European Journal of Social Sciences Studies
ISSN: 2501-8590
ISSN-L:2501-8590
Available on-line at: www.oapub.org/soc

DOI: 10.46827/ejsss.v6i3.1038 Volume 6 | Issue 3 | 2021

REGULATIONS IN THE SOCIAL WELFARE STATE: NORDIC COUNTRIES AND TURKEY EXAMPLE

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Abstract:
The Public Expenditure/GDP ratio is one of the most significant metrics that measure the state's share of the economy. It can be said that there is an interventionist state type in countries where this rate is high, or it can be argued that the share of the public sector in the economy is low in countries where this rate is low. It is also possible to argue that the countries' economic, sociological, and political factors play an essential role in determining this ratio. Regulations, which are the most important tools of the welfare state, may arise through economic controls as well as through social policies. This study aims to find an answer to the question of whether this situation is possible for a developing country such as Turkey while Nordic countries, which determine a system different from other welfare models, succeed in raising social welfare without giving up the principles such as equality and justice that they have despite the globalization effect. The data obtained by various methods were subjected to comparison using the Data Envelopment Analysis method in order to achieve this purpose.

Keywords: welfare states, regulation, Nordic model, data envelopment analysis

1. Data Envelopment Analysis on the Basis of Public Economic Functions Comparison between Nordic Countries and Turkey

The Nordic model, which has the highest rate of meeting social rights and benefits offered by the public, has adopted principles such as universality, social solidarity, and equality between classes (Özdemir, 2004: 103). The most important definition in terms of

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*This study was produced from the first author's doctoral dissertation under the responsibility of the second author.

emphasizing the purpose of the regulations is the definition of Swedish economist Lindbeck even though there are many definitions related to the Nordic model. Lindbeck defined the social democratic welfare model as "*ensuring economic growth and equality by using interventionist state policies in capital and labor markets, combining trade unions and wage policies*" (Lindbeck, 1997: 1297).

Individual autonomy, equality of opportunity, social justice, social unity, and solidarity are the philosophical ideas that underpin the Nordic model. A comprehensive social policy, institutionalized social rights, solidarity, and universal and social laws are the main features of the model. The model owes its success to ensuring social equality and economic productivity together. Collective risk-sharing among citizens is dominant, a sense of trust in public institutions has developed, and they trust the egalitarian goals of welfare and the sense of justice. Economic policies are flexible and this flexibility allows for structural changes.

It is possible to make an evaluation on the ratio of public expenditures to the gross domestic product (GDP) in Nordic countries evaluated within the welfare state understanding according to Table 1. It can be said that although there are fluctuations in the ratio in the Nordic countries, the ratio of public expenditures to GDP is always high despite the threat of economic crisis, the general public expenditures movement continues in this way, and that the share of the public in the economy is less in Turkey. It is seen that Turkey's 10-year average is at least 15 points lower compared to Nordic countries when Turkey is examined in terms of the ratio of public expenditures to GDP. We can say that Turkey pursues more liberal economic policies.

Table 1: Public Expenditure/GDP Ratios in Selected Countries Between 2010-2019

	Turkey	**Norway**	**Sweden**	**Denmark**	**Finland**	**Iceland**
2010	771.9	832.5	873.9	950.5	934.1	859.7
2011	429.1	498.8	510.2	523.5	499.3	386.6
2012	488.3	563.1	543.8	578.7	573.8	497.9
2013	321.9	344	327.1	343.5	325.9	301.2
2014	247.7	273.6	256.7	269.9	272.6	232.4
2015	13.3	14.7	14.2	15.5	17.3	16.9
2016	771.9	832.5	873.9	950.5	934.1	859.7
2017	429.1	498.8	510.2	523.5	499.3	386.6
2018	488.3	563.1	543.8	578.7	573.8	497.9
2019	321.9	344	327.1	343.5	325.9	301.2

Source: Obtained from World Bank and PX Nordic Council sites.

Musgrave and Musgrave stated in their 1989 study that the public economy has three basic functions. These are listed as allocation, economic stability, and income distribution (Musgrave and Musgrave, 1989: 6).

The function of economic stability emerged as a result of Keynes' understanding of functional finance. The main purpose of the stability function is to ensure full employment. Because without fiscal policy, full employment and market stability are impossible to achieve. Economic fluctuations occur, inflationary pressures emerge, and the unemployment problem arises if the public sector ignores the stability function. These

economic fluctuations constitute the main point of the state's intervention in the economy. Decision-makers try to balance supply and demand through tax and spending policies and try to ensure economic stability.

The income distribution function is assumed to be inadequate in regulating the income distribution of the market, and some tasks are assigned to the state regarding the redistribution of income in the free market operation. The state tries to regulate this situation by using various tools in the event of an unfair distribution of income. The most common policy is unemployment benefits, healthcare, and social benefits, and tax regulations to regulate wealth inequality (Bulutoğlu, 1981: 24). All these functions of the public economy are the criteria applied by considering the needs of the society, and used in determining the economic efficiency of the countries. Today, the goal is to improve the efficiency of the public sector and increase social welfare in order to establish a more efficient and economically strong state.

The World Bank proposes a two-step strategy for the role of the state to be more efficient in its 1997 development report. The first of these is to harmonize the state with what it can do, that is, not to enter into the works that it cannot do from the beginning while the second stage is to strengthen public institutions and increase the economic state capacity (World Bank Report, 1997: 5). In the first stage, it is claimed that the state should concentrate on basic functions rather than attempting to do a lot of work with limited resources, and in the second stage, it is to ensure that state institutions develop as they should despite political pressures and interest group wishes. The intention here is to implement forward-looking long-term plans instead of unproductive investments that only satisfy a certain segment.

2. Application Objective

The period covering the years 2010-2019 was examined by the Data Envelopment Analysis (DEA) method in the study. Nordic Statistical Office and World Bank datasets were used within the scope of the study. The criteria determined as the regulation indicator in the study were determined as some of the data selected from education services, healthcare services, and social and value-added services for the allocation function, as the inflation and unemployment rates for the stability function, and finally as the Gini coefficient for the income distribution function. The following figure shows a collective expression of the criteria determined as input and output.

Inputs	**Outputs**	**Indicators Representing the Output**	
• Central Administrative Expenditure/GDP • Degree of Regulation	Allocation Function	Healthcare Services	1. Share of Healthcare Services in GDP 2. Number of Physicians Per Person 3. Mortality rates under 3.5 years of age
		Education Services	1. Share of Education Services in GDP

			2. Private school enrollment rate in primary education 3. Participation rate in preschool education
		Social and Value-Added Services	1. Research and Development Expenditures 2. Percentage of High Technology Exports in GDP 3. Public recreation, culture, and religion expenditures
	Stability Function	Instability Index	Inflation
			Unemployment rates
	Income Distribution Function	Gini Coefficient	

Figure 1: Inputs and Outputs Used in the Application

Deciding the size of the state and which economic roles the state assumes are very important for economic growth and development. Tanzi stated that there were five main factors in determining an efficient regulation policy in his study in 1997. These are the quality and the standard of public administration, a socioeconomic approach shaped by cultural heritage, whether the economy is outward or closed, the level of development, and finally technological development (Tanzi, 1997: 7).

Dodson and Paramo, on the other hand, stated that regulations should be used by underdeveloped and developing countries rather than developed countries. This is because underdeveloped and developing countries are more likely to face income distribution and poverty problems, market failures, and external shocks (Dodson and Paramo, 2003: 8-9). Therefore, it can be said that the decisive factor in the development of the economic activities of the state is the measurement of the efficiency of the economic activities carried out by the state. Public intervention rates determined as the ratio of government spending to GDP represent the input, and the criteria determined as the functions of the public economy are used as the reference value to make sense of the level of welfare achieved by Nordic countries.

3. Literature Review

One of the methods commonly used in efficiency measurement is Data Envelopment Analysis (DEA). DEA is a linear programming-based method that aims to evaluate the relative performance of decision-making units where inputs and outputs measured on multiple and different scales make it difficult to compare (Charnes et al., 1978). Charnes et al. first developed the method to measure and compare the technical productivity of public institutions. In addition, the method allows performance comparisons by determining the weights of inputs and outputs for multiple inputs and multiple outputs where the regression technique is not directly applied. Besides, the method utilizes

mathematical programming to determine the institutional efficiency limit (Anderson et al., 2004).

We see in the field of Data Envelopment Analysis applications that there are various studies to measure the efficiency of hospitals, restaurants, healthcare businesses, banks, and bank branches. We see that Data Envelopment Analysis can also be used in areas related to the public sector, apart from these. Various studies have been conducted in this context to assess the quality of public services, regulations under asymmetric knowledge, and macroeconomic outcomes of countries, interventions, and state functions. Below is a summary of previous DEA practices in the field of public services.

Table 2: Literature Review

Researcher & Year of Study	**Study Title**	**Study Method**	**Study Content**
Agrell, Per J. and Peter Bogetoft (2001)	"Dynamic DEA regulation under asymmetric information"	Data Envelopment Analysis	Review of regulations under asymmetric information conditions by DEA method.
Ali, Agha Iqbal (1996).	"Intergovernmental revenue transfers: A state-of-the-art DEA analysis"	Data Envelopment Analysis	Review of Transfer Expenditures by DEA method.
Anwandter, Lars (2000).	"Can public sector reforms improve the efficiency of public water utilities? An empirical analysis of the water sector in Mexico using data envelopment analysis"	Data Envelopment Analysis	Review of public sector reforms in Mexico by DEA method.
Bardhan, Indranil R. (1995).	"Data envelopment analysis and frontier regression approaches for evaluating the efficiency of public sector activities: Applications to public school education in Texas"	Data Envelopment Analysis	Review of the productivity of public sector activities specific to Texas public schools by DEA method.
Barrow, M. and A. Wagstaff (1989).	"Efficiency measurement in the public sector: An appraisal"	Data Envelopment Analysis	An assessment of productivity measurement in the public sector.
Boonyasai, Thitivadee (1999).	"The effect of liberalization and deregulation on life insurer efficiency"	Data Envelopment Analysis	Effects of liberalization policies and deregulations on the insurance system and DEA assessment.
Diewert, W. Erwin (1997).	"Dynamic deadweight loss of capital taxation for Australia"	Data Envelopment Analysis	Australian dynamic capital taxation analysis
Dufour, Charles. Paul Lanoie and Michel Patry (1998).	"Regulation and productivity"	Data Envelopment Analysis	Effects of productivity and regulations on productivity.
Güran Mehmet Cahit (2000).	"Public Interventions and Economic Performance"	Data Envelopment Analysis	Review of the effects of public interventions on

			economic performance by DEA method.
Ganley, Joseph Augustine (1990).	"Efficiency measurement in the public sector: Applications of data envelopment analysis"	Data Envelopment Analysis	Data envelopment analysis applications for productivity measurement in the public sector.
Morrison-Paul, Catherine J. (1997).	"Regulation and efficiency"	Data Envelopment Analysis	Effects of efficiency and regulations on efficiency.
Sherman, David (1989).	Service Organization Productivity Management, Ontario: The Society of Management Accountants of Canada.	Data Envelopment Analysis	Measurement of Public Services
Trudi, Miller (1984).	"Public sector performance. A conceptual turning point"	Data Envelopment Analysis	Review of public sector performance by DEA method.

Reference: Tavares, 2002: 113-154.

4. Application Method

Data Envelopment Analysis (DEA), a non-parametric method, uses linear programming to determine the points on the curve obtained by using the inputs and outputs of the most efficient company instead of using any production function (Fanchon, 2003: 175).

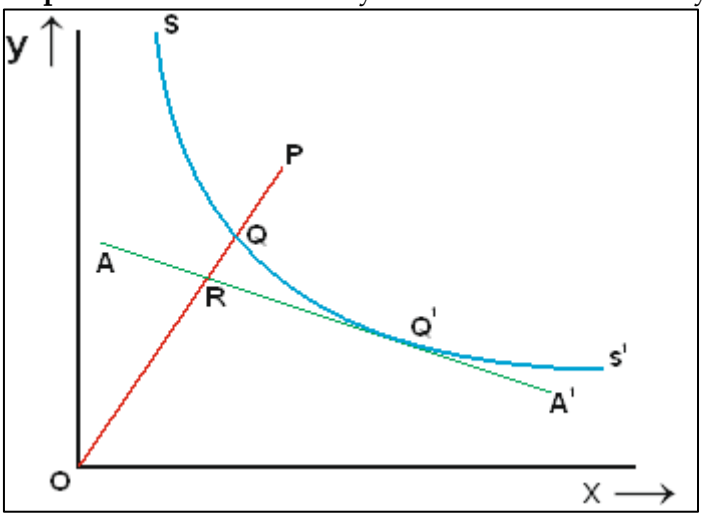
The most commonly used model of Data Envelopment Analysis is to measure the relative efficiency of decision-making units without weighing priorities on inputs and outputs. Today, DEA is widely used by many researchers in different fields such as education, banking, agriculture, information technologies, and information systems, computer industry, power plants, airline transportation, stock market, and supply chain (CEPA Working Paper, 1996: 9-10) but it can also be used in the field of public economy. The feature of DEA, which leads to frequent use in the field of public economy, is that it allows multiple inputs and outputs to be used. The dependent variable can be any performance measurement such as output, result, or quality (Kirmanoğlu, 2007: 194).

The main purpose of Data Envelopment Analysis is to provide a method to determine the best of comparable decision-making units, and to establish the efficient boundary. In addition, the method allows to measure the efficiency level of units that are not at the efficient limit, and to determine the reference units where ineffective units can be compared (Cook and Seiford, 2009: 1-2).

Graph 1 describes the relationship between technical efficiency and allocation efficiency using isoquant and isocost curves. SS^1 represents the isoquant curve above the efficient limit. Observations in the graph have better performance than other observations in the set of production possibilities. The amount of input required to be used for the P unit to be absolutely efficient is Q unit above SS^1. The technical efficiency of the P unit is represented by the OQ/OP in this case. The AA^1 isocost line states that output production should be made at a certain expenditure limit. Each unit above the AA^1 level has either price efficiency or allocation efficiency. The allocation efficiency of

the P unit can be calculated by the OR/OQ ratio (Farrell, 1957: 254-255). Total Cost Efficiency is calculated with the ratio of OQ/OP * OR/OQ = OR/OP.

Graph 1: Technical Efficiency and Allocation Efficiency



Reference: Farrell, 1957: 254.

Data Envelopment Analysis is a model that draws attention to the concept of 'effective boundary', which is based on Farrell's article 'The Measurement of Productive Efficiency'. The study, published in 1984 by Charnes, Cooper, and Rhodes, was the first to consider Farrell's work. CCR and BCC models were created by drawing attention to the power of Data Envelopment Analysis in efficiency measurement in terms of theoretical development in the study. The BCC model took into account the assumption of variable return according to the scale whereas the CCR model acted on the assumption of fixed return with a single input and single output according to the scale (Sarı, 2015: 9-10).

The CCR model measures the total efficiency that constitutes a combination of both technical efficiency and scale efficiency. Short Term Loans (STL) that are analyzed using the CCR model must have both technical and scale efficiency in order to be considered efficient. CCR model is considered as "input-oriented CCR" and "output-oriented CCR" (Gökgöz, 2009: 37). The model used in the study is the input-oriented CCR model.

Another step in the application of DEA is the selection of input and output variables to be used in the analysis. Since the DEA is a databased-efficiency measurement technique, the accuracy of the measurement results is possible with the significance of the selected inputs and outputs.

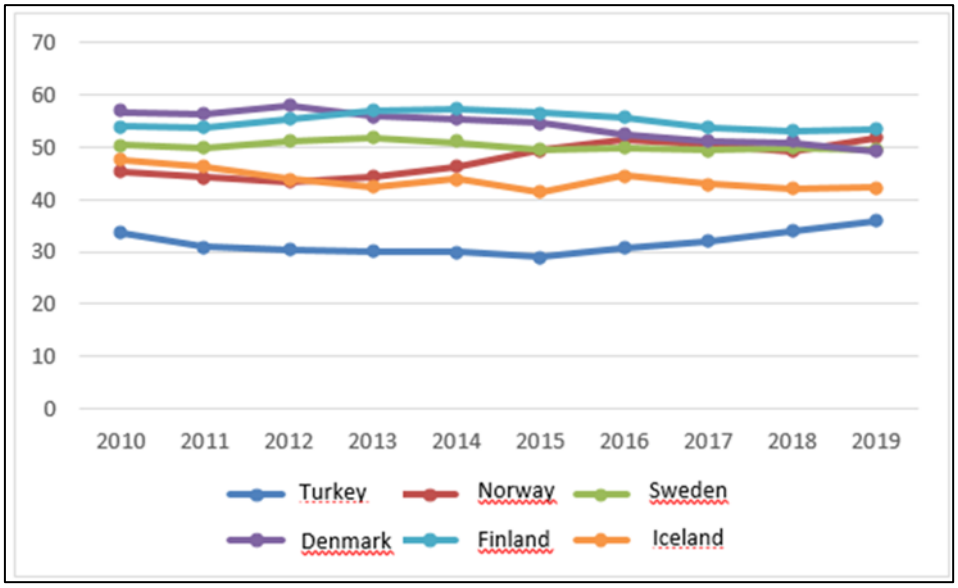
Technical efficiency measurement of 6 countries was created in this study. Technical efficiency is the generation of the maximum output using appropriate inputs, regardless of the time dimension by using existing technology (Harrison and Meyer, 2014: 120).

5. Results

This section explains the application results related to the economic performances of the countries on the basis of the functions of the public economy and within the framework of the desired objectives according to the data envelopment method.

The effects of regulations in Nordic countries and Turkey between 2010-2019 were evaluated on the basis of Public Expenditure/GDP input and subjected to DEA in the study.

It is seen that the ratio of public expenditures to the gross domestic product in Turkey is low compared to Nordic countries, as seen in Graph 2. In other words, the input amount of Turkey per year between 2010-2019 is visibly lower compared to the input amount of Nordic countries for the 3 efficiency analyses. For example, this rate appears to be 0.35 in Turkey whereas it was 0.50 in Nordic countries in 2010. Denmark appears to be the country with the highest rate among Nordic countries. It is seen in the graph that the general trend in Nordic countries after 2015 shows a small decrease. This is the opposite for Turkey. The Public Expenditure/GDP ratio in Turkey decreased between 2010-2015 but gained a slight upward momentum after 2015.



Graph 2: The ratio of Public Expenditures to GDP in Nordic Countries and Turkey

Public expenditures affect national income both by increasing capital stock and by ensuring efficiency in resource distribution. This is also a situation that positively affects private sector productivity (Oktayer and Sesame, 2008: 148). Nordic countries have a larger share of the public sector compared to Turkey even though the share of the public sector in Nordic countries with high-income levels has fluctuated over the years. The public sector's share of the economy complements that of the private sector, rather than excluding it entirely, even though it is fairly large.

It is seen in Turkey that the share of the public sector remains at lower levels. It can be said that the reason for this is the decrease in the share of the public sector as a result of the informal economy, inadequate taxes, and unproductive and inefficient

public expenditures resulting from this. It can be said that the private sector is unable to complete its economic development and more public intervention is needed in order to ensure economic development due to reasons such as low level of savings, low value-added production, unqualified labor, capital shortage in Turkey. It is thought that the public sector should have more incentives and the administration should make more regulations in order to complete the economic progress and development.

The size of public expenditure is directly related to the degree of regulation of the state in the economy. The public interest opinion underlies this state intervention, and the quality of public service directly affects social welfare. Nordic countries are also countries that actively intervene in the economy because they are a social welfare state and provide services rather than preventing these interventions. It is seen that education, healthcare, and social expenditures constitute a significant portion of Nordic public expenditures.

5.1 Income Distribution Function Efficiency Scores

The concept of personal income distribution emerged with the emergence of the welfare economy and the spread of income tax practices. The concept of the personal income distribution, which is a basic indicator of income inequalities between individuals, appears as a basic indicator in research on economic inequalities. It guides the interpretation of income inequalities and the evaluation of concepts such as tax, social security, and social justice. Personal income distribution can also be used to determine to what extent income inequalities have changed over the years in a country and to establish the relationship between economic development and social justice (Boratav, 1965: 19-21). It is seen that Iceland is more efficient compared to other countries when the efficiency scores in Table 3 are examined. It is understood that the country has high efficiency in that area as the efficiency values get closer to 1 and low efficiency as it gets closer to 0. It is seen that Nordic countries' efficiency scores are higher compared to Turkey in the ten-year period when interpreted over the average efficiency values. It is noteworthy that the full efficiency was provided by Iceland in 2017 in the ten-year period. It is more efficient compared to other countries in income distribution in terms of justice even though Iceland has not been fully efficient in other years. This shows that Iceland should be the reference country for the success of income distribution. These efficiency values, which measure the relationship between state intervention and income distribution, indicate that more constructive effects will occur in income distribution as a result of increasing state intervention in Turkey.

Table 3: Income Distribution Function Efficiency Scores

	Turkey	Norway	Sweden	Denmark	Finland	Iceland
2010	0.495	0.738	0.727	0.733	0.725	0.713
2011	0.512	0.743	0.723	0.728	0.723	0.738
2012	0.615	0.747	0.724	0.727	0.724	0.788
2013	0.598	0.732	0.724	0.722	0.729	0.832
2014	0.598	0.743	0.712	0.715	0.728	0.846
2015	0.588	0.736	0.716	0.716	0.732	0.922

2016	0.571	0.732	0.708	0.718	0.729	0.859
2017	0.581	0.725	0.708	0.710	0.729	1
2018	0.596	0.750	0.720	0.724	0.747	0.759
2019	0.612	0.756	0.733	0.720	0.740	0.766
Average	0.575	0.740	0.719	0.721	0.731	0.822

The fact that the Gini coefficient is closer to zero is an indicator of a fairer distribution of income. This figure is seen to be at 0.45 levels in Turkey and decreasing after 2015 whereas the Gini coefficient of Nordic countries for each year in the period 2010-2019 is around 0.25–0.30. Nordic countries have a Gini coefficient close to each other as can be seen in the line graph. In this situation, it is possible to say that they are similar in terms of income distribution fairness.

It can be said that state intervention in Turkey is less compared to Nordic countries and Turkey's income is distributed more unfairly. Public expenditures in Nordic countries constitute a significant portion of GDP since they are social democratic welfare states. Turkey appears to have a more unfair income distribution corresponding to less government intervention compared to Nordic countries.

Disposable income per capita is high, but individual consumption is low in Nordic countries. The main reason for this is that the vast majority of goods and services produced in the economy are produced by the public (Andersen et al., 2007: 47). This situation returns to Nordic countries as a high saving rate and high savings turn into capital investment. The rate of private savings is 14.3% in Turkey whereas the rate of private savings in Nordic countries, which are among the high-income group countries, is approximately 30% (World Bank Report, 2011: 6).

5.2 Stability Function Efficiency Scores

The function of economic stability can be expressed as the state's attempt to solve the market failures that it occasionally encounters in the economy. This function aims to ensure full employment, price stability, the balance of payments, and economic development. Inflation and unemployment rates were used to create the efficiency scores of the stability function in the study.

It is seen that Iceland is the most effective country on the ten-year average when the efficiency scores of Nordic countries and Turkey are compared in Table 4. The reference country is Iceland in the case of success of the stability function. Norway and Sweden appear to be in a better position after Iceland compared to other countries, albeit by a small margin. Besides, it is seen that Denmark and Finland reached full efficiency in 2017. It is observed that Turkey reached the highest efficiency score with 0.50 points in 2015, but this score decreased in the following years. It is seen that there is approximately 0.16 points difference between the reference country Iceland and Turkey when the stability efficiency is examined.

Table 4: Stability Function Efficiency Scores

	Turkey	Norway	Sweden	Denmark	Finland	Iceland
2010	0.431	0.687	0.617	0.542	0.576	0.627
2011	0.476	0.708	0.613	0.542	0.566	0.651
2012	0.491	0.724	0.611	0.529	0.552	0.694
2013	0.493	0.704	0.607	0.559	0.545	0.722
2014	0.4885	0.674	0.619	0.566	0.543	0.703
2015	0.501	0.628	0.636	0.574	0.558	0.75
2016	0.4715	0.599	0.626	0.597	0.563	0.705
2017	0.453	0.614	0.995	1	1	0.732
2018	0.426	0.632	0.619	0.613	0.586	0.749
2019	0.501	0.766	0.655	0.802	0.7275	0.658
Average	0.473	0.674	0.660	0.632	0.622	0.699

The Nordic model attaches great importance to employment. This is because welfare funding is provided only by the group that owns the business. Wage policy is based on the nature of the work done, not on a fixed minimum wage level. The state provides labor force participation. Unemployment is very low because children, young people, and the elderly outside the labor market earn transfer income. Failure to provide an active labor market will damage welfare practices.

5.3 Allocation Function Efficiency Scores

There are three indicators representing the output to measure the efficiency of the allocation function. Among these, the share of Healthcare Services in GDP, Number of Physicians per Person, and mortality rates under 5 years of age were used for the indicator of healthcare services. Share of Education Services in GDP, Private school enrollment rate in Primary Education, and Participation rate in Preschool Education were used for the education services indicator. The share of Research and Development Expenditures in GDP, the share of High Technology Exports in GDP, and the share of public recreation, culture, and religion expenditures in GDP were used for the indicator of social and value-added services.

Since the variables used for the Education, Healthcare, and Social, and Value-Added indicators used for the efficiency of the allocation function have different characteristics, they need to be subjected to a standardization process. Min-max normalization method was used as a second procedure for this.

It is seen that Sweden is more efficient in terms of allocation function when Table 5 is examined in terms of efficiency. It is seen that Sweden is both efficient on the ten-year average and reached full efficiency twice in a decade. It is seen that there are very small differences between Sweden, Denmark, Finland, and Norway in terms of allocation efficiency, Iceland is the country with the lowest allocation efficiency among Nordic countries. Turkey has an average efficiency score of 0.27 points less than the country with the highest allocation efficiency of 0.19 compared to the country with the lowest allocation efficiency.

Table 5: Allocation Function Efficiency Scores

	Turkey	Norway	Sweden	Denmark	Finland	Iceland
2010	0.690	0.904	0.949	0.923	0.923	0.852
2011	0.721	0.909	0.966	0.924	0.918	0.804
2012	0.738	0.925	0.974	0.903	0.931	0.872
2013	0.733	0.921	0.980	0.939	0.942	0.895
2014	0.729	0.922	0.988	0.951	0.958	0.871
2015	0.742	0.937	1.000	0.969	0.978	0.923
2016	0.755	0.934	0.998	0.997	0.975	0.843
2017	0.720	0.940	1.000	0.999	0.978	1.000
2018	0.657	0.949	0.989	1.000	0.983	0.889
2019	0.613	0.939	0.932	0.850	0.997	1.000
Average	0.709	0.928	0.9776	0.9455	0.9583	0.8949

Nordic countries have a welfare model known for and criticized for high welfare expenditures. However, the main factor that enables the model to overcome these expenditures is the adoption of the concept of lifelong education concept created in the education system and making high investments in information and communication technologies. An information society with high productivity has further increased its existing welfare levels by providing qualified human resources necessary for economic growth and progress through education and combining them with the high incomes they earn. Public sector productivity has improved, while financial strains on the social welfare state have decreased (Patomaki, 2003: 139).

The Nordic model, which is based on the knowledge-based economy model, attaches importance to total factor productivity. The efficiency of all inputs used in the production process can be sorted according to their importance in this way. Forced use of new technologies such as information technologies involves reduced costs over time. This process can only be facilitated by a qualified workforce. Another policy followed is to facilitate innovation and production activities in order to increase total factor productivity. Capital financing and R&D expenditure are supported for long-term growth. Regulators come into play in the production of high-tech products, competition is especially encouraged, and the establishment of new companies is supported.

7. Conclusion

It is seen that Turkey has a lower rate in all three efficiency areas compared to Nordic countries when the ratio of public expenditures to the gross domestic product, which is the input variable selected to investigate the efficiency of regulations, is examined. It can be said that Turkey cannot perform better stability, income distribution, and allocation function with less input (ratio of public expenditures to gross domestic product) compared to Nordic countries. It is clear for this reason that public expenditures and thus, public intervention rate in the economy can be increased and further improvements can be made in these areas compared to Nordic countries. However, the intention is not to create a form of preventive intervention but to establish a system that encourages and facilitates market entry and exit by increasing public intervention in the economy. The

state should take the role of guiding the economy rather than burdening it alone, and support entrepreneurship. However, it is important to consider in which ways this entrepreneurship would be supported.

Nordic countries have a larger share of the public sector compared to Turkey even though the share of the public sector in Nordic countries with high-income levels has fluctuated over the years according to the analyses performed. The share of the public sector plays a complementary role to the private sector, not excluding the private sector economy even though it is fairly large.

The size of public expenditure is directly related to the degree of state regulation in the economy. The public interest opinion underlies this state intervention and the quality of public service directly affects social welfare. Nordic countries are also countries that actively intervene in the economy because they are a social welfare state and provide services rather than preventing these interventions. It is seen that education, healthcare, and social expenditures constitute a significant portion of Nordic public expenditures.

It can be said that state intervention in Turkey is less compared to Nordic countries and Turkey's income is distributed more unfairly according to the results of data envelopment analysis for income distribution function, which is the first of the three analyzes. Public expenditures in Nordic countries constitute a significant portion of GDP since they are social democratic welfare states. Turkey appears to have a more unfair income distribution corresponding to less government intervention compared to Nordic countries. Nordic countries, on the other hand, have a close government intervention rate and fair income distribution.

According to the results of the data envelopment analysis for the stability function, which is the study's second analysis, public personnel employment has a significant impact on Nordic countries' stability. The employment rate of public personnel is 30% in Norway, 29.1% in Denmark, 28.6% in Sweden, and 24.9% in Finland whereas it is 12.4% in Turkey. On the other hand, giving extra importance to women's employment, flexible working for women with children, and working from home are also effective. The after-school study, home-care service, or homework alternatives are offered if the working woman has a child at school age. The Nordic model attaches great importance to employment. This is because welfare funding is provided only by the group that owns the business. Wage policy is based on the nature of the work done, not on a fixed minimum wage level. The state provides labor force participation. Unemployment is very low because children, young people, and the elderly outside the labor market earn transfer income. Failure to provide an active labor market will damage welfare practices. Finally, it is seen that the existence of the private sector is not a preferred situation in some sectors such as education and healthcare in Nordic countries according to the results of data envelopment analysis for allocation function, which is the third analysis in the study. It is seen that the share of the private sector in education and healthcare services is around 30% in Turkey.

As a result, Turkey's public sector has a smaller share of the economy than Nordic countries. It can be said that the reason for this is the decrease in the share of the public sector as a result of the informal economy in Turkey, unproductive taxes, and inefficient

public expenditures resulting from this. It can be said that the private sector is unable to complete its economic development and more public intervention is needed in order to ensure economic development due to reasons such as low level of savings, low value-added production, unqualified labor, capital shortage in Turkey. It is thought that the incentives to be given by the public sector and the regulations to be made by the administration should be increased in order to complete the economic progress and development.

Even though it does not seem feasible for Turkey to meet Nordic requirements in the following years, it is thought that the improvements provided in the social sense will influence the economy, and that progress can be made towards sustainable growth and development if the state acts with the logic of the Social Welfare State and retains its regulatory and supervisory elements efficiently, productively of independently of political interests.

Conflict of Interest Statement

The authors declare no conflicts of interests.

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