

Analysis of Factors Participating Citizens in National Budget Processes¹

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Geliş Tarihi/Received Date: 09.06.2023 **Kabul Tarihi/Accepted Date:** 26.06.2023

Suggested Citation: Güneş, V. (2023). Analysis of factors participating citizens in national budget processes. *Journal of Politics, Economy, and Management*, 6(1), 30-51.

Abstract: Most of the empirical studies on the determinants of citizen participation in budget processes have been conducted at a local level. This study aims to empirically analyze the potential factors that determine citizen participation in national budget processes. The factors affecting citizen participation in national budget processes have been reviewed using the panel data method, with the data about the years 2011, 2014, 2016, and 2018 of 93 countries included in the Open Budget Survey (OBS) 2012. The factors affecting citizen participation have been addressed under two main titles: socio-economic and institutional-political factors. In terms of socio-economic factors, the empirical findings in the model demonstrate that citizen participation in national budget processes increases as the level of education increases. Furthermore, the findings reveal that citizen participation decreases as the proportion of the elderly within the total population increases. In terms of institutional-political factors, on the other hand, an increase in the level of budget transparency is observed to have a positive impact on citizen participation. Similarly, the analysis results indicate that the level of e-participation positively affects citizen participation in budget processes. It has been concluded that the freedom of association and assembly also has a positive impact on citizen participation in budget processes. On the other hand, the findings demonstrate that an increased level of corruption leads to decreased citizen participation in national budget processes.

Keywords: National Budget Process, Citizen Participation in Budget Process, Panel Data Analysis.

JEL Codes: H-61, H-69

1. Introduction

It is underlined that a more participatory and inclusive framework is necessary in today's budget processes and states should assume the leading role in this regard. In this context, the importance of citizen participation in budget processes increases globally. Legislative bodies, executive bodies, and supreme audit institutions in various countries develop different mechanisms to ensure citizen participation in national budget processes. Currently, there are greater efforts to increase budgetary transparency, ensure that citizens have more say in budgetary decisions, and ensure more state accountability than in the past. While there are relatively many academic studies on the transparency and accountability of the state, citizen participation in budget processes cannot be said to have been sufficiently analyzed.

The main research question of the study has been determined as "Which factors affect citizen participation in national budget processes?". This study aims to empirically analyze the potential factors that determine citizen participation in national budget processes. It was planned to include the 100 countries covered by the OBS 2012 in the study; however, certain data from 7 countries in the survey could not be obtained. Therefore, 93 countries have been included in the study. However, since the data on citizen participation in national budget processes pertain to the years 2011, 2014, 2016, and 2018, the study has been restricted to the period in question in terms of time.

¹ This study is derived from "Empirical Analysis of the Factors Determining Citizens' Participation in the National Budget Process" doctoral thesis.

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The countries covered in the analysis are Albania, Algeria, Angola, Argentina, Azerbaijan, Bangladesh, Benin, Bolivia, Botswana, Brazil, Bulgaria, Burkina Faso, Cambodia, Cameroon, Chad, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Democratic Republic of the Congo, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, France, Georgia, Germany, Ghana, Guatemala, Honduras, India, Indonesia, Italy, Jordan, Kazakhstan, Kenya, Kyrgyz Republic, Lebanon, Liberia, Macedonia, Malawi, Malaysia, Mali, Mexico, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, New Zealand, Nicaragua, Niger, Nigeria, Norway, Pakistan, Papua New Guinea, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Serbia, Sierra Leone, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Tajikistan, Tanzania, Thailand, Trinidad – Tabago, Tunisia, Türkiye, Uganda, Ukraine, England, United States of America, Venezuela, Vietnam, Zambia, and Zimbabwe. Therefore, the findings and results obtained from the study are limited to these countries and the four-year time frame.

OBS prepared by the International Budget Partnership (IBP) provides a very significant data set for this study. In other words, OBS is the only research that measures citizen participation in national budget processes on a global scale. The research was first published in 2006 to measure the level of budget transparency of countries. Later, in 2012, OBS started to measure the level of citizen participation in national budget processes on a global scale. The research is published every two years, with each new research covering a higher number of countries.

An examination of the relevant literature reveals that there are only two empirical studies on potential socio-economic and institutional-political determinants affecting citizen participation in national budget processes. Therefore, this study is expected to primarily contribute to reducing the insufficiency of studies in the area.

The most important factor differentiating this study from other empirical studies in the literature is its use of panel data analysis as an econometric method for the first time. Another contribution of the study to the literature is that it analyzes many variables that have not been previously included in studies on the determinants of citizen participation in national budget processes. These variables can be listed as follows: age, tax burden, size of public expenditure, the legislative body's and the supreme audit institution's effectiveness in oversight, freedom of association and assembly, civil society participation, and corruption. How a total of 15 factors, comprised of 6 socio-economic and 9 institutional-political factors, affect citizen participation in budget processes has been researched in the study.

The study analyzes the factors which may affect citizen participation in national budget processes using the panel data method. In this context, the empirical literature regarding citizen participation in budget processes is evaluated first. Then, the factors that may affect citizen participation in budget processes are discussed under two main titles, which are institutional-political and socio-economic factors. The level of economic development, education, age, the volume of public expenditures, tax burden, and budget balance are examined under socio-economic factors. Under institutional-political factors, budget transparency, legislative bodies' effectiveness in budget oversight, audit institutions' effectiveness in oversight, democracy, freedom of association and assembly, participation in civil society, e-participation, political competition, and corruption are examined. Subsequently, theoretical explanations regarding the panel data method and the scope of the research are presented. Finally, the results of the analysis are evaluated.

2. Literature Review

While the literature regarding citizen participation in national budget processes has a developing structure, it is generally at a theoretical level. The empirical literature on the determinants of citizen participation in national budget processes is quite limited. Most of the empirical studies on the determinants of citizen participation in budget processes have been conducted at a local level (Rios et al., 2017: 50). As a result of the literature review, only two studies analyzing the factors affecting citizen participation in budget processes at the central government level could be found.

The first study to empirically analyze the determinants of citizen participation in national budget processes was conducted by Harrison and Sayogo (2014). In the study, the impact of a total of six socio-cultural, political, economic, and administrative factors on transparency, citizen participation, and accountability is analyzed using an international comparative approach. Conducted by using the data of OBS 2012 prepared by IBP, the study involves a regression analysis performed to identify the factors affecting citizen participation for 98 countries. Harrison and Sayogo (2014) could not detect a significant relationship between citizen participation in budget processes and countries' level of economic development (GDP) as a result of the analysis. The study concludes that human capital (education) positively affects citizen participation in the audit activities of the SAI in a country. However, it is determined that the level of e-participation does not affect the level of citizen participation in budget processes. The study does not find any relationship between the level of democracy and the level of citizen participation in budget processes. A significant relationship between the disclosure of budget documents and citizen participation cannot be found either.

Another important study analyzing the determinants of citizen participation in national budget processes was conducted by Rios et al. (2017). The study examines the factors which determine citizen participation in national budget processes, using an international comparative approach. Data from the OBS 2012 prepared by IBP is used in the study. In the study, determinants of citizen participation are analyzed under two categories: i) socio-economic factors (level of economic development, internet access, level of education, population size, immigration rate, public debt, and budget balance) and ii) institutional-political factors (level of democracy, budget transparency of the state, type of legal system, political ideology of the government, and political competition). In the study, which examines the effects of 11 factors in total, data from 93 countries are analyzed using the three-stage least squares method. Concerning socio-economic determinants, the study reveals that the level of economic development of a country does not affect opportunities for participation in national budget processes by citizens. Internet use is found to have a positive effect on citizen participation. However, a significant relationship between education and citizen participation could not be detected. According to the study, the higher the population of a country, the higher the opportunities for citizen participation in budget processes. It is concluded that government debt has a negative effect on citizen participation. Budget balance, on the other hand, is found to not affect citizen participation.

Regarding political-institutional determinants, the study concludes that budget transparency has a positive effect on opportunities for citizen participation in national budget processes. It is also concluded that citizen participation is necessary to achieve a good level of budget transparency and that the level of democracy does not affect citizen participation. The legal system (Anglo-Saxon) is not found to have any effect on citizen participation either. Likewise, it is concluded that the level of political competition does not affect citizen participation. The study demonstrates that citizen participation is not related to the ruling party's political ideology and that both progressive and conservative governments offer the same opportunities for citizens to participate in budget processes. According to the results of the analysis, opportunities for citizen participation in national budget processes depend on many socio-economic, political, and institutional factors.

3. Determinants of Citizen Participation in National Budget Processes and Development of the Hypotheses

This section of the study discusses the factors that determine citizen participation in national budget processes. These factors are analyzed under two categories: "socio-economic determinants" and "institutional-political determinants."

3.1. Socio-Economic Determinants and Hypotheses

3.1.1. Level of Economic Development

It has long been assumed that there is a relationship between economic development and participation in public affairs. Accordingly, rights such as more transparent governance are demanded more by people who live in more economically developed countries. However, the relationship between participation in public affairs and economic development in developing countries varies between countries (Harrison & Sayogo, 2014: 516). In their study, Harrison and Sayogo were unable to find a significant relationship between the economic development level of countries and citizen participation (Harrison & Sayogo, 2014: 520). Similarly, Rios et al. (2017) demonstrated in their study that the level of economic development in a country does not affect opportunities for citizen participation in central government budget processes (Rios et al., 2017: 58). Although a significant relationship could not be found in the two primary studies in literature, it is observed that economic development may positively affect citizen participation at a theoretical level. The studies may have been unable to find a significant relationship due to their limited scope or due to the analysis method. Therefore, the hypothesis regarding the level of economic development has been formulated as follows in parallel with the theory:

Hypothesis 1: An increase in national income levels has a positive impact on the level of citizen participation in national budget processes.

3.1.2. Education

Norris views education as one of the most important forms of social development (Norris, 2001: 48). Becker, on the other hand, states that the most important investment in human capital is education and training (Becker, 1993: 17). Lack of education impairs citizens' ability to comprehend the fiscal affairs in the public sector, which restricts political participation. Therefore, states' investment in education contributes to increasing citizens' participation in central government budget processes (Rios et al., 2017: 51). The public's ability to read and understand budget information is critical for increasing their awareness about fiscal information and ensuring that they are more resilient to fiscal manipulation. In addition, there is almost a universal consensus about the importance of an educated public in terms of enjoying the benefits of transparency, which is the prerequisite of citizen participation. In their study, Harrison and Sayogo (2014) revealed that citizens' level of education positively affects citizen participation in SAI's activities (Harrison & Sayogo, 2014: 516, 523). Based on these grounds, the hypothesis has been formulated as follows:

Hypothesis 2: An increase in the level of education has a positive impact on the level of citizen participation in national budget processes.

3.1.3. Age

Old age should be approached from physical, psychological, and social aspects. Most studies on old age tend to approach the definition and classification of old age from a physiological perspective. Old age is chronologically defined as being older than 65 years of age. The World Health Organization (WHO) classifies individuals aged 65 and above as elderly and those aged 85 and above as very elderly (Beğer & Yavuzer, 2012: 1).

Melo and Stockkemer (2014) have demonstrated in their research that the likelihood of older individuals writing petitions and attending rallies, which are forms of political participation, is low. The authors note that the low likelihood to attend rallies could be explained by factors such as the stage of life, socialization, and health (Melo & Stockkemer, 2014: 46). On the other hand, Nie et al. (1974) have revealed in their research that the level of political participation among the elderly population is low. According to their research, the low level of political participation of the elderly population in countries results largely from low educational attainment rather than aging (Nie et al., 1974: 332).

In light of the information above, it can be suggested that an increased level of the elderly population may have a negative impact on citizen participation in national budgeting processes:

Hypothesis 3: The aging of the population has a negative impact on the level of citizen participation in national budget processes.

3.1.4. The Size of Public Expenditure

In an economy, the size of public expenditure is an indicator of the state's intervention in the economy. From a demand perspective, an increase in public expenditure can be interpreted as an increase in citizens' expectations from the government. Excessive expenditure indicates the existence of a significant part of the public that expects services from the state and may want to participate in the national budget process to determine the areas of spending or to benefit more from public expenditures. On the other hand, politicians may seek to increase their votes by involving citizens who demand services-expenditure in the budget process to ensure that services are provided by their preferences.

From another point of view, the increase in public expenditure may also stem from negative situations such as extravagance and political corruption. Citizens affected by such negative situations could be expected to make efforts to participate in the budget process. Therefore, a positive relationship can be expected between public expenditure and citizen participation in national budget processes:

Hypothesis 4: An increase in public expenditure levels has a positive impact on the level of citizen participation in national budget processes.

3.1.5. Tax Burden

As a concept, "tax burden" is among the most significant indicators used to evaluate a country's public finances. This indicator explains what proportion of the resources in the economy are collected by the government through taxes or other means (Kıraç Erkoç, 2019: 20). In countries where the tax burden is high, the state could be expected to create sufficient mechanisms to ensure citizen participation in national budget processes. This is due to the fact that convincing citizens that the tax burden will be turned into useful services is crucial to avoid losing votes.

Furthermore, while expenditures that benefit them are welcomed by citizens, they do not have the same tolerance for incurring costs (taxes) for basic public services (Tanaka, 2007: 140). When the tax burden is high, individuals in society are likely to apply pressure to reduce the tax burden by being more involved in budget processes or demanding more say in public expenditures. Therefore, a positive relationship can be expected between tax burden and participation in budget processes:

Hypothesis 5: An increase in tax burden levels has a positive impact on the level of citizen participation in national budget processes.

3.1.6. Budget Balance

The budget balance is one of the main indicators of the fiscal situation in the public sector. A budget deficit indicates that the public is burdened with debt, while a budget surplus indicates the availability of a revenue surplus that can be used during difficult times or for debt reduction. Liao and Zhang note that administrative reforms such as citizen participation in the budget process are more likely to be adopted in societies with greater resources (Liao & Zhang, 2012: 24). In this respect, a sound fiscal situation may increase budgetary participation. While Rios et al. (2016) were unable to detect a relationship between budget balance and citizen participation, the hypothesis has been formulated as follows, on the grounds that a relationship between citizen participation and budget balance, one of the important indicators of fiscal discipline, could be demonstrated with a more expanded dataset and a more advanced analysis method than the study in question.

Hypothesis 6: Improvement in the budget balance levels has a positive impact on the level of citizen participation in the national budget process.

3.2. Institutional - Political Determinants and Hypotheses

3.2.1. Budget Transparency

According to Kopits and Craig, transparency has a beneficial effect on society and the economy as it increases individuals' trust in the state. The authors suggest that nontransparent fiscal practices tend to disrupt stability, create distortions in resource allocation, and exacerbate inequalities (Kopits & Craig, 1998: 2).

According to IBP, countries with high budget transparency provide more opportunities for citizens to participate in budget processes. It is argued that progress achieved for budget transparency can also initiate a productive cycle in areas such as citizen participation and budget oversight (International Budget Partnership (IBP), 2015: 53). In their study, Ríos et al. demonstrate that budget transparency supports citizen participation. The study emphasizes that citizen participation is also necessary to achieve a good level of budget transparency (Rios et al., 2017: 59). In light of this information, it can be suggested that the level of budget transparency has a positive effect on citizen participation in national budget processes:

Hypothesis 7: An increase in the level of budget transparency has a positive impact on the level of citizen participation in national budget processes.

3.2.2. Effectiveness of the Legislative Body's Budget Oversight

The main goal of budget oversight is to measure whether public resources are used effectively and efficiently. The legislative body uses various internal and external tools to fulfill its budget oversight duty (Dikmen, 2019: 71).

Increases in the legislative body's budget oversight result in enhanced accountability of the government and encourage more transparency in the management of public finance. In addition, the information asymmetry between the state and society arising from the principal-agent theory can be reduced through legislative oversight. By ensuring that the budget is open for public discussion, the legislative body assists in the establishment of the conditions necessary for accountability (Rios et al., 2016: 549). Dikmen and Güçlü (2019) state that budget oversight is a prerequisite for ensuring fiscal transparency and accountability (Dikmen & Güçlü, 2019: 187). Therefore, an effective fiscal control established by the legislative body over the executive body may increase the executive body's accountability, facilitate public discussions, and expand participation in the budget process (Rios et al., 2016: 549).

Hypothesis 8: An increase in the level of the legislative body's oversight effectiveness has a positive impact on the level of citizen participation in national budget processes.

3.2.3. Effectiveness of the Supreme Audit Institution's Oversight

SAIs are oversight bodies that audit the executive body's accounts on behalf of the parliament. SAIs conduct audits regarding whether the public accounts are accurate and reliable, whether public funds are spent by the law, and whether the expenditures are incurred efficiently and effectively, and share the results of the audits with the parliament and the public (IBP, 2020: 59).

In countries where audit institutions are not sufficiently strong, weaknesses in budget transparency and legislative budget oversight are observed (IBP, 2012: 40). In addition, it is noted that audit institutions are generally less effective in countries where the level of transparency is low (IBP,

2018: 32). On the other hand, as we previously stated, there is a close relationship between budget transparency and citizen participation. Therefore, it could be argued that the level of oversight effectiveness of SAIs may affect the level of citizen participation due to its impact on the budget transparency level.

Hypothesis 9: An increase in the level of the supreme audit institution's budget oversight effectiveness has a positive impact on the level of citizen participation in national budget processes.

3.2.4. Democracy

There is a consensus that democracy contributes to human development. The underlying argument for this view is largely based on the idea that citizen participation should empower citizens, including the poor, and consequently encourage them to direct governments to be more accountable for their interests (Gerring et al., 2012: 1). Democracy is expected to be positively associated with citizen participation, as it provides opportunities for the poor and minorities to participate in decision-making mechanisms. However, democracies may vary according to the extent to which citizens are actively involved in the decision-making processes of states (Harrison & Sayogo, 2014: 516).

According to Gaventa and Barrett, citizen participation is positively associated with obtaining democratic outcomes, since it contributes to the development of accountable institutions and national and international human rights frameworks (Gaventa & Barrett, 2012: 2407). Therefore, it could be said that there is a bidirectional interaction between citizen participation and the level of democracy.

A review of the empirical studies in the literature shows that, according to Harrison and Sayogo, the level of democracy positively affects citizen participation in budget processes (Harrison & Sayogo, 2014: 520). However, Rios et al. concluded that the level of democracy does not affect citizen participation in budget processes (Rios et al., 2017: 58). Despite the different results in a limited number of studies, the relationship between the level of democracy and citizen participation in budget processes can be proven, given the strong theoretical arguments. Accordingly, the hypothesis is formulated as follows:

Hypothesis 10: An increase in the level of democracy has a positive impact on the level of citizen participation in national budget processes.

3.2.5. Freedom of Association and Assembly

According to Fenwick, there is a close relationship between the freedom of association, assembly, and expression. The author notes that these freedoms are vital for a democratic society. It is believed that any idea would be more effective when defended collectively rather than individually. The freedom of association and assembly protects the freedom to express ideas openly, thereby creating an environment for public discussion and encouraging democratic participation (Fenwick, 2002: 397). In this context, the mechanisms necessary for citizen participation in national budgeting processes are expected to be established in countries that attach due importance to the freedom of association and assembly. Therefore, it could be argued that increased freedom of association and assembly leads to increased citizen participation in national budget processes.

Hypothesis 11: An increase in the level of freedom of association and assembly has a positive impact on the level of citizen participation in national budget processes.

3.2.6. Participation in Civil Society

The meaning of the term "civil society" as used by civil society advocates is not always clear. Currently, the concept of "civil society" mainly refers to social formations (associations) that exist outside and independently of state organizations (Willmore, 2005: 19). The number of associations or the number

of participants in a particular society is generally accepted as a rough measure of the expansion of civil society (Wallace & Pichler, 2009: 257).

It is assumed that participation in civil society will ensure a better quality of life. It is stated that more participation will improve the well-being, health, and education of individuals (Wallace & Pichler, 2009: 255-256). Therefore, participation in civil society may enable states to establish the mechanisms necessary for participation in national budget processes by improving the quality of life. On the other hand, the increase in civil society participation in a country can parallel the increase in the level of democracy. After all, civil society also represents the size of the masses who desire to protect their rights and freedoms and express their demands to the state. Both the impact of civil society on prosperity and the increased expectations from the state as a result of an increased level of democracy could mean that the state provides citizens with opportunities for participation in national budget processes:

Hypothesis 12: An increase in the level of individuals' participation in civil society has a positive impact on the level of participation in national budget processes.

3.2.7. E-Participation

E-participation reflects the extent to which a country's e-government capacity offers various opportunities for citizen participation (Harrison & Sayogo, 2014: 521). The United Nations defines e-participation as the process of including citizens in policy and decision-making processes through Information and Communication Technologies (ICTs) to ensure a participatory, inclusive, and deliberative public administration (UN, 2014: 61). On the other hand, the technology gap between countries with different economic levels limits citizens' opportunities to use ICTs, particularly the internet, for a wide range of activities, including political issues (Rios et al., 2017: 51). Rios et al. (2017) have demonstrated in their study that the internet has a positive impact on citizen participation. Accordingly, higher access to the Internet means higher citizen participation in public policy decisions. Therefore, citizen participation in budget processes can be expected to increase when there are increased e-participation opportunities:

Hypothesis 13: An increase in the level of e-participation has a positive impact on the level of citizen participation in national budget processes.

3.2.8. Political Competition

As noted by Alesina & Perotti (1996), politicians are generally not very eager to make budgets transparent, since it is easier to overstate the benefits of public expenditures and understate tax burdens in the absence of transparency (Alesina & Perotti, 1996: 403). It is not difficult to conclude that politicians would not be in favor of citizen participation so that they can continue to use their informational advantages in this way. However, politicians would be expected to be less engaged in such behaviors when there is more political competition. Political competition may lead politicians to be accountable for their pre-election promises (transparency) (Rios et al, 2013: 240), thus, involving citizens more in decision-making processes, particularly with a motive to be re-elected.

Furthermore, in coalition governments, where there is increased political competition, inter-party dialogue, negotiation, and agreement are necessary, which may result in more opportunities for citizen participation (Lienert, 2005: 10-11). This is due to the fact that political competition encourages political parties to join social groups and develop the interests of those groups (Goetz & Gaventa, 2001: 44). According to Wang (2001), increased political competition may lead to more citizen participation in decision-making processes, including budgeting (Wang, 2001: 331). Indeed, Wang (2001) concluded in his research on U.S. cities that political competition increases citizen participation in decision-making processes.

Although Rios et al. (2017) concluded in their study that there is no relationship between political competition and citizen participation in budget processes (Rios et al., 2017: 59), the strong theoretical views about the relationship between these two variables have led us to formulate a hypothesis accordingly:

Hypothesis 14: An increase in the level of political competition has a positive impact on the level of citizen participation in national budget processes.

3.2.9. Corruption

Corruption is generally defined as the abuse of public power for private gain. The term "private gain" refers to the acquisition of money or valuable assets, but may also include rising in power or status (Lambsdorff, 2006: 16). Due to its illegal and immoral nature, it is not quite possible to directly measure the extent of corruption in a country; therefore, it can only be estimated on an approximate basis through suitable methods (Karagöz & Karagöz, 2010: 9).

Corruption disrupts the goods and services provided by the state, impairs the services provided, leads to excessive consumption of public resources, and causes public revenues to be realized below the estimated amount. Various factors are effective in the emergence of corruption in the public economy. Among these factors is the monopolistic power that public officials possess during the performance of services, intensive bureaucracy, the public administration's failure to comply with transparency and accountability criteria during the provision of services, and inadequacy of supervision and penalty systems (Bağdigen & Dökmen, 2006: 55). Considering both the factors causing corruption and the negative impacts of corruption together, it could be argued that corruption would prevent citizens from being involved in decision-making mechanisms.

Hypothesis 15: An increase in the level of corruption decreases the level of citizen participation in national budget processes.

4. The Econometric Method

The study has been carried out using 93 countries' OBS data for the years 2011, 2014, 2016, and 2018. Studies involve two different aspects, namely unit and time, which necessitates the use of panel data models. As the two aspects in question are also present in this study, it has been possible to use panel data models. Panel data refers to the collection of observations relating to cross sections of households, countries, companies, etc. in several periods (Baltagi, 2005: 1).

In the context of the panel data models in the study, the Hausman test was performed to determine whether the Fixed Effects (FE) or Random Effects (RE) estimators should be used. In 1978, Hausman produced a test based on the difference between Fixed Effects and Random Effects estimators. The primary point to consider when choosing between Random Effects and Fixed Effects approaches in the Hausman Test panel data models is whether the unit effects are correlated with explanatory variables (Wooldridge, 2001:288).

According to the main hypothesis of the Hausman test, the Random Effects estimator is effective. The Hausman test uses a statistic that follows the χ^2 distribution with the k degree of freedom. If the difference between the parameters is not systematic (i.e. If there is no significant difference between them), then the Random Effects model is applicable. If the difference between parameters is systematic, then the fixed effects model is applicable (Tatoğlu, 2020: 196).

The fixed effects model can be defined as a linear regression model where fixed terms vary for each unit. The fixed effects model can be explained as follows, on the assumption that x_{it} is independent of ε_{it} (Verbeek, 2004: 345):

$$y_{it} = \alpha_i + x'_{it}\beta + \varepsilon_{it}, \quad \varepsilon_{it} \sim IID(0, \sigma_\varepsilon^2)$$

In the fixed effects estimation method, it is assumed that the variation in the data affects the fixed coefficient, while the slope coefficients remain unchanged (Güriş, 2018: 16).

Another alternative method is the Random Effects model. The difference between the Fixed Effects and Random Effects methods is that the latter treats fixed terms for each unit as random parameters, rather than constant (Asteriou & Hall, 2007: 347-348). Contrary to the fixed effects model, in the Random Effects model, effects of unit and time effects are added as constituents of the error term in the model as random variables (Güriş, 2018: 24).

In regression analyses, it is generally accepted that all factors that affect the dependent variable but are not included in the model can be explained accurately with a random error term. This leads to the assumption that, in the Random Effects model, ε_i are random factors that are independently and identically distributed across units. In this context, the Random Effects model can be explained as follows (Verbeek, 2004: 347):

$$y_{it} = \mu + x'_{it}\beta + \alpha_i + \varepsilon_{it}, \quad \varepsilon_{it} \sim IID(0, \sigma_\varepsilon^2); \quad \alpha_i \sim IID(0, \sigma_\alpha^2)$$

It has been concluded from the Hausman test that the use of the fixed effects panel data model as an econometric method in the study is suitable. Therefore, in this study, the "fixed effects panel data model" has been used as the econometric method.

5. Data Set

In this study, IBP's OBS data was used to assess citizen participation in national budget processes. The Open Budget Index is created based on responses to 18 indicators (questions) used to measure citizen participation. The Index is the only independent and comparative measure of citizen participation in national budget processes on a global scale. It evaluates official opportunities for citizens to directly engage with executive, legislative, and audit institutions in the budget process. OBS assesses participation mechanisms in three state institutions: the legislative body, the executive body, and the supreme audit institution.

Since 2006, IBP has been conducting independent analyses once every two years under the name "Open Budget Survey" to measure budget transparency, citizen participation in budget processes, and budget oversight. The surveys are answered by researchers in civil society organizations or academic institutions in the relevant countries. The number of countries included in the survey increased from 40 in 2006 to 117 in 2019. In other words, new countries are added to the existing ones in each new OBS. OBS evaluates how states manage public finances, in terms of budget transparency, citizen participation in budget processes, and budget oversight.

Descriptions of the dependent and independent variables are provided in Table 1. The data for the OBS 2012, 2015, 2017, and 2019 were collected in 2011, 2014, 2016, and 2018, respectively. Therefore, the data used in the analysis are related to 2011, 2014, 2016, and 2018. Data from internationally recognized institutions were used for the analysis.

Table 1. Descriptive information about the variables used in the research

Dependent Variable				
No	Name of the Variable	Category	Description	Data Source
1	Citizen Participation	Dependent	It assesses the mechanisms established by a state for citizen participation in national budget processes.	Open Budget Survey / IBP
Independent Variables (Determinants)				
No	Name of the Variable	Category	Description	Data Source
1	Economic Level	Socio-Eco.	It measures the annual per capita income in a country.	WORLD BANK
2	Education	Socio-Eco.	The education index is the average of the mean years of schooling (adults) and the expected years of schooling (children).	UNDP/Education index
3	Age	Socio-Eco.	It indicates the percentage of the population aged 65 and over in the total population.	WORLD BANK
4	Public Expenditure	Socio-Eco.	It measures the size of the state through a formula based on the ratio of countries' public expenditure to GDP.	Index of Economic Freedom
5	Tax Burden	Socio-Eco.	It measures the size of the state through a formula based on the highest marginal tax rates on personal and corporate income and the ratio of the total tax burden to the GDP of countries.	Index of Economic Freedom
6	Budget Balance	Socio-Eco.	It measures the level of a Central Government's net lending/borrowing (percentage of GDP).	IMF
7	Budget Transparency	Institutional-Pol.	The budget transparency score of a country represents the presence of eight important budget documents and the comprehensiveness of their content.	Open Budget Survey / IBP
8	Legislative Oversight	Institutional-Pol.	It assesses the effectiveness of the legislative body's budget oversight.	Open Budget Survey / IBP
9	Sai's Oversight	Institutional-Pol.	It assesses the oversight effectiveness of the supreme audit institution.	Open Budget Survey / IBP
10	Democracy	Institutional-Pol.	It assesses the status of political rights and civil liberties in countries.	Freedom House
11	Freedom Of Association And Assembly	Institutional-Pol.	It assesses the freedom of individuals to assemble and organize peaceful demonstrations as well as to join and establish political parties, cultural organizations, and trade unions.	The International Institute for Democracy and Electoral Assistance (International IDEA)
12	Participation In Civil Society	Institutional-Pol.	It assesses the extent to which the population is involved in civil society activities.	The International Institute for Democracy and Electoral Assistance (International IDEA)

13	E-Participation	Institutional-Pol.	It assesses the processes of governments providing information to citizens ("e-information sharing"), interacting with stakeholders ("e-consultation"), and involving them in decision-making processes ("e-decision-making").	The UN's E-Participation Index
14	Level Of Political Competition	Institutional-Pol.	It measures two aspects of political competition: the degree of institutionalization of political competition and the scope of government restrictions on political competition.	Polity IV Project
15	Corruption Control	Institutional-Pol.	It measures perceptions regarding the extent to which public power is used for private interests.	Worldwide Governance Indicators (WorldBank)

6. The Model and Empirical Findings

The model where the level of citizen participation in national budget processes is used as the dependent variable is as follows:

$$CP_{it} = \alpha_{it} + \beta_1 GDP_{it} + \beta_2 EDU_{it} + \beta_3 AGE_{it} + \beta_4 EXP_VOL_{it} + \beta_5 TAX_BUR_{it} + \beta_6 BUD_BAL_{it} + \beta_7 BUD_TRANS_{it} + \beta_8 LEGIS_BO_{it} + \beta_9 SAI_O_{it} + \beta_{10} DEM_{it} + \beta_{11} FAA_{it} + \beta_{12} PAR_CS_{it} + \beta_{13} E_PAR_{it} + \beta_{14} POL_COM_{it} + \beta_{15} COR_{it} + \varepsilon_{it}$$

Table 2. Abbreviations of the variables

VARIABLE	DESCRIPTION
CP_{it}	Citizen Participation
GDP_{it}	Level of Economic Development (Per Capita GDP)
EDU_{it}	Education
AGE_{it}	Age
EXP_VOL_{it}	The Volume of Public Expenditures
TAX_BUR_{it}	Tax Burden
BUD_BAL_{it}	Budget Balance
BUD_TRANS_{it}	Budget Transparency
$LEGIS_BO_{it}$	Effectiveness of the Legislative Body's Budget Oversight
SAI_O_{it}	Effectiveness of the Supreme Audit Institution's Oversight
DEM_{it}	Democracy
FAA_{it}	Freedom of Association and Assembly
PAR_CS_{it}	Participation in the Civil Society
E_PAR_{it}	E-Participation
POL_COM_{it}	Political Competition
COR_{it}	Corruption

The level of citizen participation in national budget processes is used as the dependent variable. The results of the Unit and Time Effective Fixed Effects Model are presented in Table 3.

Table 3. Test of significance of the unit and time-effective fixed effects model

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.260116	(92.261)	0.0000
Cross-section Chi-square	284.608625	92	0.0000
Period F	32.519454	(3.261)	0.0000
Period Chi-square	118.136425	3	0.0000
Cross-Section/Period F	4.583270	(95.261)	0.0000
Cross-Section/Period Chi-square	365.087884	95	0.0000

Source: Created by the author.

According to the results of homogeneity tests, the F-value for the unit effect is 3.26 and the probability value is 0.0000. Therefore, it is concluded that the unit effect is significant. Similarly, the F-value for time effects is 32.51, which is also statistically significant. The F-statistic obtained for the joint significance of unit and time effects is 4.58, and since this statistic is statistically significant, it is concluded that the unit and time effective fixed effects model is valid at this stage. The results relating to the significance of the Random Effects model in the second stage are provided in Table 4.

Table 4. Test of significance of the unit and time-effective random effects model

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	15.84750 (0.0001)	536.4057 (0.0000)	552.2532 (0.0000)
Honda	3.980892 (0.0000)	23.16043 (0.0000)	19.19181 (0.0000)
King-Wu	3.980892 (0.0000)	23.16043 (0.0000)	23.49923 (0.0000)
Standardized Honda	4.943737 (0.0000)	26.97548 (0.0000)	14.92967 (0.0000)
Standardized King-Wu	4.943737 (0.0000)	26.97548 (0.0000)	24.43227 (0.0000)
Gourieroux, et al.	--	--	552.2532 (0.0000)

Source: Created by the author.

Table 4 shows that, according to the results of the Breusch-Pagan and King-Wu tests, as well as other derivative tests, the unit effect and time effect are individually significant, respectively. In the last column of Table 4, the significances of the unit and time effects are considered together, and it can be

observed that these two effects are jointly significant according to all test results as well. Therefore, it is concluded that the random effects model with unit and time effects is valid in the second stage.

In the final stage, results of the Hausman test are presented in Table 5 to decide between the fixed effects model with unit and time effects and the random effects model with unit and time effects.

Table 5. Results of the hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Chi-square	57.319158	15	0.0000

Source: Created by the author.

The Hausman chi-square statistic provided in Table 5 is 57.319 and this statistic has been found to be 1% significant. Accordingly, the null hypothesis has been rejected, and therefore it has been concluded that the suitable model is the fixed effects model with unit and time aspects.

Table 6 shows the estimation results of the fixed effects model with unit and time aspects.

Table 6. Fixed effects model with unit and time aspects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.31479	30.67658	-0.336243	0.7370
National Income	6.66E-05	0.000149	0.448241	0.6544
Education	31.10533	31.59162	0.984607	0.3257
Age	-2.775044	0.859053	-3.230352	0.0014
Public Expenditure	0.079245	0.069575	1.138985	0.2558
Tax Burden	0.081768	0.221292	0.369503	0.7121
Budget Balance	-9.79E-05	0.035607	-0.002749	0.9978
Budget Transparency	0.181401	0.059003	3.074433	0.0023
Legislative Oversight	0.042072	0.049316	0.853099	0.3944
SAI Oversight	0.009921	0.045924	0.216026	0.8291
Democracy	0.091913	0.120550	0.762449	0.4465
Freedom of Association & Assembly	11.31273	6.573664	1.720917	0.0865
Participation in the Civil Society	-6.437239	6.953433	-0.925764	0.3554
E-Participation	0.002211	0.000699	3.163801	0.0017
Political Competition	-0.374241	0.718863	-0.520601	0.6031
Corruption	-8.760759	4.116256	-2.128332	0.0342
Effects Specification				
Cross-section fixed (dummy variables)				
The period fixed (dummy variables)				
Root MSE	7.006699	R-squared	0.813486	

Mean dependent var	18.79301	Adjusted R-squared	0.734879
S.D. dependent var	16.24584	S.E. of regression	8.364976
Akaike info criterion	7.328385	Sum squared resid	18262.91
Schwarz criterion	8.497732	Log-likelihood	-1252.080
Hannan-Quinn criteria.	7.792764	F-statistic	10.34871
Durbin-Watson stat	2.178635	Prob(F-statistic)	0.000000

Source: Created by the author.

The validity of the estimated panel data model is based on the fulfillment of econometric assumptions and consequently, the estimator being BLUE. Therefore, tests have been conducted to examine the homoskedasticity (constant variance), absence of autocorrelation (absence of serial correlation), and cross-sectional independence assumptions.

Table 7 provides the results of the homoskedasticity test within the framework of the GREEN test.

Table 7. Results of the heteroskedasticity test

chi2 (93)	44615.73
Prob>chi2	0.0000

Source: Created by the author.

The Chi2 value is determined as 44615.73, and since it is statistically significant at 1%, the null hypothesis is rejected. In other words, the estimated model involves a heteroscedasticity problem.

Table 8 provides the results of the autocorrelation test.

Table 8. Results of the autocorrelation test

LM	1.1553 (0.2824)
LM5	1.0748 (0.1412)

Source: Created by the author.

It is observed that the values calculated as a result of the Baltagi LM and LM5 tests in Table 8 are not statistically significant; therefore, the null hypothesis is not rejected. In other words, the estimated model does not involve an autocorrelation problem.

Finally, the results of the Pesaran and Friedman tests are provided in Table 9 to test the validity of the cross-sectional independence assumption.

Table 9. Cross-Sectional independence test

Pesaran's test of cross-sectional independence	-0.293, Pr = 1.2302
Friedman's test of cross-sectional independence	5.026, Pr = 1.0000

Source: Created by the author.

Since both the Pesaran and Friedman test statistics calculated are not statistically significant, the null hypothesis cannot be rejected. In other words, the cross-sectional independence assumption is valid.

Table 10. Beck-Katz (1995) robust standard errors

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Dependent Variable:	VK			
Sample:	2018-2021			
Periods included:	4			
Cross-sections included:	93			
Total panel (balanced) observations: 372				
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)				
WARNING: estimated coefficient covariance matrix is of reduced rank				
C	-10.31479	15.92432	-0.647738	0.5177
National Income	6.66E-05	8.80E-05	0.757691	0.4493
Education	31.10533	15.07939	2.062771	0.0401
Age	-2.775044	1.485486	-1.868105	0.0629
Public Expenditure	0.079245	0.074453	1.064363	0.2881
Tax Burden	0.081768	0.237802	0.343849	0.7312
Budget Balance	-9.79E-05	0.029436	-0.003325	0.9973
Budget Transparency	0.181401	0.044346	4.090600	0.0001
Legislative Oversight	0.042072	0.029936	1.405373	0.1611
SAI Oversight	0.009921	0.036424	0.272369	0.7856
Democracy	0.091913	0.094421	0.973440	0.3312
Freedom of Association & Assembly	11.31273	2.997681	3.773826	0.0002
Participation in the Civil Society	-6.437239	8.800640	-0.731451	0.4652
E-Participation	0.002211	0.000937	2.358689	0.0191
Political Competition	-0.374241	0.603206	-0.620420	0.5355
Corruption	-8.760759	3.155219	-2.776593	0.0059
Effects Specification				
Cross-section fixed (dummy variables)				
The period fixed (dummy variables)				
Root MSE	7.006699	R-squared	0.813486	
Mean dependent var	18.79301	Adjusted R-squared	0.734879	
S.D. dependent var	16.24584	S.E. of regression	8.364976	
Akaike info criterion	7.328385	Sum squared resid	18262.91	
Schwarz criterion	8.497732	Log-likelihood	-1252.080	
Hannan-Quinn criteria.	7.792764	F-statistic	10.34871	
Durbin-Watson stat	2.178635	Prob(F-statistic)	0.000000	

Source: Created by the author.

Since the tests reveal a heteroscedasticity problem in the model, the standard errors in the suitable model should be corrected. For this purpose, Beck and Katz (1995) propose the PCSE approach which can correct standard errors by a panel. Accordingly, Table 10 presents the results of the Beck-Katz robust standard error model.

As shown in Table 10, the analysis results revealed that at a 5% significance level, the level of education has a positive effect on citizen participation in national budget processes, while the level of

economic development does not affect citizen participation in national budget processes. These findings are consistent with the findings in the literature (Harrison & Sayogo, 2014; Rios et al., 2017).

On the other hand, as it can be inferred from the analysis, it is concluded that there is a significant relationship between the level of the elderly population in countries and the level of citizen participation in budget processes at a 10% significance level. This is observed to be a negative relationship. Considering citizen participation as a form of political participation, this finding is consistent with the findings of Nie et al. (1974) in the literature. As presented in Table 10, the size of public expenditure and tax burden does not affect citizen participation in the national budget process. The analysis also reveals that there is no relationship between budget balance and citizen participation in national budget processes. The finding is consistent with that of Rios et al. (2017).

The empirical findings indicate that many institutional and political factors also affect citizen participation in budget processes. The results reveal a significant positive relationship between the level of budget transparency and citizen participation in budget processes at a 1% significance level. The finding is consistent with the literature (Rios et al., 2017).

It is observed in the analysis that countries' e-participation level has a positive effect on citizen participation in national budget processes at a 5% significance level. In contrast to Harrison and Sayogo's (2014) study, which did not find any relationship between citizen participation in budget processes and e-participation, the current study empirically proves the existence of a relationship.

As shown in Table 10, the analysis reveals that the freedom of association and assembly has a positive effect on citizen participation in budget processes at a 1% significance level. The analysis results indicate that the level of effectiveness of the legislative body's budget oversight and the level of effectiveness of the SAI's budget oversight does not affect citizen participation in budget processes.

As a result of the analysis, it is observed that the level of democracy does not affect citizen participation in national budget processes. The finding is consistent with the findings in the literature (Rios et al., 2017). Similarly, it is concluded that the level of political competition does not affect citizen participation in budget processes either. This finding supports the finding reached by Rios et al. (2017) in the literature. According to the conclusion reached in the analysis, individuals' level of participation in civil society activities does not affect citizen participation in budget processes. The analysis indicates a negative impact created by the level of corruption on citizen participation in budget processes at a 1% significance level.

In terms of the results of the hypotheses, it is observed that the analysis supports the hypotheses pertaining only to two of the socio-economic factors and four of the hypotheses formulated regarding the institutional and political factors.

7. Discussion and Conclusion

The potential factors affecting citizen participation in national budget processes have been addressed in the study. Therefore, the main research question of the study has been determined as "Which factors affect citizen participation in national budget processes?". The study examines the factors affecting citizen participation in national budget processes under two main titles: socio-economic and institutional-political factors. As a result of the analysis, a relationship between the level of economic development and citizen participation in budget processes could not be detected.

The analysis shows that the variable which has the most impact on citizen participation is *education*. The analysis results indicate that as the level of education increases, so does citizen participation in national budget processes. Since the level of education affects citizens' level of comprehension of the fiscal affairs in the public sector, states should increase their investments in education to ensure citizen participation in budget processes.

The analysis also demonstrates that a country's level of economic development does not affect citizen participation in national budget processes. We can explain the finding because a high level of economic development in a country does not always mean that the state provides the conditions and establishes the mechanisms necessary for participation. It is observed that many developed countries with high levels of economic development, such as Norway, Sweden, Italy, Germany, France, and the United States, have a similar level of citizen participation as developing countries such as Georgia, Nigeria, Nepal, Kenya, and Guatemala according to the OBS 2019.

A negative relationship has been observed between the *age factor* and *citizen participation* in the analysis. In other words, older age in a population reduces citizens' participation in budget processes. The finding can be explained by the health problems experienced by elderly individuals or their inadequate educational attainment.

On the other hand, the analysis has concluded that the level of tax burden does not have an impact on citizen participation in national budget processes. This finding can be explained by the fact that even when states impose similar levels of the tax burden on society, they may have varying senses of responsibility in terms of valuing citizens' opinions in budget processes.

Similarly, the analysis reveals that there is no relationship between the level of public expenditure and citizen participation in national budget processes. It is therefore observed that citizen participation in budget processes is independent of the size of a state (expenditure), and there are no differences between small and large-scale states in this regard. In conclusion, the results of the analysis indicate that only the level of education and the age factor among the socioeconomic factors affect citizen participation.

However, many institutional-political factors have been observed to affect citizen participation in budget processes in the analysis. It has been observed from the analysis that the *level of budget transparency* has a positive impact on citizen participation in national budget processes. Through budget transparency, citizens can observe public policy decisions, their execution, and outcomes (Keyifli, 2021: 81). Therefore, legal and administrative regulations aiming to increase the level of budget transparency should be introduced to increase the level of citizen participation in national budget processes.

The analysis reveals a significant positive relationship between countries' *level of e-participation* and *the level of citizen participation*. The finding can be explained by the fact that e-participation tools enable citizens to be informed about decision-making and execution processes, and provide opportunities for more discussion, observation, and evaluation. Since the phenomenon of e-participation enables citizens to intervene in decisions that are taken and applied, without time and place constraints, the number of e-participation tools in national budget processes should be increased.

It has been concluded in the analysis that *the level of oversight effectiveness of legislative bodies and supreme audit institutions* does not have an impact on citizen participation in national budget processes. Similarly, the analysis has not revealed any relationship between the *level of political competition* and *the level of citizen participation*. The finding can be explained by the likelihood of politicians adopting a reduced participation approach that attaches more importance to the views of interest groups rather than a general citizen participation approach to succeed in political competition.

According to the analysis, the freedom of association and assembly has a positive effect on citizen participation in national budget processes. The freedom of association and assembly allows people to come together and engage in the mutual exchange of ideas. In this respect, the finding can be explained by the fact that the freedom of association and assembly may increase the level of citizen participation in budget processes by providing a public discussion environment.

As a result of the analysis, no relationship could be found between individuals' level of participation in civil society activities and the level of citizen participation in national budget processes. The finding can be explained by the fact that the activities of civil society organizations are very diverse and therefore may not always be directly related to participation in budget processes.

On the other hand, according to the analysis results, an increase in the *level of corruption* negatively affects citizen participation in national budget processes. According to a possible explanation for the finding, citizens' participation in budget processes would not be much preferred in countries with high corruption levels, since citizen participation in budget processes increases the likelihood of irregular activities being revealed. Furthermore, it has also been concluded in the analysis that the *freedom of association and assembly* positively affects citizen participation in national budget processes. The freedom of association and assembly allows people to come together and engage in the mutual exchange of ideas. In this respect, the finding can be explained by the fact that the freedom of association and assembly may increase the level of citizen participation in budget processes by providing a public discussion environment.

Conducting research examining the long-term evolution of the research question, "Which factors affect citizen participation in national budget processes?" would greatly contribute to the literature for future researchers. In this context, the publication of relevant data by the IBP regularly and on an expanding scale would provide a more comprehensive panel data set.

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