax burden within these bases (OECD, 2014, p. 124). From a medium-term perspective, there is a risk that income from value added tax will also be affected. The products are moving freely, and many online services are acquiring rights to use a digital product. The risk of tax evasion in a globalized world is clear in the long run (Borg, 2016, January 28).

If the mass workplace for the people disappear in the future, from a tax perspective a double negative effect could occur. Firstly, significant tax and social security revenues would be lost. Then, the need for additional state revenue to support the growing number of unemployed people would increase (Oberson, 2017). Therefore, one of the main question to answer is: How do we redistribute some of the earnings from winners to losers?

There is no doubt that the contribution and support of the public sector is the most important factor in the comprehensive transformation process we are in. The European Union countries, the United States and Japan are implementing incentives in a serious amount to harmonize production processes with the 4<sup>th</sup> IR. Major emerging markets like China, India, and Indonesia started to become centers for innovation, catching up with advanced economies (Schwab, 2017, p. 12).

### **3.1. The Problems of Tax Collection from New Production Means: Robot Tax**

The 4<sup>th</sup> IR is based on a model where automation will take place in all production processes. There are many different ideas about its effects on the production process. For instance, the transformations that it will cause have been discussed in all aspects and some proposals have been introduced in the one-on-one meetings with 800 businessmen at the World Economic Forum in 2016. However, the most echoed proposal came from the founder of Microsoft Bill Gates early in 2017. He suggested to levy a tax on robots to compensate the losses of workers who would lose their jobs due to the automation. Even though this proposal caused surprise in the public, it is actually not surprising that such a suggestion made by the greatest partner of Microsoft, one of the leading players of AI technology. The nature of the age we are in seems to force such transformations that have not even considered earlier. Taxation of robots and other means of production is now being heatedly debated in academia and in the business circles.

The main goal to be achieved through the taxation of robots and processes leading to automation is to finance the training costs necessary for job loss to adapt to new business areas. The tax can also compensate the decline in tax revenues that governments collect on wages. For Gates, the other issue addressed by a robot tax is to slow down the rate of investment in robots and so help society deal with its anxieties about the encroachment of technology into the workplace (Dunlop, 2017, March 12). Because, taxation of automation will change the relative price structure in favor of labor-intensive production, automation specific production will become expensive.

It is obvious that the automation is the enemy of the employment. In early adapter countries to the 4<sup>th</sup> IR, it was possible to experience an increase in employment, at least aside from the initial loss of employment. But this is a situation that can happen at the

expense of countries not being able to fulfill the requirements of this revolution. In a situation where they can fulfill the requirements of the transformation, the decrease in the standard will be inevitable. In such a case, the way to compensate the loss of tax is to tax the automation.

Introducing a tax on robots raises some complex issues, both from a domestic and international standpoint. First, a clear and agreed definition of robots would be required. The ambiguity of the term “robot” makes defining the tax base difficult. A recent EU report has already suggested a definition based on various characteristics, focusing notably on autonomy, self-learning and adaptation. Second, various ways of taxing robots should be examined. One possible solution would be to levy an income tax on the “imputed hypothetical salary the robots should receive from equivalent work done by humans”. Under this quite straightforward concept, the imputed income would correspond to the economic advantage obtained using robots over a human workforce (Oberson, 2017).

Dunlop (2017, March 12) highlights the main problem that “[t]here are enormous problems in operationalising the idea of a robot tax. There are endless possibilities for evading and gaming that kind of system; for example, by incorporating the ‘robot’, however that is defined, into other kinds of capital equipment”. Moreover, the critics of a robot tax stress the new robotics’ enormous, undeniable benefits to productivity growth (Shiller, 2017, March 27). Varoufakis suggests that either the robot sales tax should be dropped or it should be generalized into a capital goods sales tax (2017, February 27).

According to Oberson (2017), an alternative, and simpler, system would be to impose a lump-sum amount representing an approximated ability to pay the tax. Initially, this ability to pay would be attributed to the employer or owner of the robots, but as the technology evolves, the robot’s ability to pay could be recognised. Consequently, the imputed income would also become subject to social security levies. Nevertheless, Varoufakis (2017, February 27) warns that robot-operated machines never been operated by humans means that there will be no prior human income to act as a reference salary for calculating the taxes these robots must pay. Therefore, a lump-sum tax on robots would merely lead robot producers to bundle artificial intelligence within other machinery.

Some recent suggestions focus on the design of a tax neutral system between robots and human workers. For example, according to Abbott and Bogenschneider (2017), “[t]his could be achieved by disallowing corporate tax deductions for automated workers, creating an ‘automation tax’ which mirrors existing unemployment schemes, granting offsetting tax preferences for human workers, levying a corporate self-employment tax, or increasing the corporate tax rate”. The authors argue that the ideal solution may be a combination of these proposals.

A VAT on the actual robots themselves is also a possibility, even though the introduction of an (objective) tax on robots, similar to cars, boats or planes, would not fit a modern perspective on today’s job-replacing robots. As a result, some academics have advocated a "automation tax" based on the ratio of a company's revenues (total sales) to the number of employees. The higher the ratio of robots to sales, the higher the tax (Oberson, 2017).

Granting a legal personality to robots could lead to the emergence of an electronic ability to pay, which may be recognized for tax purposes. As a consequence of such a development, a specific tax personality would need to be granted to robots. This would require a clear definition of robots, which could be based on the use of artificial intelligence, combined with a sufficient level of autonomy. As Shiller (2017, March 22) suggests, “a moderate tax on robots – even a temporary levy that merely slows the adoption of disruptive technology – seems like a natural and obvious component of any policy to address rising inequality”. Revenue could be targeted towards wage insurance, to help people replaced by new technology make the transition to a different career. This would accord with our natural sense of justice, and thus be likely to endure.

From the perspective that smart robots may now replace inherent human activities, such as the interaction, learning and decision-making processes, the potential implications of a tax on robots, or on the use of such robots, is considered. The likelihood of an income tax on an imputed salary from robots’ activities, or on other income, is also considered. In the beginning, the economic capacity to pay the tax should still be attributed to the employer or owner of the robots. Later, when technology allows, an ability to pay to robots may be recognized (Oberson, 2017).

One of the criticisms of robot tax is that, if the goal is to generate additional income to the state, there are many other tax alternatives. It is claimed that these tax alternatives are highly efficient taxes, which likely to cause less welfare loss. Taxes collected on cigarettes, alcohol and fossil fuels are shown as examples. According to this view, taxing robots arouses the perception that robots are harmful for the country and society, as if they cause negative externalities. Indeed, taxation of robots is not a matter of correcting something that goes wrong. The main point here is to increase public revenues to address social problems and tax losses caused by extreme unemployment.

The second criticism of robot taxation is related to how the tax issue will be determined. Together with this sort of tax, it is admitted that the robots cause unemployment but there is no explanation about what the tax issue will be. Because “robots” are not always easy to identify. Most forms of automation usually involve technologies that cannot be directly linked to specific job losses. Most are not physical robots, they’re software robots. For example, many software programs and computer services are soon fed by machine learning, and most technologies provide intelligence at a higher level. It would be impossible to create rules that define which of these systems are job-killers (Waters, 2017).

Moreover, the view saying that a taxpayer will be compensated by the government for declining tax revenue is a matter of criticism in many ways. It is quite possible to say that a taxpayer will be able to reduce the tax revenue by preventing the increase in production when it comes to the assumption that governments have received tax on increased production and profits. Consequently, taxing new equipment could also hamper a promising new industry that is being born from the latest advances in robotics and AI. Instead of this, it is possible to tax many other tax issues accommodating both the efficiency and justice and to compensate for the declining tax revenue in this way.

### **3.2. Efficiency and Equity Trade-off**

Technological change has implications for income distribution, and this reinforces the upwards pressure on government expenditures. Job disruption can undermine earnings of low-income groups. The digital age also creates winners in terms of new technology millionaires. The state will need more tax revenue to lead the transformation that the 4<sup>th</sup> IR has caused to serving the social benefit. A natural consequence of this revolution

is the acceleration of the automation-based production. This would mean the reduction of direct tax on wage income, which is an important source of tax revenue.

As discussed above, in some environments the taxation on robotic systems is interpreted as an opportunity to make up for lost tax revenue. However, there is a risk that such a policy, which is capitalized on capital accumulation, will cause the tax issue to be eroded instead of increasing the tax revenue. The phenomenon is known as “the tax depreciation” in the literature. The capital received under in this case is less demanded due to the loss in its income. This prevents the widespread use of robotic systems and the growth possibly emerging as a result.

### **3.3. Tax Solutions for Inequalities in the Fourth Industrial Revolution Era**

There are negative externalities to robotisation that justify government intervention. For example, it is apparent that automation will increase inequality among humans (Smith, 2017, Feb 28). With a shrinking middle class, developing robotics may lead to a high concentration of wealth and influence in the hands of a minority (European Parliament, Committee on Legal Affairs, 2017). Unless we want to end up with enormous concentrations of wealth that leave many people jobless, while robot-owners thrive, we have to consider new ways of redistributing wealth (Dunlop, 2017, March 12). Of course, governments have a big role to play here (Delaney, 2017, February 17).

As Dunlop identifies, the real issue is not the technologies themselves but the “inequitable social structures and the policies and politics that support them” (2017, March 12). Taxes must be reframed to remedy income inequality induced by robotisation. In other words, it is important to design corporate income and consumption tax systems in such a way to promote growth and investment, while reduce inequality and establish a level playing field among economic actors. The development of digital technologies may increase the pressure on a smaller number of taxpayers to compensate for the related loss of revenues (OECD, 2014, p. 124). It may be more politically acceptable, and thus sustainable, to tax the robots rather than just the high-income people. While this would not tax individual human success, as income taxes do, it might in fact imply somewhat higher taxes on higher incomes, if high incomes are earned in activities that involve replacing humans with robots (Shiller, 2017).

According to Varoufakis (2017, February 27), there is an alternative to a robot tax that is easy to implement and simple to justify: a universal basic dividend (UBD), financed from the returns on all capital. Effectively, society becomes a shareholder in every corporation, and the dividends are distributed evenly to all citizens. To the extent that automation improves productivity and corporate profitability, the whole society would begin to share the benefits. As higher profits and their automatic redistribution via the UBD boosted incomes, more funds would become available for the welfare state. Coupled with stronger labor rights and a decent living wage, the ideal of shared prosperity would receive a new lease on life.

One other idea is to simply redistribute capital income more broadly. Income from capital gains, land rents and dividends now is highly concentrated among the wealthy. But policy could change that. One idea, suggested is a sovereign-wealth fund. The government could use tax revenue to buy stocks and real estate, and distribute the profits to the populace. This would essentially redistribute some of the income produced by the robots, giving every citizen a stake in the new automation economy. Another idea is a wage subsidy for low-income workers. This basically puts a thumb on the scale in the human-robot struggle, by making human workers cheaper. The easiest way to do that is to cut payroll taxes, which disproportionately fall on low income earners. That would mean paying for Medicare and even Social Security out of other revenue sources, such as higher income taxes on the rich or a value-added tax (Smith, 2017, February 28).

### **3.4. Likely Solutions for Tax Evasion in the Fourth Industrial Revolution Era**

Traditional taxes on income or corporate profits are easy to evade and/or push companies to relocate to low tax jurisdictions. Another aspect in the countries to force tax systems to be changed is the digital markets. Nowadays, goods are moving freely, and many online services are acquiring rights to use a digital product (consumption of sports, porn, gambling seems not to be hampered by the moral norms or tax jurisdictions of the digital age). As a result, there is a risk that revenues from value-added tax will be affected (Borg, 2016, 28 January). Digital technologies offer companies the opportunity to increase their sales revenue. There is also a similar opportunity for the states to increase their tax revenue. In the past, finance inspectors had limited opportunities to track company transactions. However, nowadays internet transactions leave digital traces. Therefore, it has become easier to follow up these transactions and

to collect tax on these transactions. In the near future, it appears that states will have the opportunity to conduct electronic surveillance with software that does not have a security clearance. Together with this, a fixed “IP” will be defined for each computer and mobile phone, in this way taxpayers' detection and e-commerce will be able to be taxed in a better way. It will be possible that the government will be able to reduce tax losses and evasions by registering products on the production band with the product labeling system as well as by monitoring the subsequent processes (Blume & Bott, 2015, July).

#### **4. Conclusion**

The 4<sup>th</sup> IR is opening many new avenues and has a big promise to achieve huge gains in resource use and efficiency. This is because it enables extraordinary levels of innovation. Nevertheless, it is expected that demand for specific groups of professions will decrease rapidly as a result of advances in AI and robotics. Because of the same reason, there is a huge potential for a serious erosion of tax revenues. Moreover, 4<sup>th</sup> IR is contributing to a widening inequality gap.

The emerging 4<sup>th</sup> IR will need to be channeled and designed to achieve broad-based gains. To internalize the benefits of the 4<sup>th</sup> IR that it may bring and minimize the potential damage that it may cause, preparation and regulation is crucial. Governments must focus on bridging the digital divide to ensure that countries will have the basic infrastructure required to create the economic opportunities and shared prosperity. First of all, governments need to take some measures to facilitate the transition to the 4<sup>th</sup> IR in a beneficial way for the whole society. Second, they should take the necessary steps to make it easier for the workforce improving the skill level to follow this change.

The main problem here is to increase tax revenue to lead the transformation that the 4<sup>th</sup> IR brings. This revolution has a natural consequence of the acceleration of the automation-based production transition from labor intensive production that means reduction of direct tax on wage income. A possible solution to this problem appears as levying a tax on robots to create tax revenue and address the social problems caused by extreme unemployment due to the automation. The revenue that may be generated here may also be reframed to remedy income inequality induced by robotisation. But,



the important thing is to craft this tax in such a way that will not hamper a promising new industry that is being born from the latest advances in robotics and AI.

One good news is that digital technologies offer an opportunity for the states to increase their tax revenue since internet transactions nowadays leave digital traces. In the near future, it seems that states will have the opportunity to conduct electronic surveillance with software that does not have a security clearance. It will also be possible that governments will be able to reduce tax losses and evasions by registering products on the production band with the product labeling system as well as by monitoring the subsequent processes.

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# 6 Economic Growth: How Better Institutions Make A Difference

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## **Abstract**

*We examine the relationship between institutions and growth in Turkey. Our first aim is to evaluate Turkey's economic performance during 2000–2014 by using the institutional economics perspective. We aim to explain high and low economic performance in Turkey by adopting an alternative explanation for the variation and contributing to prior studies that have endeavored to understand Turkish economic cycles. Our second aim is to determine how better institutions affect growth and whether this effect changes depending on countries' development levels. Our empirical work consists of two parts. In the first part, we analyze Turkey's economic performance by using an institutional framework. We find that high growth rate and foreign direct investment (FDI) inflows move together with increasing institutional quality. In the second part, we utilize estimates from the PVAR model for OECD countries for the period 2000–2014 to test the relationship between institutions and growth. We estimated three models for the full sample of 35 OECD countries consisting of 30 advanced OECD countries and 5 developing OECD countries. We used IMF classification to group the countries. We found that the institutions affect growth positively. However, this impact is uncertain for developing countries. We concluded that growth is more crucial for having better institutions for developing countries.*

**Keywords:** *economic growth, institutions, panel VAR.*

## 1. Introduction

In research conducted on the fundamental elements that explain the reasons for income differences and growth performance disparities between countries, neoclassical growth models have not provided a sufficient explanation. Clark (2013) explores why the industrial revolution occurred in England rather than in another country and the reasons for the emergence of the industrial revolution in the 18th century with a wider perspective than the neoclassical theory.

In the works that using the institutional approach, such as Acemoglu and Robinson (2013) and Rodrik (2002), institutions, geography, trade, and climate are the fundamental factors of long-term economic growth, besides the neoclassical theory.

Rodrik (2002) first explain the geography. Having the natural resources, which is a geographical factor, has substantial effects on growth. Having precious metals and commodities such as oil, natural gas, etc. are important for production and growth. Rodrik (2002) express that natural resources are also important for institutional development via colonialism and rent-seeking. The geographical factor may also cause higher economic integration with the world economy, which can lead the bigger growth rates.

According to Rodrik (2002), the second factor is the trade. Trade openness is a vital factor of growth. A higher integration with the world economy causes longer growth periods and bigger growth rates. A higher integration may also make the domestic economy more attractive to foreign investors which are important especially for the countries which suffer the lack of savings.

Climate may be considered as another factor of higher growth. Extremely hot and cold climates are harmful, especially, to agriculture. The countries with warm climate can produce more agricultural product.

Rodrik (2002) explains that the trade, just as institutions, is an endogenous factor. Trade and institutions can cause the higher growth, and the higher growth can cause the higher integration and the better institutions. Yet integration degree and health of institutions can be decided by countries and hence we can use them as explanatory elements of the economic growth.

According to Acemoglu and Robinson (2013) and Rodrik (2002), the factors we mentioned above are not sufficient explanation of economic growth differences between countries. That is why we need an institutional perspective of better understanding the elements behind the countries with higher GDP per capita.

Recently, institutional economics has been receiving increasing attention, with the pioneering studies of economists such as Douglass North, Daron Acemoglu, James A. Robinson, and Dani Rodrik attracting attention for offering an important step to explain the reasons for the income differences between countries.

In addition to academic studies, several institutions such as the Heritage Foundation, Freedom House, Fraser Institute, and World Bank rate the institutions of countries and these ratings are playing an essential role in the decision-making processes of national and international investors and other economic actors. Therefore, it is impossible to say that the quality of the institutions of countries do not affect their economies.

In this paper, we examine the relationship between institutions and economic growth. First, we evaluate the economic performance of Turkey in the last two decades from an institutional economics perspective. Second, we use the 2000–2014 data of OECD countries to test the institutional thesis. The panel VAR method that we employ allows for the testing of the mutual relation between institutions; thus, we included it in our conclusions. Furthermore, we first tested 35 OECD countries, and then, by using IMF classifications, we separately tested them under the categories of developed and developing states, and then, compared the results. On the basis of this test, we identified how the development level of countries affected the relationship between institutions and economic growth. In our models, we used the economic freedom index and the democracy index representing the economic and the political institutions respectively.

In the remainder of our study, the relation between institutions and economic growth is examined. The third section contains a literature review. The fourth section discusses the relationship between institutional development and economic performance in Turkey. The fifth section considers empirical test results and findings. The sixth section is reserved for the conclusions and evaluations.

## **2. Relation Between Institutions and Economic Growth**

Why do countries have different development and prosperity levels? Classical answers to this question include differentiation in data such as the investment levels of countries and their openness, population, and efficiency. However, these answers offer limited explanatory power. A historical perspective explains that Western countries began to develop before others did. However, even if the elements mentioned in the classical explanations are important, there is a more fundamental rationale to explain why a country can make more investments, attract more foreign investments, or impose fewer restrictions on foreign trade than others. Economists such as North (1993), Acemoglu (2012), and Acemoglu and Robinson (2013) deliberate that this element is the institutions of a country.

Acemoglu and Robinson (2013) state that the geographical or climatic explanations to this question are insufficient and that the basic factors include the differences created by inclusive institutions and exclusivist institutions.

North (1990) defines institutions as the rules of the game. Good and inclusive institutions lead individuals to act in an effective manner via incentives. Furthermore, such institutions limit and even eliminate the problems that politicians can cause in economies by means of their restraining effect on politicians (Acemoglu, 2003).

With regard to how the incentives created by institutions are effective, North (1993) emphasizes that institutions decrease uncertainty. As mentioned by North, one of the important studies in this area is “The Nature of the Firm” by Coase (1937). Coase examined the question of why firms are founded in situations when markets are fully operable and concluded that they decreased the operating costs of companies. One of the most important effects of institutions in economics is that they reduce uncertainty and transactions or operating costs.

Good institutions enforce property rights, restrain elites and politicians, and provide equal opportunities to some degree. The enforcement of property rights is important for human action and entrepreneurs’ investment decisions. Restraining elites and politicians, not restraining private property, and refraining from nationalization are essential virtues. As a result, equal opportunity is important for the inclusion of



individuals from different income and sociological groups in the economy (Acemoglu, 2003; Rodrik and Subramanian, 2003; Acemoglu et al. 2000).

Institutions consist of formal rules, informal rules, and enforcement mechanisms. They direct economic and political life (North, 1993, Acemoglu, 2012). The institutions that affect economic growth may be political as well as economic. The policies followed, and the attitudes of politicians started gaining importance. North (1993) noted the “what shapes economic performance is government” (p. 7). North (1990) also emphasizes that institutions can be economic, social, or political. Given the importance of economic institutions, in addition to the economic freedom index, we added the democracy index to represent political institutions.

In considering the relation between institutions and economic growth, another important element (in terms of both a theoretical and an empirical perspective) is the direction of the relation between institutions and growth. Growth may be the result of good institutions as well as its cause. “In the short run, economic growth can be realized in authoritarian regimes; however, long-term economic growth can be ensured with rule of law and improvement of civil and political freedoms” (North, 1993, p. 7). In such cases, improvement in institutions must accompany the growth that is realized in the short term. The PVAR method that we use in our study allows for testing this mutual relationship because it gives cause-and-effect functions for a bidirectional relationship.

### **3. Literature Review**

Gökalp and Baldemir (2006) examined the relation between institutional structure and economic growth by using clustering and panel data analysis. According to the clustering analysis results, countries are separated into four groups and Turkey is placed in the fourth group outside European Union countries. According to panel data analysis results, it was determined that the impact of institutional factors on economic growth differed depending on the country groups. The study did not reach a decisive conclusion that institutions have a positive impact on growth. Furthermore, it was seen that fighting with corruption positively affected economic growth in all country groups. As a result, it was found out that institutions are not the cause but an effect of economic growth.

Acemoglu and Ucer (2015) evaluated Turkey's growth performance from 2002 to 2015. The basic determinant of high growth periods appeared to be impelled by the development of institutions and positive relations with the EU, whereas low performance (after the 2008 crisis) was due to a recession in institutions and negative processes or relations with the EU.

In his study, Doğan (2005) stated that democracy must enlarge political freedoms and set attainable targets. He also argued that democratic institutions and processes must support economic development.

In his research, Yıldırım (2010) examined the impact of institutions on the economy by using three models. In the first model, the institutional structure was represented both by political and civil rights and economic freedoms. In the second model, only economic freedoms were used to represent institutions. In the third model, the institutional structure was represented with political and civil rights. Variables had high significance, and the growth rates of countries with favorable institutional structures were high.

Biber (2010) examined the institutional tools that can facilitate the impact of institutions and institutional structure on economic growth and found that institutions affected the economic performance of countries in a number of ways. First, institutions reduce uncertainty and contribute to the structural organization of daily life. Second, they reduce uncertainty and direct resources to productive areas. Institutional tools are effective in augmenting the economic performance of countries because of the attitudes found in political regimes toward state interference in markets and the protection of property rights.

Artan and Hayaloğlu (2013) used a panel data set for the years 2000 to 2009 and studied 110 countries to identify the impact of institutional structure on economic growth. They found differences according to the income levels of each country and concluded that this factor had an important effect on the growth of developed countries.

Klomp and Haan (2009) examined more than 100 countries with regard to the impact of political institutions on economic volatility for the years 1960 to 2005. They found

a negative relation between democracy and economic growth and stated that political uncertainties increased economic volatility.

Góes (2016) used PVAR model in his study to find that improvement in institutions had a positive impact on GDP. When developed and developing countries are estimated independently, it was identified that institutions had a high impact on developing countries.

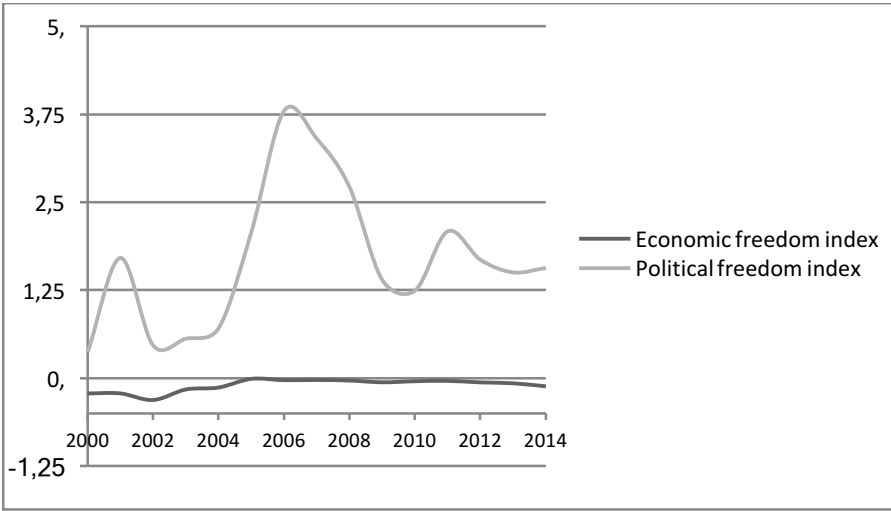
#### **4. Institutions and Economic Growth in Turkey**

In this section, institutional development and economic growth in Turkey for the period after 2000 will be examined and the relation between them will be explored. To show the quality of institutions, economic and political freedom indexes will be used. Economic growth performance per capita GDP will be measured using growth rate data.

The Turkish economy was managed under a new program and faced a transformation in one sense after November 2000 and again after the February 2001 crisis. The budget deficits of the 1990s, along with the central bank financing budget deficits (with the associated high inflation), created a changed environment. After the 2001 crisis, the greater independence of the central bank meant that it would not be used as a tool to finance budget deficits anymore. In conjunction with tight financial policies, this reform created a favorable environment for the success of disinflationary policies. However, it also had a restrictive effect on Turkey's growth, which suffers from lack of domestic savings. At this point, the use of foreign resources gained importance for sustaining high growth rates. For this reason, when examining Turkey's economic growth during the post-2000 period, the contribution of foreign resources must be taken into consideration.

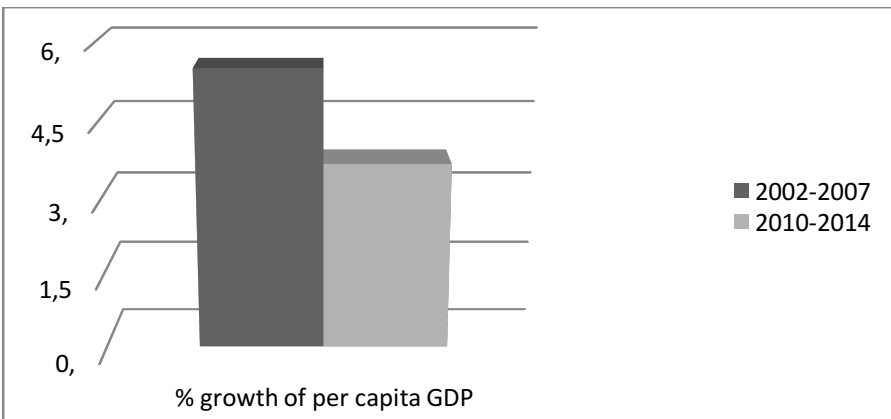
In Turkey, the development of economic and political freedoms is highly correlated (Graph 1). Both indexes increased after 2002 and fell after 2007. Accordingly, it can be claimed that the quality of institutions in Turkey increased between 2002 and 2007 and then decreased thereafter.

**Graph 1: Development of Institutions in Turkey**



Source: Fraser Institute and World Bank

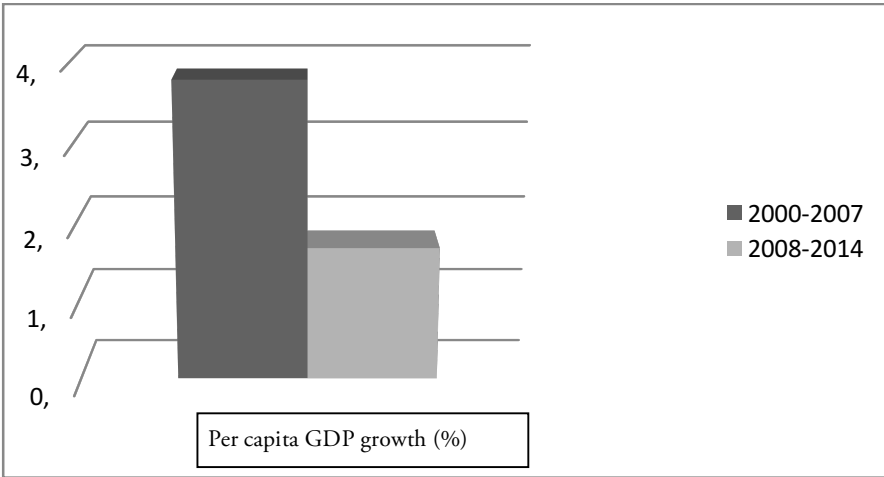
**Graph 2: Economic Growth in Turkey (crisis years not included)**



Source: World Bank

When the growth rates belonging to this period are examined, the average growth rates calculated by excluding the crisis years show that the growth rate was 5.53% for 2002–2007 and 3.7% for 2010–2014 (Graph 2). When we recalculate the growth rates to include the crisis years, the rate was 3.8% for 2002–2007 and 1.7% for 2010–2014 (Graph 3). Accordingly, it can be said that institutional quality was high during periods of high growth rates, whereas growth was low during the period when quality of institutions was low.

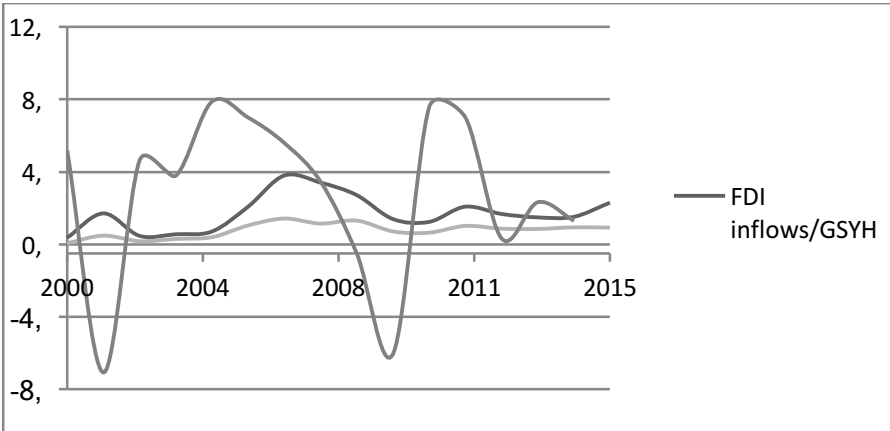
**Graph 3: Economic growth (crisis years included)**



Source: World Bank

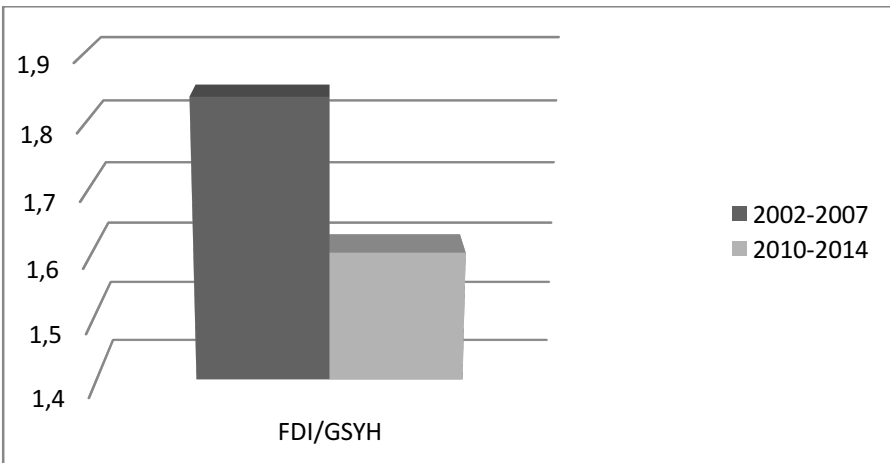
As mentioned above, in this period, the importance of using foreign resources increased for Turkey. Given the high correlation between growth and foreign direct investments (FDI), the examination of FDI is essential (Akat and Yazgan, 2013, p. 5). After the 2001 crisis, Turkey's utilization of foreign resources increased (Graph 4). The loose monetary policy implemented in the USA at that time had a particularly important role to play in this situation. Given the easy access to foreign resources, Turkey enjoyed the opportunity of financing its growth without suffering from inflation and budget deficits (Göcen, 2017, p. 69).

Graph 4: FDI and Growth



Source: UNCTADstat and World Bank

Graph 5: FDI/GSYH



Source: UNCTADstat

Göçen (2017) indicated that institutional improvements have a direct impact on growth as well as FDI. When it comes to Turkey, political and macroeconomic stability are among the factors which are viewed as most important by foreign investors. When people are uncertain about the future, investors adopt a “wait and see” stance (Dumludağ, 2009, p. 23), which in turn leads to low growth.

By applying a similar analysis to FDI, we find that the FDI/GDP ratio is higher during periods of quality institutional improvement than during periods of institutional recession.

As a result, in periods when disinflationary policies are adopted and tight monetary and financial policies are implemented, growth rates improved, paralleling the improvement in institutions. However, the relationship does not hold in a bidirectional fashion. It was also found that for the same period (owing to the increase in FDI funding), growth was facilitated, and high growth rates were achieved during 2002–2007. However, given the findings of Göçen (2017), the role of global liquidity must not be overlooked. The improvement in Turkish institutions was achieved by this liquidity.

## **5. Data and Model**

### **5.1. Data**

In our models, we used per capita GDP growth rates from the World Bank, economic freedom indexes of economic institutions from the Fraser Institute, and the governance index of political institutions from the World Bank. Our data cover the years 2000 to 2014. We used the method developed by Abrigo and Love (2015) in estimating the PVAR model.

### **5.2. Model**

We tested OECD countries for 2000–2014 by using the PVAR model and performed a cause-and-effect analysis. We used three different models and examined the relation of growth with economic freedom and political freedom for all OECD countries. Thereafter, in accordance with the method of Góes (2016), we repeated this test for 30 developed OECD countries and 5 developing OECD countries, which were categorized by using IMF classification. We determined how the results differentiated for non-

homogeneous country groups (Góes, 2016). During the testing of the unit roots of variables, we used a unit root test while taking into account cross sectional dependence<sup>1</sup>. The definitions of the used variables and their stationary levels are presented as follows:

fi: Economic freedom index. Stationary at level in all three models.

di: Political freedom index. Stationary at level in models which include 35 OECD countries and 30 developed OECD countries; stationary at first difference in the model including 5 developing OECD countries.

gg: Per capita GDP growth rate. Stationary at level in all three models.

### **5.3. Results**

Graph-6, Graph-7, and Graph-8 exhibit the result of impulse-response functions results<sup>2</sup>. We discuss the results in three groups:

1. Political freedom and growth: a positive shock on political freedom leads to an increase in per capita income in the model covering all OECD countries (Graph 6). In the second period, this increase reached its peak (0.5). In the following periods, this impact declined and vanished. In the model consisting of 30 developed OECD countries (Graph 7), growth decreases throughout the first period. Thereafter, growth increased and reached its maximum in the third period (0.4). In the model consisting of five developing OECD countries (Graph 8), growth fluctuated when a shock was present. In the first period, growth decreased. In the second period, it increased and eventually reached its maximum level (0.2). Thereafter, fluctuation declined and vanished.

2. Economic freedom and growth: a positive shock on economic freedom leads to an increase in per capita income growth in the model which covers all OECD countries (Graph 6). In the second period, this increase reached its peak (0.18). In the following periods, this impact declined and vanished. In the model consisting of 30 developed OECD countries (Graph 7), growth increased and reached its maximum level in the

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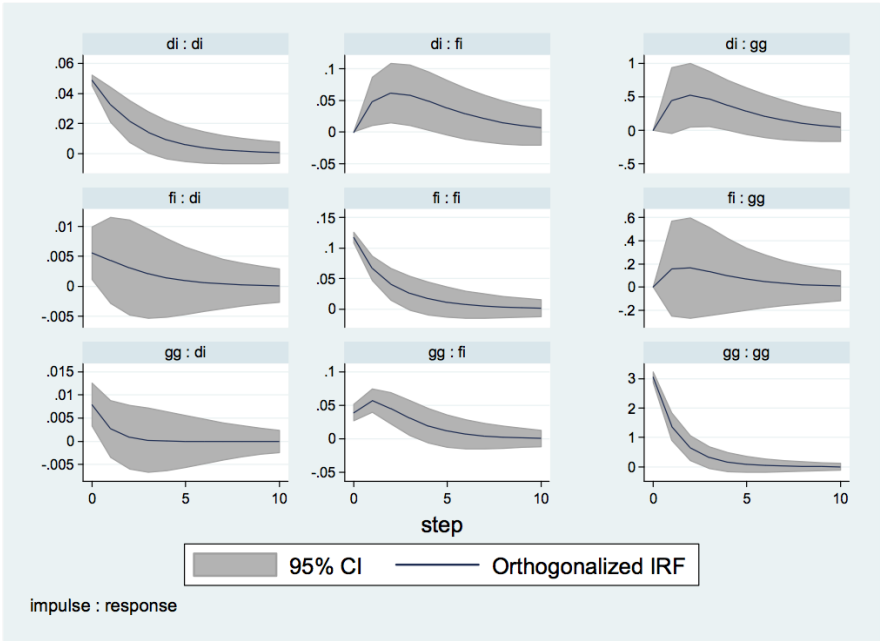
<sup>1</sup> For pre- and post- estimation tests, see Annex-1 and Annex-2.

<sup>2</sup> Orthogonalized IRF are based on Cholesky decomposition



second period (0.7). Thereafter, it declined and vanished. In the model consisting of 5 developing OECD countries (Graph 8), no change in growth was detected until after the first period. Growth decreased starting from the first period and continued after the tenth period.

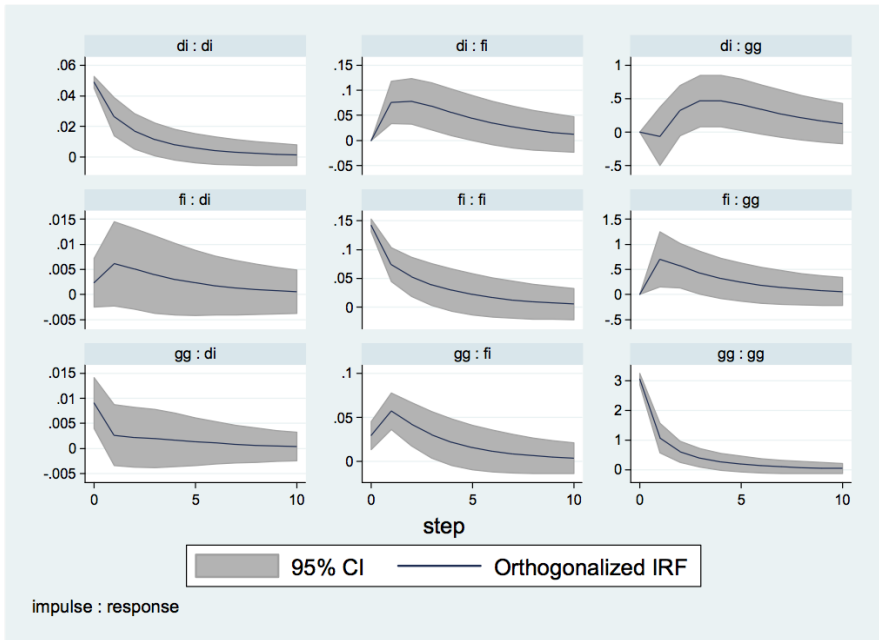
**Graph 6: Institutions and Economic Growth of 35 OECD Countries**



3. Growth and institutions: summary of the impact of growth on institutions. In the model consisting of all countries (Graph 6), a positive shock in the growth increased political freedom (0.008). In the following periods, this effect declined and vanished. The shock in growth also increased economic freedom. This increase reached its peak in the first period (0.06) and then declined and vanished. In the model covering developed countries (Graph 7), political freedom improved (0.006). This impact declined over time. Economic freedom increased after the shock, reached its maximum level in the second period (0.06) and declined and vanished thereafter. For developing countries (Graph 8), political freedom increased (0.02), but this impact declined and

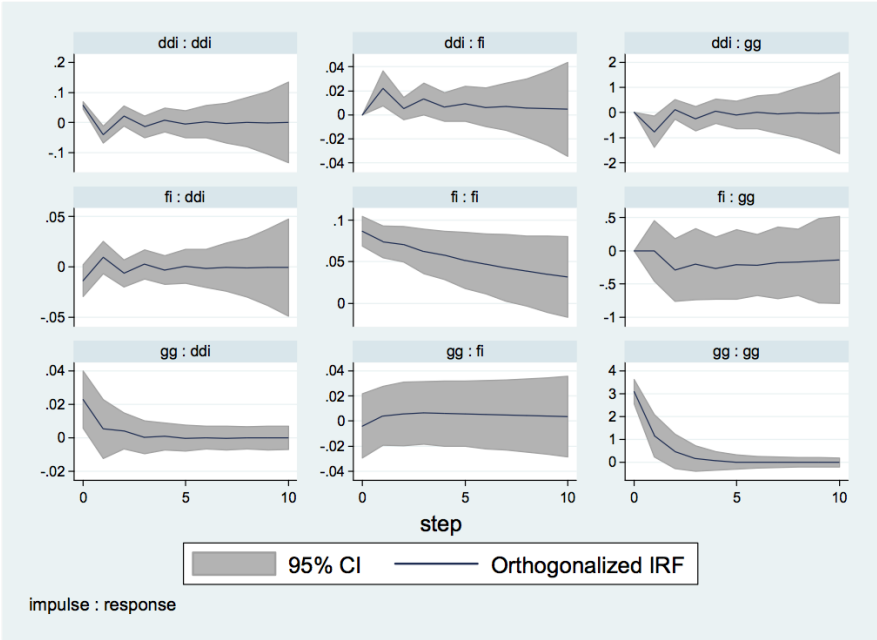
vanished over time. Economic freedom increased with shock, reached its maximum level (0.008), and then declined<sup>3</sup>.

**Graph 7: Institutions and Economic Growth of 30 Developed OECD Countries**



<sup>3</sup> Variance decompositions may also be insightful. See Annex-3.

**Graph 8: Institutions and Economic Growth of Five Developing OECD Countries**



**5.4. Findings**

We summarize our findings as follows:

1. In models that cover all countries and developed countries, an increase in the quality of economic and political institutions increases growth.
2. The impact of political freedom on growth in developing countries is uncertain and fluctuated. Economic freedom was negatively affected by political freedom.
3. Growth has a positive impact on institutions in all three models.
4. The relationship between institutions and growth was distinct for samples consisting of all countries and developed countries.

The changes in the impact of growth on countries according to country groups is in line with the findings of Gökalp and Baldemir (2006). The conclusion that growth is important for the development of institutions in developing countries was also reached by Gökalp and Baldemir (2006). The findings of Artan and Hayaloğlu (2013) that institutions are more important in countries with higher income paralleled our findings.

However, in contrast to our results, Góes (2016) found that institutions can have a high impact in developing countries. Perhaps this difference was caused by country groups and periods.

## **6. Conclusion**

This study found that institutions played an important role in Turkey's economic growth and FDI usage. In periods of institutional improvement, both growth rates and FDI increased; these variables are important factors for growth. In periods of declining institutions, both variables decreased.

The PVAR test results for OECD countries showed that institutions have a positive impact on growth. This impact is obvious for developed countries. For developing countries, the relation between institutions and growth is uncertain, and growth has high importance for institutional development.

Future studies can undertake the analysis of spillover behavior of other members of the fragile five economies to compare the findings with those of the present paper. This study can also be repeated for the Turkish future markets to compare the results with the spot market.

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## Annex-1: Pre-Estimation Tests

It is important to use stationary variables in PVAR models. Before unit root test, we need to investigate cross-sectional dependency for deciding which unit root test should be used. We used Pesaran CD test for determining appropriate unit root tests.

**Table A-1: Cross-sectional dependency tests**

Variables	All countries	Developed countries	Developing countries
	Pr	Pr	Pr
fi	0.0000	0.0000	0.0000
di	0.7355	0.3945	0.0608

According to Pesaran CD test results, second generation unit root tests are appropriate in all country groups for fi and gg. For di, first generation unit root test must be used.

We used Pesaran CADF unit root test for the variables fi and di, and Fisher-type test for the variable gg.

**Table A-2: Second generation unit root tests**

Variables	All countries	Developed countries	Developing countries
	p-value	p-value	p-value
fi	0.003	0.000	0.000
gg	0.000	0.000	0.014

We found that both fi and gg are stationary at the level.

**Table A-3: First generation unit root tests**

Variables	All countries	Developed countries	Developing countries
	p-value	p-value	p-value
di	0.0000	0.0000	0.7989
ddi	-	-	0.0000

di is stationary at the level in first two model. In developing countries model, di is stationary at first difference.

Before estimating PVAR model, we need to decide lag length. We used Abrigo and Love (2015)'s criteria for this. Abrigo and Love (2015) suggest that we should select the lag length which is minimum at MBIC, MAIC, MQIC, and J pvalue. According to results, 1 lag length is appropriate for all three models.

**Table A-4: Lag length for all countries**

lag	CD	J	J pvalue	MBIC	MAIC	MQIC
1	.9988603	38.85472	.0653104	-113.2846	-15.14528	-54.50911
2	.9993215	13.32198	.772101	-88.10423	-22.67802	-48.92057
3	.9980942	13.51107	.1408113	-37.20204	-4.488932	-17.61021

**Table A-5: Lag length for developed countries**

lag	CD	J	J pvalue	MBIC	MAIC	MQIC
1	.9983527	40.40794	.0469036	-107.5693	-13.59206	-51.45803
2	.9991352	9.358239	.9508574	-89.29326	-26.64176	-51.88574
3	.9987951	11.60282	.2366375	-37.72293	-6.397182	-19.01917

**Table A-6: Lag length for developing countries**

lag	CD	J	J pvalue	MBIC	MAIC	MQIC
1	.8866193	16.61048	.9402927	-79.38392	-37.38952	-51.88598
2	.9859105	7.99233	.9787505	-56.00393	-28.00767	-37.67198
3	.9889806	7.722278	.562358	-24.27585	-10.27772	-15.10988



## Annex-2: Post-Estimation Tests

We need to control stability condition in PVAR models after estimation. Abrigo and Love (2015)'s method is used for all three models. All models satisfy the stability condition.

**Table A-7: Stability condition for all countries**

Eigenvalue stability condition

Eigenvalue		Modulus
Real	Imaginary	
.6592419	0	.6592419
.5712237	0	.5712237
.3717979	0	.3717979

All the eigenvalues lie inside the unit circle.  
 pVAR satisfies stability condition.

**Table A-8: Stability condition for developed countries**

Eigenvalue stability condition

Eigenvalue		Modulus
Real	Imaginary	
.7584459	0	.7584459
.5016291	0	.5016291
.0830183	0	.0830183

All the eigenvalues lie inside the unit circle.  
 pVAR satisfies stability condition.

**Table A-9: Stability condition for developing countries**

Eigenvalue stability condition

Eigenvalue		Modulus
Real	Imaginary	
.9061389	0	.9061389
-.6074973	0	.6074973
.394483	0	.394483

All the eigenvalues lie inside the unit circle.  
 pVAR satisfies stability condition.

### Annex-3: Variance Decompositions

Variance Decompositions may be insightful to explain how changes in one variable affect other variables.

Table A-8: Variance decompositions for all countries

Response variable and Forecast horizon	gg	fi	di
gg	0	0	0
	1	0	0
	2	.9805636	.0021695
	3	.9568601	.0043001
	4	.9389829	.005623
	5	.9278779	.0063132
	6	.9216393	.0066454
	7	.9183415	.006799
	8	.9166682	.0068684
	9	.9158441	.0068993
	10	.9154474	.006913
fi	0	0	0
	1	.0998603	.9001397
	2	.1889663	.7181807
	3	.2084254	.6037154
	4	.2054389	.5410637
	5	.1990282	.5075244
	6	.194033	.4897719
	7	.190919	.4805255
	8	.1891698	.475805
	9	.1882468	.4734455
	10	.1877801	.4722897
di	0	0	0
	1	.0255028	.0125004
	2	.0197555	.0140207
	3	.0176074	.0147933
	4	.0167624	.0151665
	5	.0164168	.0153406
	6	.0162718	.0154199
	7	.01621	.0154555
	8	.0161835	.0154712
	9	.0161721	.0154782
	10	.0161671	.0154812

**Table A-9: Variance decompositions for developed countries**

Response variable and forecast horizon	Impulse variable		
	gg	fi	di
gg	0	0	0
1	0	0	0
2	.9549379	.0446983	.0003638
3	.9212106	.0696058	.0091836
4	.8922401	.0815237	.0262361
5	.8704014	.0871906	.0424079
6	.8555855	.0899565	.054458
7	.84614	.0913537	.0625063
8	.8403354	.0920831	.0675814
9	.8368483	.0924745	.0706771
10	.8347837	.0926889	.0725274
fi	0	0	0
1	.0417391	.9582609	0
2	.1166024	.7212497	.1621479
3	.128535	.6147974	.2566676
4	.1284705	.5621029	.3094266
5	.1266758	.5337515	.3395727
6	.1251134	.5178702	.3570163
7	.1240346	.5088071	.3671583
8	.1233482	.5035925	.3730593
9	.1229283	.5005826	.376489
10	.1226771	.4988441	.3784788
di	0	0	0
1	.0331326	.0022397	.9646277
2	.0276466	.0134446	.9589088
3	.0265723	.0196199	.9538078
4	.0265759	.0230626	.9503615
5	.0268012	.0250343	.9481645
6	.027015	.0261744	.9468106
7	.0271701	.0268349	.9459949
8	.0272718	.0272173	.9455109
9	.0273351	.0274383	.9452267
10	.0273733	.0275659	.9450608

**Table A-10: Variance decompositions for developing countries**

Response variable and Forecast horizon		Impulse variable		
		gg	fi	ddi
<b>gg</b>				
0	0	0	0	0
1	1	0	0	0
2		.9490337	2.36e-06	.050964
3		.9420353	.0071359	.0508288
4		.9340155	.0105286	.0554559
5		.9283857	.0163298	.0552845
6		.9242324	.0198769	.0558906
7		.9206871	.0236362	.0556768
8		.9179729	.0262977	.0557294
9		.9156778	.0287214	.0556008
10		.9138556	.0305746	.0555698
<b>fi</b>				
0	0	0	0	0
1		.0021117	.9978883	0
2		.0024863	.9619632	.0355505
3		.0034345	.969347	.0272184
4		.0046758	.9655374	.0297868
5		.0054289	.9670795	.0274915
6		.006053	.9662857	.0276613
7		.0064607	.9666752	.0268641
8		.0067817	.9664784	.0267398
9		.00701	.9665864	.0264037
10		.0071896	.9665346	.0262757
<b>ddi</b>				
0	0	0	0	0
1		.1305024	.048289	.8212087
2		.0968665	.0495728	.8535606
3		.0912459	.0523652	.8563889
4		.0882594	.051592	.8601486
5		.0873179	.052562	.8601201
6		.0869474	.0523466	.860706
7		.0867954	.0527075	.8604971
8		.0867438	.0526946	.8605616
9		.0867147	.052851	.8604343
10		.0867044	.0528859	.8604097

According to variance decompositions results, economic freedom index (fi) is stronger explanatory than political freedom index (di) for per capita GDP growth (gg) in all countries and developed countries models. Economic freedom index reaches its maximum at the fourth period in two models.

Political freedom seems more important for developing countries. Although di has more explanatory power on the changings in gg, its impact is not as high as fi's impact for developed countries. Economic freedom index is not economically significant for developing countries.

# 7 Institutional Change: A Theoretical Framework

*Julia Dobрева*

## **Abstract**

*The purpose of this paper is to outline the major theoretical framework which describes the complicated process of institutional change. The analysis identifies the role of institutions in terms of social and individual well-being and their basic function in building equitable societies. The methodology applied is a literature review. The results of the theoretical research propose that institutional change could be experienced through three major events: during times of adaptation of the economy to new political conditions (transition economies), in periods of financial and economic crisis, and upon participating in a process of economic and political integration.*

*Keywords: institutions, transitional economy, crisis, integration.*

## **1. Introduction**

The role of institutions has been widely discussed in terms of social and individual well-being. Their governing force is distinctive in the process of identifying and solving issues of national and global importance, mainly related to political stability and economic development. It is the primary function of institutions to eradicate problems of a broad scope and variety like poverty, unemployment, income distribution, gender equality, political stability, human rights, etc. The most outstanding function of modern day institutions, however, is to build equitable societies. According to Berg (2015) equitable societies with large middle classes are not

the natural outcome of market forces. Equity is created by society and by the institutions – the laws, policies and practices that govern the society, its economy and, in particular, its labour market. Hence, building just societies means designing institutions that support the creation of quality jobs with decent wages and working conditions, as well as enacting policies to support those who cannot work or who are unable to find work. Furthermore, Berg argues that the lack of, or erosion of certain institutions that govern the labour market has contributed to rising inequality in many countries across the world, jeopardizing individual as well as societal well-being. Thus, if a country wants to improve equity it will need to strengthen its labour market institutions.

Miklos (2013) regards institutions as merely the most effective instruments to carry out justice-based requirements, as they are instrumental in overcoming the shortcomings of moral agents in performing their duties. He differentiates two categories of institutions: political institutions and economic institutions:

- *Political institutions* - they possess the capacity to issue and interpret authoritative rules and decisions for persons within their jurisdiction. Owing to the coercive powers available to them, they can also enforce these rules and decisions. Authoritative settlement and enforcement take place through a public system of law which binds all law subjects and defines a unique set of rights and obligations for all subjects. Political institutions play a crucial role in the realization of principles of justice. They have an important role to play in filling out the content of justice by translating abstract principles of justice into specific rights and obligations for individuals by way of law-making and policy-making. Political institutions make the otherwise underdetermined principles of justice. They also regulate strategic interaction between large numbers of people whose actions might have an impact on the lives of numerous others. They are necessary for determining what individuals ought to do about justice even if fair distributive shares could be determined in the abstract. Political institutions can limit the scope of justice because of the role they play in its implementation. They delimit the application of principles of justice and therefore they condition the scope of distributive requirements. In the absence of global political institutions relevantly similar to nation-states, principles of justice may not apply to global distributive questions.
- *Economic institutions* – they play a constitutive role in determining the content of principles of justice by marking out a unique set of just distributive rules,

coordinating individual conduct and providing assurance in cases of disagreement about justice. They make the otherwise indeterminate requirements of justice sufficiently determinate by subjecting individual judgement to rules or directives. Economic institutions are indispensable for specifying the content of principles of distributive justice. Therefore, in the absence of existing institutions, principles of distributive justice might not be applicable, for the reason that these principles are not determinate enough for assessing alternative distributive shares and, even when they could do so, they are not determinate enough. We might not even be able to tell what equality itself – as distinct from other values – consists in without the operation of institutions.

The purpose of this paper is to outline the major theoretical framework, that describes the complicated process of institutional change. Firstly, the analysis identifies the role of institutions in terms of social and individual well-being and their basic function in building equitable societies. The methodology applied is a literature review of the main theories that tackle the difficult question of defining institutions. Different categories of institutions are introduced (formal and informal) that fall within two major groups - political and economic.

Furthermore, the paper identifies that institutional analysis has two main objectives: to analyze whether an existing institution serves some useful purpose and to determine if it is possible to design an institution so that the welfare of society in general can be improved, or through which the identified problems or inadequacies can be solved. In this context, certain questions are discussed like: why do we need institutions? what are these institutions? and what is the cost related to the operation and proper functioning of institutions?

Consequently, the answer to these questions leads to other significant observations with regard to the issue of institutional change. It is argued that there are certain cases when institutions are dysfunctional, they perform poorly or inadequately or the context in which they function imposes new requirements which need to be complied with. In such cases, institutions need to experience change and the level of their transformation depends on the severity of the problem experienced and the result which needs to be attained from this change.

The results of the theoretical research propose that such a change could be experienced through three major events: during times of adaptation of the economy to new political conditions (transition economies), in periods of financial and economic crisis, and upon participating in a process of economic and political integration.

## **2. What is an Institution?**

According to Santhakumar (2011) an institution can be a rule- formal or informal- or a norm, enforced by the state or other public agencies or communities. It can also include the internalized normative behavior of an individual. There are formal rules enforced by the state like ‘land cannot be leased out’, ‘narcotic drugs cannot be consumed or sold’, ‘anyone constructing a house in the city needs to get permission from the town planners’ etc. Also, there can be norms enforced by communities such as ‘marrying a person from other castes is unacceptable’. The prohibition on alcohol or restriction on inter-caste marriage can also be internalized by individuals and they follow it even when there is no explicit enforcement. Santhakumar posits that in our common usage we refer to a school, or college or a hospital as an institution and this may create some confusion. Hence, in order to avoid this confusion, it is better to address them as organizations because organizations evolve and function within certain rule or legal (and hence institutional) framework. Thus, organizations including firms (which produce/distribute goods and services) and individuals are actors functioning within institutions. For example - family and marriage - it is better to call family an organization and marriage the institution. Also, if we consider the case of a small bakery: a person can run a bakery by making most of the items (like breads and cakes) with his/her labour. He can outsource the production of bread to another person or the other option is to employ a person, make breads and sell it. When the latter option is chosen, an organization (in this case a firm) is evolving. If the choice of the latter form is due to that this makes our life easier, then the firm is an organizational solution of some problem (Santhakumar, 2011).

According to North (1990), “Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human inter-action. [...] they structure incentives in human exchange, whether political, social or economic” (North, 1990, p. 1). Institutions are the rules that regulate social interaction and establish the framework within which social life takes place.



Dobler (2011) argues that institutions can take different forms, ranging from an individual's attitudes and beliefs to the legal system of a state. For example, regulations might be imposed on the distribution of power, the legal foundation (which must judge misconduct), and land tenure or ownership rights. Furthermore, economic regulations, which clarify expected costs and returns, can be established. However, these constraints – called institutions – must be implemented by humans to regulate their interrelationships. Dobler further suggests that with institutions, people are able to assess others' behavior since an institution by definition is universal, and thereby all members of the observed population adhere to the rule. The risk that somebody violates the rule is reduced, because the violator is punished and must pay a cost for their misconduct. Therefore, institutions make human behavior predictable. That is to say, human interrelations follow a given pattern, which allows preceding calculations. This is true for both formal rules such as laws and informal codes of conduct. It follows that, because of institutions, humans are endowed with information on others' behavior and, therefore, transaction costs can be reduced. The institution – whether a formal rule or morals and norms – provides behavior guidelines, which help an individual choose their own actions and predict others' behaviors. Institutions reduce transaction costs and uncertainty by providing rules of conduct. Whether institutions are efficient cannot be easily stated and depends on the particular case and the applied theory. In fact, certain parts of the population can suffer from high transaction costs and uncertainty despite the implementation of institutions. Hence, institutions do not imply that all members of the observed population live a materially secure and satisfying life. However, to know about one's own and others' constraints opens up a clearly defined scope for action, even if the institutional environment is not efficient. Individuals can calculate their gains and losses resulting from specific behaviors. Hence, with distinct rules it is possible to determine whether an investment is worthwhile or not. Thus, the decisive property of institutions is that they set constraints on human behavior and so determine human action (Dobler, 2011).

Santhakumar (2011) claims that there are two situations when people think about institutions:

- *First is when there is an institution already existing.* We may be asking whether this existing institution is good or bad. This implies the possibility that certain institutions can be good. Or more specifically, the existence of such institutions is better for individuals and society in general, rather than their absence;

- *Second is when we are concerned about institutions.* These are situations marked by the absence of the ‘good’ institutions or cases when there are problems or inadequacies perceived in a given context (something is not fine). This is most commonly due to the absence of such ‘good’ institutions. In this case the question would be: Is it possible to design an appropriate institution in the given context, so that society in general is better off?

Therefore, institutional analysis has two main objectives:

1. *To analyze whether an existing institution serves some useful purpose.*
2. *To determine if it is possible to design an institution so that the welfare of society in general can be improved, or through which the identified problems or inadequacies of the context/situation can be solved?*

Hence, in order to bring a complete definition of an institution, Santhakumar (2011) argues that we need to pose several questions:

1. *Why do we need institutions?*

If we consider an example of a context where people act according to their wishes, or enter voluntarily into mutually beneficial exchanges, without the help of any institution (rule/norm) – e.g. people buying clothes/vegetables from a traveling salesman or employing a local artisan to repair agricultural implements or household equipment. It can be presumed that people gain from such transactions, otherwise they wouldn’t take the trouble to do so. It is reasonable to assume that people can assess whether they gain more or less, and thus they can evaluate the terms of the transaction as more or less desirable to themselves.

Such an ideal situation is realized often when people do mutually beneficial transactions or act on their own, without the direct intervention or help of any institutions but within a broad institutional framework facilitating reasonable law and order, and the protection of property rights. It may be noted that the institution of state-provided law and order is indirectly helping the transactions. Hence the law and order prevailing in a situation, which is enforced ultimately by the police and judicial system, helps this transaction.

## 2. What are these institutions?

These are formal or informal rules or norms which determine that people should act in a specific manner in certain contexts. There are two aspects to these institutions. First is the agency which imposes/enforces the rule, and second is the content of the rule/norm.

- *Formal rule* implies rules that are imposed by governments and formal legal system (of any level) and can be enforced using the governmental authority or coercive power.
- *Informal rules* are made and enforced by communities or groups of people having some common characteristic (those belonging to a village, caste, in a residential area, members of an association, those who are part of an occupational group, and so on). There can also be norms which are not enforced by others, but are considered by individuals as something worthwhile to follow.

For Santhakumar (2011) there are three generic categories of agencies: state, community (which include all non-state associations) and the individual himself/herself.

- *State or the government* - it has the coercive power sanctioned by the political process (which can be democratic or non-democratic). Also, the state has police, courts and administrative machinery to make and enforce rules. This may minimize the possibilities of free-riding as the state can impose behavior through its coercive power. There can also be some economy of scale in rule making and administration when these are carried out by the state. It can acquire superior information in this process. However, the state may have limitations in understanding the needs/demands of each individual (or small groups). The rule made by the state is likely to be inflexible (since it may take a lot of effort to change rules which are already made and are in place). Thus, the efficacy of the state may vary from context to context, depending on its inherent merits and disadvantages.
- *Communities* - though economics was initially skeptical of the possibility of coordinating individual actions through communities, there were changes in

this mindset. This was possible initially due to real life experience (documented by researchers like Elinor Ostrom) which demonstrated that there are several contexts in which community rules work reasonably well to solve the problem of market failure. However, theoretical developments in economics too explained the possibility of successful coordination in community or group interactions.

- *The individual itself*- he/she internalizes (which means “decides to follow”) a particular behavior in a certain context. There can be use of norms as a substitute for rational calculations at every moment of decision-making. Then there can be congruence of norm-based decisions and those of the rational decision-maker. However, there can be some norms which facilitates coordination to address (partially) problems of market failure. Such normative behavior has certain advantages. This makes the need for (and hence the cost of) external monitoring and enforcement somewhat unnecessary. There can also be some reduction in the information processing costs on the part of the decision- maker since he/she is simply following the norm, without thinking about the need for such norms in each and every context. However, the problem with the norm is that there may be situations when following the norm can be perceived to be very costly. Under such situations there can be a tendency to break the norm. Thus, there can be some unpredictability regarding the consistency of the normative behavior. Since the social context of norm-based behavior is sustained by the expectations (“I follow the norm as I believe that others are also following it”) any unpredictability or reduced expectation on the norm-based behavior on the part of some people may discourage even those who were planning to follow the norm.

### 3. *What are the costs related to institutions?*

There are three types of costs:

- *Direct costs*, which include those needed to make the rule;
- *Administrative costs* to make it work;
- *Enforcement costs* to see that people follow that rule and also to find out people who violate it, put them on trial, and finally to punish those who are proven guilty.

The direct costs of having an institution/rule are indeed substantial. Moreover, there are indirect costs. Certain level of human activities or transactions between people will be reduced in the presence of an institution. For example, when a tax is imposed on a polluting industrial firm, it is likely to reduce its production which may impose a cost on society, even when the reduction in pollution is beneficial to society. Thus, considering this cost is necessary to see how much is reduction in pollution, it is a desirable one. Therefore, the efficient institution is the one which imposes least direct and indirect costs on society. Thus, it is very possible that an institution which imposes less indirect costs on the economy may not be selected due to very high direct costs for making, administering and enforcing it. It is also very probable that under certain circumstances, the benefits of having an institution may be lesser than the costs.

In Dobler's view a clear definition of institutions is difficult to state. What is defined as an institution and what is excluded depends on the kind of analysis. Institutions are entities that cannot be precisely described with certain terms. Institutions are a concept that must be understood and internalized. Therefore, whether organizations are defined as institutions or not and whether culture is an institution or not depends on the object of study and the idea being followed. Any definition of an institution cannot be described as wrong. Every approach must be followed and discussed to find out whether it makes sense and whether further research should be conducted. Therefore, informal institutions might be described as culture, the social value system, credible beliefs, habits, worldview, and so on. As a minimum they describe the broad, underlying basis of society. They shape a society's mental model or its belief system, on which formal institutions might emerge (Dobler, 2011).

### **3. Institutional Change**

There are certain cases when institutions are dysfunctional, they perform poorly or inadequately or the context in which they function imposes new requirements which need to be complied with. In such cases, institutions need to experience change and the level of their transformation depends on the severity of the problem experienced and the result which needs to be attained from this change.

In certain studies, the relationship between macroeconomic performance and institutional change is explored in member countries of the Organization for Economic

Cooperation and Development /OECD/, with an assessment of the effects of national income growth, unemployment and inflation and the results prove that the countries' performance is positively related to institutional change towards more trade openness and better institutional quality. Hence, both increased openness and improved institutional quality are correlates of economic and institutional integration, while institutional change is captured by indicators of trade openness, civil liberties and the control of corruption (Welsch & Kuhling, 2016). Other studies connect the topic of innovation to institutional change, more precisely they explore how much innovation itself creates institutional change and whether institutional change can produce innovation (Hage, Meeus, & Edquist, 2006). They explore in depth what is being actually changed in terms of:

- how institutional environments influence organizational isomorphism within countries;
- how institutional environments influence both the founding of new kinds of organizations and the founding of radically new departments and divisions within existing organizations;
- how organizational characteristics influence the making of major discoveries.

Two major arguments of this study are: 1) the path-dependent nature of the institutional make-up of societies influences variably across societies in the rate of major discoveries; 2) the path-dependent structure and culture of individual research organizations influence which organizations are likely to have many, few, or no major discoveries.

Yet, the hardest process of institutional change happens in times of political transformation. Schmidt and Georgi (2007) argue that the institutional make-up of liberal democracy based on plurality, interest representation, civil society and consensus-building, provides the best context for economic performance—directly through the reduction of transaction costs and indirectly, via technology, through the reduction of transformation costs. They claim that real socialism was not conducive to sustainable economic performance in the long-run because the prevalence of hierarchies and the lack of transparency made it very difficult to achieve and maintain competitiveness in a globalized context and tended to perpetuate underdevelopment. In addition, there is a necessity to change the existing institutional structures so as to

approximate those of the West European prototype. Institutional development is, however, typically incremental and slow even though for accession, there are major changes which are expected to be introduced in a comparatively short period of time. In practice, this has often meant the 'letting die' of earlier institutional structures whilst in parallel establishing new ones. This approach has nevertheless been associated with high social costs. Thus, according to Schmidt and Georgi (2007) whatever way is chosen towards institutional development and institutional change, this will itself involve transformation costs.

#### **4. Institutional Change and the Transition Process**

Institutional transformation is the essence of transition. In principle, transition economies rely largely on individual incentives. However, according to Woo, Sachs and Parker (1998) the major problem arises from the fact that markets are very complex structures where most agents in advanced market economies are not individuals but institutions (corporations, unions, banks, pension funds, etc.), and markets themselves are various institutional arrangements. Therefore, the institutions work because they are tied to the existence of other institutions in the same environment, with the interconnections among these systems. Thus, to set the proper direction of transition countries development means not only to eliminate some of the most absurd distortions of the past regime, but also to foster the establishment of institutions of the future. Moreover, Woo, Sachs and Parker (1998) posit that institutions are not only interdependent, historically contingent but they are also intimately tied with the state. The state is not only a very powerful player; the boundaries between the state and the non-state actors are constantly contested, redrawn, and redefined. In advanced Western countries the share of state expenses in the gross national product has been reported to range between one-third and one-half (with a few states such as Sweden and Denmark, approaching 60 percent). Yet, this figure does not include the impact of state regulation on the reallocation of resources on the private market. The state in Eastern Europe has not only withdrawn, it's role has significantly shrunk and needs to enter into a new mode of interaction with a balance of power between state and non-state actors.

Tridico (2013) discerns three distinct phases of the transition process in former communist economies: (1) chaotic, (2) macro stabilization, and (3) consolidation. He stipulates that in the first and third phases in particular, the role of the institutions and of the state is crucial, while this was largely ignored during transition in many CEE

(Central and Eastern European) countries. This was largely due to the fact that capitalism is not only a different system of allocating resources but it brings with it a “new style of life” as well. During the transition there is interaction between formal institutions determined by the new system and informal institutions of the “Old Ethos”, which are essentially determined by behavior contingent on the past. It is the discrepancy between formal and informal rules that causes an increase in transaction costs and weakens the institutional framework, thus negatively affecting economic relations and economic performances. Hence, Tridico (2013) claims that institutions are not exogenously defined and unchangeable, rather they have a social nature and they evolve, slowly but continuously.

After the dissolution of the communist bloc in 1989, countries in Eastern and Central Europe began a transformation process towards market economy which significantly changed both the economic and institutional frameworks. Tridico (2013) posits that although in the CEE countries there are guarantees of private property, new banks, new economic and administrative organizations, and other formal institutions, exogenously imposed in a short time and by political decision, the behavioral rules have not completely changed. Informal economic institutions are far from completed because economic agents often continue to think in terms of a previous economic logic and inertia toward new behavioral models.

The main factors that hinder institutional development and hence economic growth are lobbies, the practice of corruption and the presence of free-riders. Tridico (2013) further asserts that old institutions may continue to function in the new system even if they are inefficient because current institutions are contingent on the past. Some prominent examples of the pressure and resistance on the institutional framework he provides are:

- Opposition to the change from retired people, bureaucrats, part of the former communist ruling class who are unwilling to accept the new rules of a market economy;
- Resistance of farmers and heavy-industry workers to formal change and restructuring of agriculture and heavy industry as a result of the need for harmonization with the Agriculture Common Policy and with the EU internal market rules;



- Significant increase in regional divergence between poor and rich regions and between big cities and villages or small towns. This divergence increased during the 1990s, and the dichotomy is between winners and losers in the transition process, where the losers of the transition try to resist the change.
- Cumbersome bureaucracy, which is not yet well adapted to the new formal institutions of a market economy. Bureaucrats and civil servants come from an old planned economy structure, and in most cases, they are not used to the new concerns of the market economy.

Hence, Tridico (2013) provides examples of problematic interaction between informal rules and the new formal ones, which need to be solved in order to enhance institutional development in transition economies. These are:

- Significant presence of a gray or black market opposed to a legal market, in many cases tolerated by governments;
- Uncertainty and instability of prices whose costs, in many cases, do not depend on competition and input costs but on special bargaining, relationships, bribing costs, social customs, habits, etc;
- Emergence of oligarchs, oil-and-resource-seeking groups, new and old bureaucrats, ruling classes able to rob the country, sell it abroad, and take advantage of institutional chaos;
- Tax evasion and illegal practices (bribing and corruption) in economic transactions by some groups and agents to avoid a lengthy bureaucratic process; to achieve their own aims more easily; to run more efficiently in the new economic contest, avoiding rules and processes not yet well known;
- An informal sphere of institutions negatively affecting economic relations, like illegal groups or entities providing easy credit;
- Lack of trust between foreign and local investors;
- Minimal use of banking and financial services.

One of the major outcomes of this never-ending conflict between formal and informal institutions and the dichotomy between old institutional environment and new institutional forms *is the realization that neither the accession to international organizations, such as the Organization for Economic Cooperation and Development*

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*(OECD) or NATO, nor membership in the European Union (EU) marks the end of the period.*

In this respect Tridico (2013) proposes that institutional change can be pushed ahead by four main drivers: *technology, change in the value structure (informal change), change in the formal sphere (constitutions and law), and sudden great transformation (such as revolution).*

According to Stephan (2006) in order to overcome the long-term ineffectiveness of institutions as a result of transition processes, it is necessary to identify the most effective means through which to activate these drivers. It has been widely considered that foreign direct investment (FDI) inflows have had a strong impact on growth and trade as well as on the development of institutions. FDI play a particularly important role for technological development if investment flows from higher developed economies to countries or regions with a lower level of technology and it has had a significant role in enterprise restructuring of transition countries in CEE. On the first place, they bring new technology and labor organization in the economy and thus help boost it up. On the other hand, if institutions are able to establish stability and certainty in economic relations, there will be more foreign investments with a positive effect on economic growth. Some studies (Buchanan, Le, & Rishi, 2012) provide evidence that institutional quality has a positive and significant effect on FDI.

In the following sections of this paper we propose that institutional change could be experienced in three major events: during times of adaptation of the economy to new political conditions (transition economies), in periods of financial and economic crisis, and in a process of economic and political integration.

## **5. Institutional Change in Times of Financial and Economic Crisis**

The state plays a significant role in the process of institutional change when it happens in times of financial and economic crisis. In some cases, it is essential and the only factor that strengthens and help institutions overcome the aftermath of such crisis. In other cases, however, it may be detrimental and lead to market inefficiencies as well as long-term economic downturns. Regardless of the prime effects and the outcomes, all patterns of financial and economic crisis bear one and the same, common characteristic

– they require substantial changes in the way institution operate and even in the way they are structured.

Institutional economics provides extensive analysis on the working of the financial markets and their systemic crises. According to Ulgen (2016) it asserts that behavior within a community is subject to social prescriptions or proscriptions, especially in the case of vital concerns to the stability of the community, behavior patterns evolve through the process of habit formation. Institutions contribute to framing society's major constituents, such as beliefs, markets, rules, etc. Yet, they are also shaped by individuals who try to protect their interests through the institutions they control. Ulgen (2016) claims that serious macro-regulatory frameworks must be developed in order to remove the domination of speculative finance over economic decision-making and activities. As financial regulation is part of the habituation process, it rests on predetermined rules and values that depend on social choices and objectives. Hence, the relevance of the regulatory framework with regard to systemic stability must be firmly and toughly assessed and protected against vested interests in order to prevent "regulatory deadlock and economy-wide gridlock" that often result in systemic crises.

Kose *et al.* (2007) postulate that financial globalization is often blamed for the string of damaging economic crises that rocked a number of emerging markets in the late 1980s in Latin America and in the 1990s in Mexico and also some Asian countries. The market turmoil and the bankruptcies that followed suggested that developing countries had dismantled capital controls too hastily, leaving themselves vulnerable to the harsh dictates of rapid capital movements and market herd effects. Some were openly critical of international institutions, which they saw as promoting capital account liberalization without stressing the necessity of building up the strong institutions needed to steer markets through bad times. In addition, various pieces of evidence are systematically sought to identify whether developing countries can benefit from financial globalization and whether financial globalization, in itself, leads to economic crises. Kose *et al.* (2007) propose that financial globalization appears to be neither a magic bullet to spur growth, nor an unmanageable risk.

Correa (2014) notes that for Latin American countries, the IMF described the 1980s as the "lost decade". These were years of major institutional changes that altered the following: the structure of employment and wages throughout the occupational pyramid; the fate of public spending, reduction in subsidies, social transfers, and public

investment; weakening of the bargaining power of labor organizations; reductions in domestic private investment in agricultural and industrial sectors; all paired with the creation of lucrative opportunities for foreign investment.

An interesting case is the Greek crisis, considered against the background of the global financial and economic crisis. Williams and Vorley (2015) posit that, given that the institutional environment is crucially important for entrepreneurship, through institutional change policy-makers may be able to respond positively to crisis. However, in order for responses to be effective, it requires understanding of the interaction of formal and informal institutions. They claim that formal institutions can be changed but will not always positively impact entrepreneurship unless informal institutions also change. In addition, weak informal institutions can serve to undermine formal institutional change. According to the authors of the research, Greece has been severely affected by the crisis, leading to both endogenous and exogenous institutional change. These changes have led to formal and informal institutional change which will influence the competitiveness of the Greek economy in the longer term. The results of the study show that Greece's institutional environment was weak prior to, and has worsened as a result of, the crisis. Furthermore, Williams and Vorley (2015) claim that negative changes to formal institutions brought about by the impact of the crisis will have a consequent and congruent negative impact on informal institutions, as the entrepreneurial culture weakens in response to changes in rules and regulations. It is only by reversing the trend of weak institutions that Greece can properly emerge as a competitive country in the longer term.

The role of the state has been widely discussed with regard to other severe financial crisis like the 1997 Asia crisis and the 2008 global financial crisis. A study carried out by Gomez (2014) on the impacts of the crisis in Korea, Malaysia and Thailand discusses the state-business nexus and the prevalence of state intervention in the financial sector. In Malaysia, for example, the consolidation of the financial sector, ostensibly as a response to the 1997 crisis, served as an opportunity for political elites to secure ownership and control over this crucial segment of the economy. As Gomez (2014) notes a major feud eventually erupted among elites over control of key banks. One consequence of this consolidation exercise was a serious loss of confidence by domestic investors in the state, leading to a considerable decline in their investments.

## 6. Institutional Change and the Integration Process

Integration to a certain economic and political community requires a number of institutional changes to be introduced in the acceding countries. The process is mainly related to conforming to a set of regulatory requirements, related to formal institutions, but it also requires changes in the informal institutions such as civil rights movements, cultural specificities, religious tolerance, habits, etc.

According to Bruszt and Lundstedt (2016) the eastward enlargement of the European Union (EU) represents one of the greatest social and economic transformations in modern times". They claim that in order to become a member of the EU a country must transpose and implement over 80,000 pages of legislation in more than 30 policy fields. Through this institutional change, the EU aims to bring a candidate country's economic and political system in line with other EU member states. The change extends both to general areas of the state, such as the judiciary and the state bureaucracy, and also to several dozens of regulatory fields. An obstacle to the deeper study of the factors that could explain the outcomes and the effects of such a large-scale institutional change has been the lack of comprehensive data on the reforms connected to the enlargement. In order to overcome this problem, Bruszt and Lundstedt (2016) have created a unique dataset that relies on the yearly progress reports published by the Commission. Their database quantifies the candidate countries' progress to fulfill EU requirements in 16 different policy fields covering all the key areas of EU-mandated institutional transformation within the economy and the state. The institutional areas, covered in their research are:

### 1. Progress in general state capacities

- *Judiciary* - capacities to maintain the rule of law, uphold basic economic and political freedoms, and prevent the corruption of the state;
- *Public Administration* - the development of an impartial, trustworthy and efficient public bureaucracy. The requirements for such administrative state capacities include civil service reforms in conformity with EU rules and well-staffed, budgeted state bureaucracies with civil servants selected and promoted on a depoliticized and meritocratic basis.

## 2. *Establishing a domestic market order*

- *Competition* - EU-conform regulations of anti-trust, merger and state aid;
- *Public Procurement* - EU-conform measures for public procurement, aimed at preventing, among other things, the misuse of power asymmetries and discrimination of non-domestic actors.

## 3. *State capacities linked to defending the integrity of the Single European Market*

Member states and aspiring members were obliged to build up encompassing domestic institutional capacities to monitor domestic state and non-state actors in the economy and prevent them from discriminatory practices that could constrain the free movement of goods, capital and services. This required the creation of state units that could act as local guardians of the EU within the nation states.

- *Free movement of capital* - requirements focused on setting up new legal and administrative infrastructure in all areas where previous practices or sectorial policies relied on capital movement restrictions.
- *Free movement of goods* - mandatory EU measures included the creation of autonomous institutions for standardization, accreditation, conformity assessment, metrology and market surveillance.
- *Free movement of services* - Aspiring member states were obliged to build up the administrative capacity to continuously screen administrative or legal rules existing or under preparation as to their compatibility with market freedoms as interpreted by the European Court of Justice.

## 4. *General economic criteria for membership*

*Functioning market economy* - this area includes the elements of the so-called Washington consensus, such as privatization, liberalization of prices, and trade and economic stabilization, but it also contains institutional requirements for the functioning of the financial market, the functioning of the judiciary, and the key institution of the market-preserving state.

The capacity to cope with competitive pressure and market forces within the Union:

- The existence of a functioning market economy, with a sufficient degree of macroeconomic stability for economic agents to make decisions in a climate of stability and predictability;
- A sufficient amount, at appropriate costs, of human and physical capital, including infrastructure, education and research, and future developments in this field;
- The extent to which government policy and legislation influence competitiveness through trade policy, competition policy, state aids, support for small and medium-sized enterprises (SMEs);
- The degree and pace of trade integration a country achieves before enlargement; and
- The proportion of small firms.

#### 5. *Specific policy areas*

- *Monetary policy* - the acquis that is related to economic and monetary policy requires accession countries to set up an independent central bank.
- *Energy policy* - the energy policy chapter requires the transposition of the energy acquis, the establishment of competent authorities with the responsibility to monitor the application of the acquis and also abolishment subsidies and other price-fixing instruments.

In addition, a number of sub-sectors have also been identified:

- *Security of supply* - the establishment of a crisis body to coordinate crisis measures at the national level; in addition, a stockholding body or entity to maintain and manage the compulsory stock of oil.
- *Energy efficiency* - the establishment of enforcement agencies to uphold directives on energy labelling and minimum efficiency standards and a body with the aim to promote energy efficiency and renewable energy.
- *Nuclear safety* - the establishment of a nuclear regulatory authority, possessing the adequate resources and powers to grant licenses and regulate the location, design, construction, commissioning, operation or decommissioning of nuclear installations.

- *Environmental Regulations* - horizontal measures consist of two dimensions: organizations and resources. In this field, the supervisory authority has the overall responsibility for the implementation of EU law. In addition, a number of sub-sectors are included: air quality, waste management, water quality, nature protection, industrial pollution control and risk management, chemicals and GMO, and noise.
- *Enterprise and industry* - the enterprise and industry dimension refers to taxation and other administrative barriers for businesses and investors.
- *Employment and social affairs* - employment and social affairs measures progress in the following three dimensions:
  - *Labor law*, which regulates the insolvency directive and the posting of workers' directive; it requires the establishment of an independent guarantee institution for workers in case of their employer's insolvency.
  - *Health and safety at work* - the acquis requires the establishment of enforcement agencies with the competencies needed to ensure control and the information leading to improve working conditions, services for health and hygiene, first aid, fire prevention, training, promotion and research.
  - *Anti-discrimination and equality at work* - the establishment of a body responsible for the equal treatment of all persons without discrimination on the grounds of sex, race, etc.
- *Food safety, veterinary and phytosanitary policy* - veterinary and phytosanitary policies aim to facilitate internal and external trade in the veterinary, plant health and animal nutrition sectors, and to safeguard public and animal health as well as animal welfare and meet consumer expectations.

## 7. Conclusion

The purpose of the paper was to outline the major theoretical framework, that describes the complicated process of institutional change. The analysis identified the role of institutions in terms of social and individual well-being and their basic function in building equitable societies. A literature review was done on the main theories that explore the difficult question of defining institutions. The paper also identified that institutional analysis has two main objectives: to analyze whether an existing institution serves some useful purpose and to determine if it is possible to design an institution so



that the welfare of society in general can be improved, or through which the identified problems or inadequacies can be solved.

The results of the research led to the proposition that such a change could be experienced through three major events: during times of adaptation of the economy to new political conditions (transition economies), in periods of financial and economic crisis, and upon participating in a process of economic and political integration. A literature review was also done in each of these three dimensions of institutional change.

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# 8 A Job Creating Growth Model for Turkey (A Comparative Analysis of Turkey and Mexico)

*Başak Ergüder*

## **Abstract**

*This study analyzes the economic growth in Turkey and Mexico as successful post-crisis cases of sustained economic growth strategy. The study focuses on the economic growth of Turkey, compared with Mexico's in the post-crisis period. The construction-based economic growth strategy is an economic growth model applied in Turkey in the post-crisis era. The study seeks an answer to the question of whether construction-based economic growth will provide an economic development that generates employment in Turkey in the near future. Here, the relationship between employment and economic growth will be examined in regard to the growth dynamics of the construction sector in the post-crisis era. The growth dynamics of the construction sector will be analyzed according to the data gathered from TurkStat (Turkish Statistical Institute). GDP per hours worked, construction hours worked, construction sector gross wages-salaries for Turkey will be analyzed in terms of capital accumulation and productivity growth in the country.*

**Keywords:** *Turkey, Mexico, construction-based economic growth strategy, debt-led strategies of development, post-crisis era.*

## 1. Introduction: Framework of Financialization Analysis

Since 2008-09 it has been mainly analyzed the countries which are presented as successful post-crisis cum new developmentalist cases of sustained economic growth. Mexico and Turkey are considered the part of this developmentalist cases of sustained economic growth which are also enjoying rapid economic recovery. The capital accumulation and state authorities in Mexico and Turkey configured each state's economic growth strategy (Munoz-Martinez & Marois, 2014, p. 1103).

It is possible to refer to a process of debt privatization in Turkey in the recent years, a period following a course similar to the developments around the world. The proliferation of debt especially outside of the public sector in accordance with the financial discipline target, which has been one of the main targets of the recent public financial policies, has had an impact on the spatial distribution of financial capital (Ergüder, 2016b, p. 27). The state is now evolving into a competitive state model controlling the movements of financial capital in the financialization process through its public financial policies. As distinct from the social welfare state model, it is now the economic policies based on economic competition that are dominant in a re-scaled competitive state regime. New economic policies lead to de-industrialization in the urban space, mass unemployment, widespread use of unskilled labour, decrease of tax income, degradation of public infrastructure, and socio-spatial inequalities aside from economic instability (Brenner, 2004, p. 206). *Construction-based Economic Growth Strategy* has been an economic growth model for Turkey's dependency on low-labour productivity of housing sector in the post-2008 period. In the framework of this study, the question of whether an economic growth strategy based on housing sector provides sustainable economic development in Turkey will be discussed in comparison with Mexico, in terms of the labour productivity of construction sector. Here we discuss the relationship between employment and economic growth regarding economic indicators such as GDP growth rate, labour force status labour index, construction hours worked index and construction gross wages-salaries index, all showing the labour productivity in Turkey in post-crisis era.

Financialization was related with a strong continuous growth of financial assets in the form of bonds, dividends and currencies, and an explosion of derivatives in the mid-2000s. Household indebtedness increased dramatically in parallel with deepening

financialization of the world economy. Democratization of debt provided financial inclusion for housing affordability for low-income groups around the world. The commodification of financial risks increased emphatically, thus causing financial crisis in the world economy. The US banks started giving mortgage credits to the low-income groups bearing high risks over the period of 2001-2007 (Lapavistas, 2013). In the post-2008 period, state intervention to the needs of finance capital due to the financial indication was put on the agenda.

According to Epstein (2005), financialization and the fragile asset prices resulting from short-term debt created by speculative and excessive liquid finance movements lead to the unjust distribution of resources and instability in economic growth (Kotz, 2009, p. 312). There is an increase in the income, profit, and prices of the sector throughout the process which can be summarized as the rise of the financial sector. Increasing financial costs and the appearance of rents originate from financial deregulation, and rents shared by high-income segments lead to unjust income distribution. Capital funds and the rent financialization creates by raising interests in the financial area slow down the capital accumulation rate in the Keynesian analysis (Lapavistas, 2013, p. 45). What is at stake is the transformation of financial assets, especially that of debt, into commercial assets as well as the rise of financial markets with the process of increasing commercialization (Godechot, 2015, p. 3). The ratio of the financial assets to the GDP in the world economy, which was 109% in 1980, rose up to 346% in 2006. This ratio rose from 6% in 1995 to 14% in 2006 in developing countries (Lapavistas, 2013, p. 201). The increase of financial assets in developing countries results from the increase of debt throughout the 2000s. The share of financial institutions in developing countries in domestic debt, which was 57,2% in 2000, rose up to 80% in 2005 (Lapavistas, 2013, p. 204). The share of financial institutions in developing countries in domestic debt, which was 57. 2% in 2000, rose up to 80% in 2005.

Three major trends are apparent in developing countries. The first is that developing countries' situation of external debt has improved. Second, the level of debt held by private capital doubled between 2005 and 2010, while that held by public entities increased at modest rate of 8%. The increase in debt by banks and funds was accompanied by a parallel increase of similar magnitude in short-term as opposed to long-term debt (Chesnais, 2016, p. 188). Developed countries find the opportunity to manage financial crises through the increasing power of international capital and financial institutions and the use of the USD as a means of debt help throughout the

financialization process (Painceira, 2012, p. 201). The excess supply demand in the post-1970 period was due to the state's opting for debiting corporations and households through cheap credits guaranteed by the state instead of direct intervention, as well as steps taken to solve the problem by transforming public debt into private debt. In this way, corporations and households were once again pulled into economic activity through state intervention, and the debiting of households tended toward the increase in the demand for investment goods compensating for the decrease in the demand for consumption goods (Bedirhanoglu, 2010, pp. 49-50). In the 2007-2009 financial crisis period, the increase of the current deficit in the US is up to 6% of the GDP resulted in currency depreciation in the developing countries that kept their reserves in the form of USD and in the reserve accumulation's increasing the cost, this cost reached 1% of the GDP in various measurements and resulted in the increase of short-term debt (Painceira, 2012, p. 213). The financialization of non-financial corporations encourages these corporations by lowering their payments in terms of finding external sources in the financial markets and leads them to act as financial market actors (Fine, 2010, p. 15).

The securitization of the household savings, privatization of social services, and the increase in household debt result in the individuals' appealing to the debt process in order to elevate their life standards. The household debt in the 2008 Crisis became the dynamics of financialization, and this process was termed as the financialization of the household (Godechot, 2015, p. 5). The participation of the low-income groups who find it difficult to finance the basic consumption expenditures in the debt process is termed as the "democratization of debt". In 2000s, household was what was pointed out to financial markets due to increasing house credit demand. In the age of financialization, finance of market-based construction sector has spread like wildfire due to the de-regulation of the financial system. Mortgage markets' size to GDP ratio reached up to %40 in developed countries, and %10 in developing countries. Such large stocks of household credit do not just depress income growth, they also increase financial fragility and a large number of recent cross-country studies report that the expansion of household credit is positively related to crisis probability (Bezemer & Hudson, 2016, p. 756).

Throughout the 1990s, the liberal regime based on private capital movements in the world economy was at a much lower level than that of the growth achieved in the

“welfare state” period in the post-WWII. When the two periods are compared, it becomes apparent that the increase in efficiency is quite lower in the neoliberal period than in the welfare state period, which is highly thought-provoking when the data of increasing unemployment rates, which rose from nine million in 1970 to 35 million in the 1990s in the OECD countries, is considered (Singh, 2007, p. 274). From 1990s, the competitive state tends towards its goal of economic competition by renouncing the priorities of traditional welfare state such as fair redistribution of income. The rescaled competitive state as a regime has a structure which is rather hierarchical and fragmented in institutional and geographical terms, which renders instability sustainable, than a totally consolidated one (Brenner, 2004, p. 260). While the Central Bank had been taking precautions against crises by providing short-term liquid since the 19<sup>th</sup> century, the Central Bank’s ultimate lending authority has helped the prevention of bankruptcy in the banking sector in the face of financial crises in the 21<sup>st</sup> century. The transformation of short-term debt into long-term assets for banks; the process of debt commercialization; keeping the debt costs low through the guarantee of the Central Bank; the allocation of numerous public funds to the rescue of banks and financial institutions that verge on bankruptcy in crisis periods; and the functioning of reserves as insurance are the leading mile stones of an economic policy which is harmonious with the understanding of the competitive state regime of the new era (Lapavistas, 2013, p. 314).

## **2. Economic Policy in Turkey and Mexico in the Post Crisis Era**

State financial institutions, including the central bank and a number of state-owned banks, played strategic supportive roles in managing financialization process in Mexico and Turkey (Munoz-Martinez & Marois, 2014, p. 1105). The interconnections between neoliberal transformation, financialization, and corporate welfare since the 1990s are evident in Mexico and Turkey which protected powerful capitalist interests through liberalization and bank privatization and increased their participation in international financial markets throughout the 1990s in Mexico and early 2000s in Turkey (Marois & Munoz- Martinez, 2016, p. 170). The centralisation of capital at home gave rise to the internationalisation of capital among Mexico’s and Turkey’s largest holding groups, especially following Mexico’s 1994 and Turkey’s 2001 crises, as they sought accumulation opportunities abroad. The governments of Turkey and Mexico continue with their increasingly debt-led strategies of development and enable large domestic firms and holding groups to move more wealth into speculative and risky

financial activities. The centralisation and concentration of capital within the holding groups as they extended ownership and control over larger portions of their economies with monetary support from new foreign financing and joint partnerships (Munoz-Martinez & Marois, 2014, p. 1106).

The varied reactions of capital to the 2008 Crisis seemingly yielded positive results, as improved economic indicators in Mexico and Turkey. In Mexico and Turkey GDP rose up by 2010 and 2011, with Turkey outpacing Mexico. GDP decreased from 4.7% to 2012 to 2016 to 3.1% in Turkey while GDP decreased from 3.8% from 2012 to 2016 to 3.4% in Mexico (OECD, 2017). The Mexican Stock Exchange rose 12.4% by 2010. The Istanbul Stock Exchange 100 Index reached an all-time high with returns jumping 21% in US dollar terms. Mexican and Turkish bank profits ranked near the top of the G20, with Mexico's banks hitting 16.8% in 2010 and 15.5% in 2011 and Turkey's banks outperforming them at 23.9% in 2010 and 18.9% in 2011 (Munoz-Martinez & Marois, 2014, p. 1111). Turkey had already completed its banking reform in the early 2000s, therefore the banks were in 'relatively good health' during the 2008 crisis (Oğuz, 2013, p. 205). Inflation fell in both countries in the post-crisis period. Mexican and Turkish state authorities unrolled limited stimulus packages after 2008 crisis. In Mexico, the stimulus was launched in late 2008 and mostly promoted investment infrastructure and expanded access to credit for the construction sector as well as for private and public mortgage. In Mexico, the fiscal balance rised up to an average surplus of 1.32% of GDP between 2010 and 2014, excluding the payment of debt interests and investment in the publicly owned oil company *Pemex*. Fiscal balances were achieved through the increase of non-oil revenues, particularly the VAT and the use of oil derivatives and the VAT revenues increased from 3.4 % of GDP in 2009 to 3.9 in 2014. Oil trade, the leader sector of economy in Mexico has been supported by state after 2008 crisis. Through oil derivatives, the Ministry of Finance was able to exercise the option to sell oil at a higher price than the one offered in the spot market, particularly in the context of declining (Munoz- Martinez & Marois, 2014, p. 1111-1114). The economic growth in Mexico has been mainly based on one sector, the oil trade.

In Turkey, the Treasury reported surpluses of 0.6, 1.8, 0.8, and 1.0 % of GDP from 2010 to 2013. Turkish Treasury gained revenues from selling-off of public lands to corporate developers, savings on expected debt interest payments, interest revenues



from the Unemployment Insurance Fund's capital base (PDMR, 2009). In Turkey, economic measure programs are substantial in terms of incentives. Some of them are the decreasing of VAT collected due to the housing sale in the Real Sector program from 18 % to 8 % for three months, discount in the Special Consumption Tax collected from the vehicles for three months, making the night tariff used in industry widespread, discount in Special Consumption Tax enforced for the white appliances for 3 months (Ergüder, 2016a, p. 27). As austerity led to fiscal savings, the accumulation of foreign reserves increased by 62% in Mexico and by 57% in Turkey between 2010 and 2014 (Marois & Munoz-Martinez, 2016, p.173). In Mexico, the difference between minimum wages in 2010 and 2014 was only 1.01 % and food prices have risen an average of 3.85% over the period of 2010-2014. Workers' wages decreased from 1.2 % from 2003 to 2008 to 5.9 % as a share of companies' operations costs in Mexico. The central bank has recognized that stagnant wages have facilitated the management of inflationary pressures coming from global financial volatility (Marois & Munoz-Martinez, 2016, p. 177). While the new economic policy approach for labour markets focuses on market access and flexibility for mitigating the risks workers face, the result of this policy means decreasing wages in developing countries such as Mexico and Turkey.

Unemployment rate decreased from 11.1% from 2010 to 2016 to 10.9% in Turkey while it decreased from 5.3% from 2010 to 2016 to 3.9% in Mexico. Labour productivity has increased by about 14% over the period of 2010-2016 while it increased by about 41% in Mexico (OECD, 2017). The real minimum wage increased by about 10% over the period of 2010-2016 in Turkey. Minimum wages annual increases in 2013 and 2014 were 1.85 and 1.29%, and food prices rose up to 9.1% and 12.6% in the same period. State authorities attempted to solve the problems arising from low wages, deteriorating labour conditions and low levels of global aggregate demand by spurring domestic demand through consumer debt in Turkey and Mexico. Between 2010 and 2014 household outstanding loans to commercial banks increased 67% in Mexico and 103 % in Turkey and consumer credit rose up to 19.7% in 2011. Foreign and domestic banks in Mexico, however, benefited from the changes in financial regulations as they facilitate creditors' capacity to recover loan collateral and, by extension, reduce the banks' financial risks (Marois & Munoz-Martinez, 2016, p. 177). In Turkey, consumer debt has increased in post-crisis period. Consumer loans and credit card debt exploded from 1.8% in 2002 to 12 % in 2009 to 18.7% as a percentage of GDP in 2012 (Karacimen, 2014, p. 163). The size of the increase,

however, was seen as constituting new substantial risks. For that reason, Turkey's Banking Regulation and Supervision Agency sought to re-regulate the credit market in ways that did not stifle credits while balancing the need to mitigate default risks. Consumer loan growth slowed in 2013-2014, but still accounted for around 30 % of total bank loans. (Marois & Munoz-Martinez, 2016, p. 178). Monetarism and corporate welfarism led to the contraction of public provisioning, denigration of the public sphere and services, and neoliberal attacks on workers' rights that have forced labour to become more reliant on debt in order to meet subsistence needs. This was the starting point of the expansion of debtfarism in both Mexico and Turkey. Through debtfare's neoliberal policies, consumer credit replaced wages and social programs, thus allowing the unemployed and underemployed to be socially reproduced while also being subjected to market discipline (Marois & Munoz- Martinez, 2016, p. 171).

Mexican state authorities followed an orthodox approach to economic policy and locked in the role of labour as an anchor of economic stability through legal and constitutional changes. This was the outcome of an increasing interest convergence among the capitalist class dominated by large corporations around the economic agenda of Mexican state. Turkish state authorities approached post-crisis recovery in more unconventional ways and passed the costs of financialization onto workers in a less coordinated manner. Turkish state still actively mediated conflicting interests within the capitalist class, particularly between large corporations, international investors, and micro-small and medium-size enterprises (MSMSE), but in a more heterodox approach to neoliberal deepening (Marois & Munoz-Martinez, 2016, p. 172).

### **3. Construction-Based Economic Growth Model in Turkey**

With the real estate sectors assuming pivotal roles in economy as growth engines, construction-based economic growth model strategy has become dependent on the financialization process during the age of financialization in Turkey. State interventions in the construction sector is on the agenda of the construction-based economic growth model strategy in the country. The economic growth model strategy is in accordance with the debt privatization process and real estate securitization on the construction sector in the 2000s. The financialization process has been regulated by legal arrangements and taxes on the financial markets and housing sector with regards to the re-building of the state in Turkey. The new function of the state has been to break the

flow of asymmetric information in the market against international competition and to provide information so as to protect local firms, real estate partnerships and banks.

Within embedded autonomy, it is the state's changing the mechanisms concerning the socialization of the entrepreneurs' risks that plays a role in the asymmetrical relationship between the state and the capital throughout the financialization process in Turkey. One of these mechanisms is the realization of resource transfer to the private sector through financing based on public debt, and another is the establishment of a mechanism favoring anonymous corporations through a change in tax policies (Bedirhanoglu & Yalman, 2010). One of the most significant results of Turkey's 35 years of experience with neoliberal policies is that the growth rates in these periods are lower in comparison to other periods. Throughout this period witnessing high current deficit and foreign debt, the foreign debt ratio in the GDP rose from 41% in the 2003-2008 period to 43% in the 2008-2014 period. Besides the private sector debt increased more rapidly than the public sector debt within the debt ratio. Another development drawing attention in terms of the debt phenomenon is the increase observed in household debt. According to the results of the empirical studies conducted by Bahçe and Köse (2016), debt reaches down to the segments that have been dispossessed throughout the development process of liberalism together with the dissolution in the agricultural sector as well as migration, a series of segments comprising the lowest-income groups of the urban society. In light of the disruption of the income-expenditure balance, Turkey is now being ranked among the "negative saving" regions, as the tremendous fall in the household savings and the overall debt process are proliferating throughout the whole society. Accompanying the fall in the household savings, debt is becoming a necessity for low-income groups in meeting basic needs as long as thus is done with the goal of necessary consumption (Bahçe & Köse, 2016, p. 69). New homebuyers are obliged to take on lifetime debt with the rise of the asset prices, and this democratization of debt lead to the emergence of a "necessary Debtor's class" (Hudson, 2010, p. 4) that extends from the middle class to the working class.

The transmission of the financing of the public deficit from the Central Bank to commercial banks which tended towards the domestic debt securities of the state that are devoid of tax liability and that yield risk-free high revenues as a safe investment tool in the mid-1980s, has prompted the start of the financialization process. The financial instability related results of the process of increasing debt throughout the financialization period in Turkey need to be critically investigated. In Turkey, public

debt kept developing as a process dominated by foreign capital throughout the 2000s. The ratio of equities held by foreigners to the total number of equities in Borsa Istanbul rose from 43% in 2001 to 62% in 2011 (Karaçimen, 2015, p. 205).

In Turkey, construction-based economic growth, as a growth strategy has been an economic growth model in the post- crisis period. The re-structuring of the construction sector has been under direct state interventions in the financialization process. The growth rate of construction in developing countries is lower than that of developed countries. This seems to accord with construction's changing importance during development with the following characterization of a three-stage development process:1) During early stages, construction is largely by expatriate firms using a reasonably high level of technology and thus rather capital-intensive; 2) as growth progress and local industry develops, so do the intermediate technologies of a more labour-intensive nature; and 3) as a relatively high level of development is achieved and labour becomes more expensive, local technology likely becomes capital-intensive (Moavenzadeh & Rossow, 1975, p. 18).

**Table 1. Economic Indicators of the Construction Sector in Turkey (2009-2015)**

Construction	Gross value added	Payments paid to employees	Taxes on Production	Gross operating Surplus/Mix Income/ Gross
2009	56 156 969	17 482 600	474 881	38 199 488
2010	70 701 311	21 472 229	907 208	48 321 874
2011	100 016 363	26 450 078	867 078	72 699 208
2012	117 433 142	30 121 344	1 239 553	86 072 244
2013	145 908 413	35 511 219	1 537 429	108 859 764
2014	165 654 620	40 737 023	1 627 159	123 290 438
2015	190 614 219	47 625 632	1 712 280	141 276 307

Source: TURKSTAT, "Gross domestic product at current prices by kind of economic activity (A21), income approach, 2009-2015 (\*)", Retrieved from <http://www.tuik.org.tr>, (04.05. 2017).

There are two principal ways of calculating real GDP growth rates. According to the first method, economic growth originates from production factors accumulation of whose outcome refers to productivity level and points out that economic growth is related to productivity and increasing added-value. It can be seen that sectors with high-labour productivity have high growth capacities and labour productivity thanks to the innovation in production process and capital accumulation, a fact that can be understood by referring to the GDP per hour worked index (Altıok & Tuncer, 2013, p. 58). Finally, it can be observed that a high-productivity sector is a key feature of sustainable economic growth for all countries for this approach.

As a country in the middle stage (stage of two), Turkey's development has progressed to the point where construction is probably by local firms using intermediate technologies of a more labour-intensive nature with local materials produced by the locally developing building materials industries. The result is high-value added (Moavenzadeh & Rossow, 1975:23). The construction sector indicators of post-2008 period shows that gross value added, payments paid to employees, taxes on production and gross operating surplus have risen significantly over the period of 2009-2015. Gross value-added in construction sector which was 56156969 in 2009 rose up to 190614219 in 2015, it rose by approximately 3.4 fold of the value compared with that of 2009. Payments paid to employees which was 17482600 in 2009 rose up to 47625632 in 2015 which was approximately 3.6 fold compared with that of 2009. Taxes on production which was 474881 in 2009, rose up to 172280 in 2015, the raise was approximately 0.5 fold compared with that of 2009. Gross operating surplus which was 38199488 in 2009, rose up to 141276307 in 2015, it rose by approximately 3.7 fold compared with that of 2009 (Table 1). In view of the taxes on construction production, gross wage-salaries index shows that the state power in the construction sector has been growing due to taxes imposed on employment in construction sector in the-post crisis period. In the construction sector, net wage has not increased, the payments paid to the state, such as the social security payments and employment taxes has been increased. When construction sector has been a growing trend due to technological change, innovation in the developed countries, the economic growth of the construction sector has continued with the high gains received thanks to low wages and payments in developing countries such as Turkey.

Table 2. Construction Sector Employment Indexes in Turkey (2005-2012)

Years	Employment Index (2005=100)	Gross Wage-Salaries Index (2005=100)	Hours Worked (2005=100)
2005	100	100	100
2006	115.3	128.4	115.3
2007	115.7	140.9	116.8
2008	109.4	154.7	109.2
2009	88.1	144.8	88.9
2010	90.4	164.7	90.3
2011	92.8	187.4	91.8
2012	94.2	217	92.4
2013	101.1	150.6	98.2
2014	86.1	150.7	84.0
2015	79.5	160.0	76.5
2016	75.3	174.7	68.3

Source: TURKSTAT (2016), "Construction Employment Index" and "Construction Gross Wage-Salaries Index", <http://www.tuik.gov.tr> TURSTAT, Paper 21758, November 2016: <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=21758>, TURKSTAT News Bulletin, vol. 13642 December 2013, <http://www.tuik.gov.tr/OncekiHBARama.do>, TURSTAT News Bulletin vol. 16047, 11.28.2014, TURKSTAT News Bulletin, vol. 21755 retrieved on 12.02.2017.

It can be noticed that there is a strong employment growth in the construction sector in terms of the indices such as the construction sector per capita working hour and the construction sector employment. Over the period of 2010-2016, calendar adjusted construction sector employment index decreased by 15.1% and calendar adjusted construction hours worked index decreased by 22%. Moreover, adjusted construction sector gross wages-salaries index rose by 10% in 2016 compared with that of 2010. Gross wage-salaries index increased, except in 2009, i.e. the post-crisis year. The index again rapidly increased over the period of 2010-2012, and it was at the top point in 2012. However, in the period over 2013-2016, it has continued to increase lower than the ratio in 2012 (Table 2). It is obvious that it is necessary to analyze working hour per capita and GDP per hour worked to measure productivity growth for construction sector. Working hour per capita index in the construction sector increased in the post-2008 period and decreased after 2013 (Table 2). GDP per hour worked index shows

the relationship between economic growth and labour productivity. GDP per hour worked index was 103.1% in Turkey and 102.7% in other OECD countries. On the other hand, the increase in the GDP per hour worked index in Turkey has been higher than that of other OECD countries, with the exception of Italy (OECD, 2016). In the post-2008 period, working hours in the construction sector decreased from 88.9% in 2009 to 68.3% in 2016. The construction sector employment index decreased from 115.7% in 2009 to 75.3% in 2016. It can be seen, however, that employment decreased 4.1% and hours worked index decreased by 8.2% in comparison to the previous year (Table 2). Besides, labour productivity in Turkey has been higher than OECD countries.

Overall, it can be observed that there is a positive relationship between job security and housing credits at the aggregate level with regard to the results of the empirical analysis using yearly data for 23 countries from 1990 to 2013.

*“While ratio of involuntary part-time workers to labour force is a negative indicator for employment security, higher union density means higher job safety. Thus, the positive relationship validates our postulate that workers feeling higher security in their jobs demand for more housing credit. The estimation indicates that if the union density increases by 1 percentage points, the real housing credit growth upsurges by 0.02 percentage points” (Akdoğan, Tatar, Yavuz, 2016, pp. 7-8).*

GDP as an indicator impacted on housing demand and had a positive effect on housing credit, since an increase in economic activity would both increase the demand for and supply of credit. The results of the empirical analysis (Akdoğan et al., 2016) are significant with two lags for GDP in the estimations. This makes sense since GDP is a structural variable, which could have a delayed effect on housing credit. The impacts of economic slacks or booms on the credit decisions of households could be seen more significantly in the following periods (Akdoğan et al., 2016, pp. 8-9).

Figures from the property firm Knight Frank indicates that in a period of four years house prices in Turkey had increased by 65.6%, a performance corresponding to the highest increase in European countries, and this is followed by the Republic of Ireland, where the cost of a home had increased by 34.3% since 2012 (Osborne, 2016). Housing credits' higher ratios in lower income groups are the most significant feature of the

development of housing credits in Turkey in the post-crisis period. The ratio of housing credits to GDP rose by 7% in 2016 in Turkey (TBB, 2016, p. 1). The ratio of housing credits to GDP is lower than EU countries with a 43% average ratio. Mortgage system in developing countries leads to financial fragility concerning the world economy. One of the most important problems of the construction-based economic growth model has been demand insufficiency for housing and lower financial inclusion ratios of households in Turkey.

#### **4. Conclusion**

The commodification of financial risks resulted in financial crisis in the world economy. In the Era of financialization, the fragile asset prices resulting from short-term debt created by speculative and excessive liquid finance movements lead to the unjust distribution of resources and instability in economic growth. The economic growth strategy yielded positive results, as improved economic indicators in Mexico and Turkey in the post-crisis Era. Mexican and Turkish state authorities' limited stimulus packages after 2008 crisis mostly promoted investment in infrastructure and expanded access to credit for the construction sector as well as for private and public mortgage. Debtfare state policies and its consequences on credit availability for working classes began in 2000, ranging from mortgages to retail lending banking sector in Mexico and Turkey. The new economic policy approach for labour markets such as market access and flexibility for mitigating the risks workers face resulted in decreasing wages as debt-led strategies of development in Mexico and Turkey. Debt-led strategies of development have forced labour to become more reliant on debt in order to meet subsistence needs. Given Mexican state authorities followed an orthodox economic policy as increasing interest convergence among the large corporations, heterodox economic policy which mediated conflicting interests between large firms, international investors, and micro-small and medium-size enterprises (MSME) was followed by state authorities in Turkey. The following growth strategy, construction-based economic growth strategy, has led to an economic growth related to labour productivity in the post-crisis Era. Turkey and Mexico had much higher level of productivity than OECD countries, despite the lower labour productivity with decreasing working hours in the post-crisis Era.



Construction-based Economic Growth Strategy, as an economic growth model for Turkey's dependency on low-labour productivity of housing sector makes significant direct contributions to the GDP and employment in Turkey in post-crisis Era. In the long run, the construction sector also will have a significant influence on the overall ability of other industries to produce and distribute goods and services for consumers. In this manner, it has a most important impact on social and economic growth. The main feature of the construction sector in Turkey is that saving gap, which has been the result of the instability of financial markets. Structural lack of aggregate demand was yet another problem of the construction sector and debt-led strategies of development in the post-crisis Era. The democratization of finance made it possible for lower income groups and disadvantageous groups to have a wide grasp of housing credits. As a consequence, job security becomes a factor directly affecting demand for housing. The existence of few empirical studies in this area shows that workers feel most secure in their jobs and demand for more housing credit. Eventually, job security is a salient indicator affecting the housing demand as much as interest rates and house prices. The direct effect of job security on housing debt is to gain expected long term income for payment of the debt. Public policies concerning job security has to be implemented to sustain high labour productivity and large household debts.

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