






Evaluating the Influence of Taxation Levels on the Degree of Economic Freedom of Countries

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ABSTRACT

The current phase of global economic growth is witnessing a convergence of interests among macro-level entities such as home countries, host countries, and third countries, associated with income and profit receipt. Concurrently, meso-level actors have emerged in the form of extensive cross-industry partnerships. Additionally, macro-level entities, such as international organizations, state associations, and supranational bodies, are playing a significant role. Considering that tax policies exert a substantial influence on a nation's economic dynamics, innovative activity, and competitiveness, assessing the impact of tax burden on the degree of economic freedom within countries is significant. This study aims to identify the ideal level of the tax burden, and its results have implications for various aspects of economic development. This research contributes to encouraging economic growth, fostering entrepreneurship and innovation, ensuring social justice, and improving the overall quality of life for the population. The model proposed in this study can be used for determining the ideal level of taxes (tax burden), thus striking a balance between societal and economic needs as well as the effect of taxation on economic freedom in a country.

Keywords: Tax, tax burden, international taxation, degree of economic freedom, exponential smoothing model

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1. INTRODUCTION

In the context of existing globalization and polarization trends across the world, the degree of economic freedom in a country influences and determines the types of its international economic relations. The degree of economic freedom in a nation can be significantly impacted by its tax burden. High taxes can discourage innovation and entrepreneurship, reduce worker and investor enthusiasm, and encourage tax cheating (Mankiw, Weinzierl, & Yagan, 2009) and unlawful activity. In contrast, low taxes can boost the economy, encourage entrepreneurship and investment, and promote employee engagement and innovation. However, low taxation can result in underfunding of the nation's socioeconomic initiatives, negatively impacting social justice and the standard of living of the general population. Therefore, the balance between economic needs and social obligations determines the ideal level of tax burden to ensure economic freedom in a country. While ensuring that the country has sufficient resources to meet its demands, it is crucial to avoid restricting entrepreneurship and investment through excessive taxation. There can be a considerable correlation between a country's degree of economic freedom and its level of innovation. A high degree of economic freedom typically engenders an atmosphere that is more conducive to innovation, facilitating the creation and application of creative ideas (Gwartney & Lawson, 2003).

One of the main economic factors influencing a country's progress is its tax burden. High taxes directly contribute to an increase in social inequality because they encourage illegal economic activity and negatively impact investment, innovation, and entrepreneurship. Research on the effects of tax burden on economic freedom can provide insights into how the tax system can be improved to attain the greatest possible level of economic development (Alesina & Ardagna, 2009). The ideal balance of economic freedom and tax burden may change depending on socioeconomic circumstances, political stances, and other influencing factors.

2. LITERATURE REVIEW, AIM, AND METHODOLOGY

The assessment of the impact of tax burden on the degree of economic freedom in countries is a pertinent and significant topic given that tax policies influence a nation's economic dynamics, innovative activity and competitiveness. Conducting research in this area aims to identify the ideal level of the tax burden, which has implications for economic development. This research promotes economic growth, fosters entrepreneurship and innovation, ensures social justice, and enhances the population's quality of life.

This study contributes to the literature by exploring the specific mechanisms and pathways identified in previous research (Hlushchenko, Korohodova, Moiseienko, & Chernenko, 2021). The current study expands previous findings by integrating new data sets, refining methodologies, and examining additional facets of the topic (Hlushchenko et al., 2023) to provide a more comprehensive analysis and understanding of the subject matter (Hlushchenko, Korohodova, Chernenko, & Moskvychova, 2024). This iterative approach strengthens the credibility of the current study and contributes to advancing the field theoretically.

Several scholars have assessed the scientific issues in determining tax burdens (e.g., Göktaş, 2023; Malikov & Abramova, 2012; Baranov, 2016; Brekhov & Korotun, 2015), providing theoretical and methodological ideas, new research techniques, tax burden schemes for corporate entities, and scheme implementation recommendations (Hretska, 2016; Kovalenko, 2019; Koretska, 2011; Lingqi, 2021; Olihovskiy, 2012; Penno, 2021; Suprunenko, 2013). Despite this extensive research, some problems need to be addressed. In particular, it is necessary to study how tax burdens affect a country's degree of economic freedom. Considering details such as particular tax policies, processes, tariffs, institutional features, and international agreements based on cross-country comparisons, further research can expand our understanding of the impact of tax burden on the socioeconomic development of countries. Studies that consider these elements can have implications for social justice, economic development, innovative activity, and tax policy. Flawed and impervious tax burden systems obstruct the progress of branch entrepreneurship, restrain the expansion of competitiveness in external branch markets, and hamper the adoption of innovations and investments amidst a decline in entrepreneurial employment within the region (Lupenko, Andros, Lupenko, & Yarmolenko, 2021).

The current stage of the growth of the global economy is witnessing the convergence of the interests of macro-level entities (states - countries of registration; states - countries of implementation; states - countries receiving income, profits) with those of meso-level subjects, in the form of sizable cross-industry partnerships, and macro-level entities (international organizations, associations of states, and other supranational entities). Scholars have different views about the ideal level (load) of taxation. In the current context of dynamic economic and geopolitical development, it is important to substantiate the processes by which the tax burden develops as a component of the tax system, analyze its effectiveness and social impacts, and provoke debates on how to reduce it to the greatest extent possible while promoting sustainable economic growth and public welfare. One suggested measure is lowering taxes to boost entrepreneurship,

investment, and economic growth. Another measure involves tax progressivism, wherein wealthy individuals are made to pay greater taxes to promote social fairness and equitable income distribution. Additionally, the public good theory considers the particulars of taxation in relation to the supply of public goods and services that cannot be excluded from consumption and have the nature of collective consumption. It is employed in the framework of the theory of ideal taxation. The effective supply of public goods and mitigation of the effects of market externalities are considered when determining the ideal level of taxation. There are a number of optimal taxation theories in economics that consider current issues and trends. These include the “maximization of social welfare” hypothesis, which holds that the best amount of taxation maximizes social welfare for society while considering social fairness and the distribution of income in addition to economic factors. For example, Dogan and Secilmis (2020) observed that individuals who believe that the state should take more responsibility of citizens’ lives have higher tax morale.

Consequently, previous research has examined patterns in the policy of tax burden distribution in highly industrialized nations (Beraldo, Passos, & Rister, 2023). The idea of tax burden has also been analyzed in depth by Hodovanets and Marshalok (2008), exploring its history and significance in the formation of the state’s socioeconomic strategy. The tax burden factors into the nation’s tax environment (Hrynkiv, Yu. & Hrynkiv, V., 2011). Each nation has its unique tax regulations and legislation. Managers of transnational corporations (TNCs) can use various strategies to lower their tax obligations. Transnational corporations can establish branches in countries with low tax rates or use tax treaties between countries to avoid double taxation and transfer profits to countries with low tax rates to count them as expenses.

The tax burden acts as a financial indicator that measures the value of tax deductions (Fradynskyi, 2010). This study uses the tax burden as a measurement indicator to examine and evaluate the level of efficiency of specific taxes or the tax system as a whole. There are various quantitative and qualitative methods for evaluating tax burden (Zhyvko & Rodchenko, 2020). Onufryk (2011) has provided a comparison of the base for calculating such a tax burden indicator using the gross domestic product (GDP) in Ukraine and gross national product in several developed countries, leading to a discrepancy in data interpretation. Others have suggested other methods for calculating the tax burden, including as a percentage of the budget’s tax revenues to the total amount of private sector income, as the difference between the total budget’s tax revenues and expenditures and transfers for maintaining the private sector, and as a share of tax budget revenues in GDP (Zhyvko & Rodchenko, 2020).

Due to a lack of a mechanism for calculating the amount of mandatory social contributions to extra-budgetary social funds, which belong to tax payments as they are of a compulsory nature, other researchers in the work (Fradynskyi, 2010) note the shortcomings of the current definition and calculation of the tax burden. They are created to fund existing obligations and lack the characteristics of direct equivalency.

According to Zhyvko and Rodchenko (2020), indices of income depend on how effectively taxes burden the economy and the capacity of tax authorities to collect legally mandated taxes. The authors confirmed that the ideal tax burden should be at 40%–42% of the GDP, although this claim is controversial. According to Podra and Stambulska (2022), Ukraine has a high tax burden in Europe, which negatively affects stable economic operations and business sector development. The tax burden in Ukraine was computed at 27.2% in 2021 (Podra & Stambulska, 2022) using the State Statistics Service of Ukraine’s data. The amount of innovative activities, the scale of investments, and the level of tax burden rise as the tax burden is reduced. Both the macro level (for the state) and the micro level (for a person or a legal entity) can be used to estimate the tax burden’s size. International tax planning can lower a single company’s tax burden. The tax burden on a particular business might consequently have an impact on its profitability, competitiveness, innovation and investment activity. Within national borders, the tax burden serves as a quantitative indicator of the total amount of public goods the state provides. The level of consumption, investment, employment, R&D and general development are all influenced by the total amount of taxes placed on society.

To create successful tax regulation tactics, this study aims to investigate the impact of the tax burden on the degree of economic freedom within a country, considering both domestic and global factors.

This study analyzes recent research in the field, establishing a link between tax burden and the degree of economic freedom, developing and testing a model to identify the ideal tax structure, and fostering countries’ economic growth.

This study uses data from the Organization for Economic Cooperation and Development, the World Bank, Forbes, the International Association of Tax Justice Network, and the Institute of Management Development. The theoretical and methodological basis of this research includes international taxation, tax planning, and economic theories. Further, we use the following methods: decomposition, scientific abstraction, and generalization are used to elucidate the conceptual and categorical apparatus of the tax burden; economic comparison and generalization are employed for assessing the tax burden of various countries; and multiple regression is conducted to build the exponential smoothing model (Hyndman, Koehler, Ord, & Snyder, 2008).

3. DATA, FINDINGS, AND FIELDWORK

Tax burden influences the degree of economic freedom in a nation (Ivanov & Nazarenko, 2010). According to a previous study (Cervello-Royoa, Devece, & Blanco-Gonzalez Tejero, 2023), economic freedom is the capacity of individuals and organizations to decide how to use their resources and how to conduct economic activities without governmental interference. The level of state control over the economy, the existence of market processes, conservation of property rights, and company regulation contribute to economic freedom. Countries with a high degree of economic freedom frequently have higher levels of success in luring investment to foster the introduction and growth of novel concepts, technologies, and goods. Government interference, inadequate protection of property rights, and other limits may hinder the growth of innovative activities in countries with a low degree of economic freedom.

Various aspects of a country's economic development affect its tax burden at different points in time (Hodovanets & Marshalok, 2008). Steady economic growth may lead to an increase in state spending. In Ukraine, the analytical divisions of the State Tax Service (Plans and reports of the State Tax Service of Ukraine, 2022) assessed the payment of taxes and fees using indicators such as the average tax burden in the industry as well as that in the nation as a whole, in the cross-section of regions, districts, and individual economic entities.

It is interesting to determine the relationship between a nation's tax burden and its degree of economic freedom with regard to previous findings. A high level of tax burden diminishes incentives for entrepreneurship, impedes the effective distribution of resources, and increases the level of state intervention in societal economic affairs according to an assumption made by the authors based on the cause-and-effect arguments presented above.

This study examines tax burdens in countries where some of the biggest transnational corporations are registered. As for the findings of Forbes in 2021, Figure 1 shows the spreading of the largest companies based on their country of establishment.

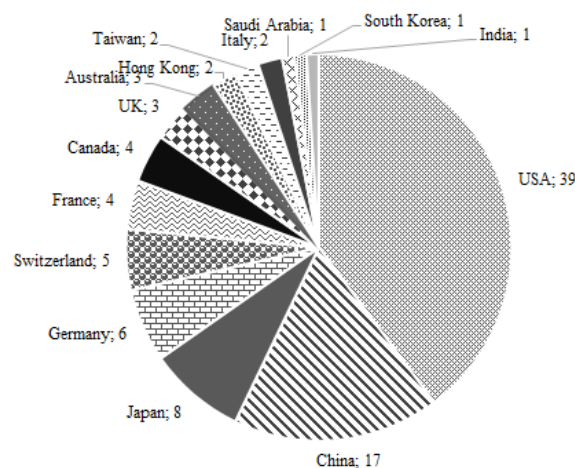


Figure 1. Distribution of the 100 largest companies in the world as per the Forbes Global 2000 rating for 2021

Source: Forbes Global 2000 Companies List (2021)

International scholars have demonstrated a strong connection between the operations of TNCs and various digital technologies, including the utilization of the Internet, e-commerce, Big Data analytics, blockchain, 3D printing, and artificial intelligence. These TNCs can be classified as digital multinational corporations. Their leading positions are interconnected with the technological breakthrough in the field of digitization, noted in the last decade in the countries of origin of TNC capital. When examining the positions held by these countries (World Ranking of Digital Competitiveness, 2019; World Ranking of Digital Competitiveness, 2020; World Ranking of Digital Competitiveness, 2021), of the countries listed in Figure 1, nine secured a place in the top twenty in both 2019 and 2021. In 2020, the number increased to ten (Table 1). According to Table 1, the United States secured the first place for three consecutive years. In 2021, Hong Kong moved from the fifth position in 2020 to the second. Switzerland maintained its sixth position in both 2020 and 2021. Other countries demonstrated considerable levels of digital competitiveness: South Korea fluctuated between the 12th and 8th positions throughout the study period, Taiwan ranged from the 13th to 8th place, and Great Britain improved from the 15th to the 13th position.

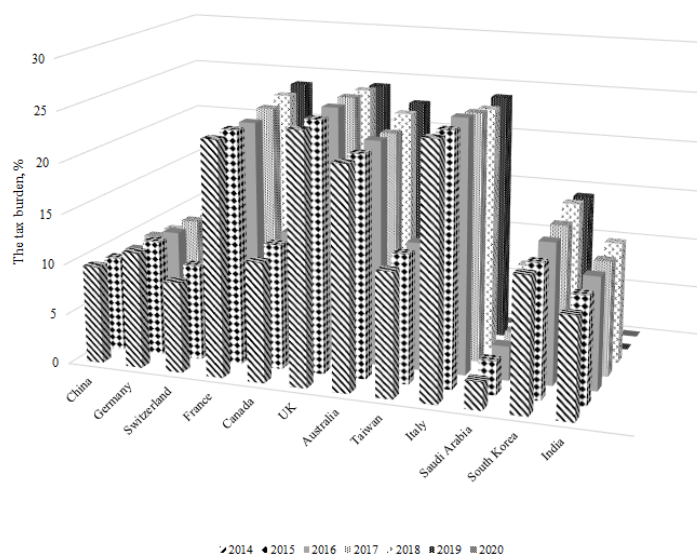
The tax burden is assessed as a percentage of the total taxes paid to the GDP (Kovalenko, 2019; Olihovskiy, 2012). Figure 2 illustrates the dynamics of this indicator for the studied countries between 2014 and 2020.

Table 1. Position of the studied countries in the World Ranking of Digital Competitiveness for 2019–2021

Country	2019		2020		2021	
	Place in the rating	Score	Place in the rating	Score	Place in the rating	Score
USA	1	100	1	100	1	100
Hong Kong	8	93,686	5	94,451	2	96,576
Switzerland	5	94,648	6	93,693	6	94,939
Taiwan	13	90,194	11	90,772	8	92,243
South Korea	10	91,297	8	92,252	12	89,724
Canada	11	90,836	12	90,482	13	87,31
United Kingdom	15	88,691	13	86,314	14	85,827
China	22	84,292	16	84,105	15	84,431
Germany	17	86,216	18	81,062	18	79,334
Australia	14	88,897	17	83,127	20	78,683
France	24	82,522	24	76,983	24	75,656
Japan	23	82,775	27	75,099	28	73,014
Saudi Arabia	39	69,036	34	67,910	36	64,349
Italy	41	67,903	42	60,911	40	61,767
India	44	64,952	48	54,836	46	55,126

Source: World Ranking of Digital Competitiveness, 2019; World Ranking of Digital Competitiveness, 2020; World Ranking of Digital Competitiveness, 2021

The data presented in Figure 2 reveals that the percentage of taxes to GDP in the studied countries remains below 25%, with the exception of Great Britain, which recorded a tax burden of 25.31% in 2017. France, Italy, and Australia demonstrate a tax burden ranging between 20%–25%. Among the countries with a tax burden ranging from 10% to 15%, is South Korea (with the exception of 2019 when the tax burden reached 15.2%), Canada, the USA, Germany, Taiwan, and India.

**Figure 2. Dynamics of the tax burden of the studied countries for 2014–2020**

Source: The World Bank (2023)

As illustrated in Figure 2, countries with a large number of corporations and relatively high levels of direct taxation establish a moderate tax burden indicator. This indicator is calculated as the ratio of total tax payments to GDP, suggesting a possible redistribution of the tax burden between legal entities and individuals.

The analysis reveals several key elements of taxation that corporations should consider when planning their ideal tax burden, while taking into account associated risks. These include the materiality of direct taxation, encompassing profit and capital, in both the countries of registration and of digital presence. The volatility of tax legislation and the adherence to principles of tax justice are important. This promotes economic growth, supports entrepreneurship and innovation, ensures social justice, and improves quality of life.

4. DISCUSSION AND CONCLUSION

The taxation system substantially influences the degree of economic freedom experienced by citizens and businesses in various countries (Markovich, 2006). Economic freedom encompasses the extent of unrestricted activity and mobility in the market that is free from significant governmental restrictions or interference. It includes aspects such as property rights, contract enforcement, entrepreneurial freedom, competition, regulation, and taxation. Economic freedom emphasizes the importance of limited government intervention, allowing businesses and individuals to make decisions regarding their financial and business affairs. It is essential for fostering sustainable economic growth, raising living standards, and ensuring societal prosperity. Countries with a high degree of economic freedom have strong economies, low unemployment, and high standards of living (About Tax Trap for the Ukrainian Economy, 2023).

4.1. EXPONENTIAL SMOOTHING MODEL

Among the time series models, ARIMA and exponential smoothing forecasting methods are popular methods in commerce, education, and finance (Ersöz, Güner, Akbaş, & Bakir-Gungor, 2022). Our analysis began by identifying nonstationarity within the data using the Dickey–Fuller test, prompting the search for alternatives to traditional ARIMA models. We harnessed exponential smoothing, an advanced time series forecasting technique useful for modeling trends and seasonality. This approach allowed us to capture the underlying trends within the nonstationary data and project forecasts for 2024. Through this process, this study gained valuable insights into forecasting.

Table 2. Forecast data of the future values of the index of economic freedom by country for 2024 based on the proposed model

Countries / Years	2019	2020	2021	2022	2023	IEF 2024
Australia	80,9	82,6	82,4	77,7	74,8	69,78
Canada	77,7	78,2	77,9	76,6	73,7	70,8
China	58,4	59,5	58,4	48	48,3	43,25
France	63,8	66	65,7	65,9	63,6	63,1
Germany	73,5	73,5	72,5	76,1	73,7	74,04
India	55,2	56,5	56,5	53,9	52,9	54,29
Italy	72,1	73,3	74,1	69,9	69,3	64,76
Japan	69,9	69,3	59,6	60,7	62,4	70,723
Saudi Arabia	60,7	62,4	66	55,5	58,3	58,44
South Korea	72,3	74	74	74,6	73,7	74,5
Switzerland	81,9	82	81,9	84,2	83,8	84,06
Taiwan	80,1	80,7	78	78,9	79,3	81,22
UK	78,9	79,3	78,4	72,7	69,9	66,7
USA	76,8	76,6	74,8	72,1	70,6	69,1

Source: Heritage Foundation (2023)

Based on Formula 1, the derived ratio provides a measure that captures the influence of tax burden on the degree of economic freedom.

$$\frac{TB}{IEF'} \quad (1)$$

where, IEF (Index of Economic Freedom) is the value of the index of economic freedom, in years, and *TB* (*Tax Burden*) is the level of tax burden in the country.

4.2. REPRESENTATIVE SPECIFICATIONS AND FORECAST

The ratio presented in Formula 1 provides insight into the extent to which taxation significantly influences the degree of economic freedom. The value of this ratio can indicate whether the tax system facilitates or hinders entrepreneurial activity and economic growth. A lower value of the tax burden–index of economic freedom ratio indicates more favorable conditions for economic development and greater economic freedom. The impact of the tax burden on the degree of economic freedom, as calculated using Formula 1, is displayed in Table 3.

Table 3. Change in the degree of economic freedom under the influence of tax burden (2019–2020)

2019	IEF	Tax Burden	Tax Burden/IEF	2020	IEF	Tax Burden	Tax Burden/IEF
Hong Kong	90,2	93,1	1,0	Hong Kong	89,1	93	1,0
Switzerland	81,9	70,5	0,9	Switzerland	82	70,1	0,9
Canada	77,7	76,8	1,0	UK	79,3	64,7	0,8
Taiwan	77,3	75	1,0	Canada	78,2	76,5	1,0
USA	76,6	74,6	1,0	Taiwan	77,1	75	1,0
Germany	73,5	60,8	0,8	South Korea	74	63,9	0,9
South Korea	72,3	64,2	0,9	Germany	73,5	60,9	0,8
Japan	72,1	68,2	0,9	Austria	73,3	51,3	0,7
Austria	72	50,5	0,7	Japan	73,3	68,3	0,9
France	63,8	48,4	0,8	France	66	48,8	0,7
Italy	62,2	55,6	0,9	Italy	63,8	56	0,9
Saudi Arabia	60,7	99,8	1,6	Saudi Arabia	62,4	99,8	1,6
China	58,4	70,4	1,2	China	59,5	70,4	1,2
India	55,2	79,4	1,4	India	56,5	79,4	1,4

Source: prepared by the authors.

The impact of the tax burden on the degree of economic freedom, as calculated using Formula 2, is presented in Table 4.

The research findings based on the proposed model confirm the influence of tax burden on the degree of economic freedom within a country (Tables 3 and 4). These results provide evidence of the interplay between taxation and economic freedom, demonstrating that changes in the tax burden affect the overall economic environment of a country.

High taxes have a negative impact on the country's economic growth and development, as demonstrated in previous research:

research by the International Monetary Fund revealed that a 10% increase in the tax burden led to a 0.5%–1% decline in economic growth (De Mooij & Keen, 2023);

the Organization for Economic Cooperation and Development showed that a 10% increase in the tax burden produced an increase of 1%–2% in the size of the shadow economy (Organization for Economic Cooperation and Development, 2022);

the World Bank demonstrated that a 10% increase in the tax burden resulted in a 2%–3% decline in investment volume (Ukrainian Pravda, 2018); and

research by the United Nations showed that a 10% increase in the tax burden caused a 1%–2% increase in social inequality (United Nations, 2021).

The results of this study show the significance of researching the impact of taxation on economic freedom. Such research allows for assessing the effectiveness of the tax code and reduction of tax risks, both of which support national economic growth.

Table 4. Changes in the degree of economic freedom under the influence of tax burden (2021–2023)

2021	IEF	Tax Burden	Tax Burden/IEF	2022	IEF	Tax Burden	Tax Burden/IEF	2023	IEF	Tax Burden	Tax Burden/IEF
Switzerland	81,9	70,4	0,9	Switzerland	84,2	70,1	0,8	Switzerland	83,8	70,6	0,8
Taiwan	78,6	79,2	1,0	Taiwan	80,1	79,2	1,0	Taiwan	80,7	79,3	1,0
UK	78,4	64,9	0,8	Canada	76,6	75,7	1,0	Canada	73,7	75	1,0
Canada	77,9	76	1,0	Germany	76,1	59,9	0,8	Germany	73,7	60,2	0,8
USA	74,8	76	1,0	South Korea	74,6	60,4	0,8	South Korea	73,7	60,1	0,8
Japan	74,1	67,8	0,9	Austria	73,8	45,5	0,6	Austria	71,1	45,7	0,6
South Korea	74	63	0,9	UK	72,7	65,4	0,9	USA	70,6	75,4	1,1
Austria	73,9	45,7	0,6	USA	72,1	75,9	1,1	UK	69,9	65,4	0,9
Germany	72,5	60,4	0,8	Japan	69,9	67,4	1,0	Japan	69,3	68,1	1,0
Saudi Arabia	66	99,1	1,5	France	65,9	52,1	0,8	France	63,6	52,9	0,8
France	65,7	50,7	0,8	Italy	65,4	57,7	0,9	Italy	62,3	57,3	0,9
Italy	64,9	58,1	0,9	Saudi Arabia	55,5	99,3	1,8	Saudi Arabia	58,3	99,4	1,7
China	58,4	72,6	1,2	India	53,9	79,5	1,5	India	52,9	78,5	1,5
India	56,5	78,7	1,4	China	48	71,2	1,5	China	48,3	69,5	1,4

Source: prepared by the authors.

5. RESULTS AND RECOMMENDATIONS

This study developed and tested a comprehensive model for assessing the influence of tax rates, international agreements, and legislation on the degree of economic freedom within a country. Through this analysis, the study identified potential tax risks and explored opportunities for their mitigation. Identifying an ideal tax system is critical for fostering economic development, enhancing economic freedom, attracting investments, improving innovative activity, and addressing social inequality.

The ideal amount of taxes (tax burden) that strikes a balance between economic needs and social obligations can be determined by evaluating the influence of tax burden on the degree of economic freedom. By considering domestic and foreign factors, the study focused on the creation of efficient tax regulation solutions for the influence of tax burden. The study's exponential smoothing model enables analysis of tax risks and identification of specific opportunities to reduce them. A vital concern in fostering economic growth, increasing economic freedom, enhancing innovation activity, and reducing social inequality in the country is the search for the best possible tax structure. This study evaluates how taxes affect a country's degree of economic freedom in order to identify the ideal tax burden level. Reduced tax rates, streamlined tax processes, and increased fairness and transparency in the tax system may help achieve a balance between the societal and economic needs of a country. The study revealed that countries with the greatest number of largest companies of the world have a moderate tax burden despite having a high amount of direct taxation. This indicates a shifting of the tax burden between legal entities and individuals since the mentioned indicator is calculated as the ratio of all amounts of paid taxes to GDP. The authors suggest that research on the relationship between tax burden and economic freedom can establish a connection between these variables, enabling the evaluation of how tax policy affects a country's social equality and economic growth. This research can be helpful to elected officials and governmental organizations. Future research should consider the impact of a country's tax system on TNCs' tax planning as well as the effect of the tax burden on the degree of economic freedom in different sectors of the economy, specifically the impact of tax policies on the growth of small and medium-sized businesses or the development of information technology. Research should also consider how social norms and institutional frameworks affect the perception of tax policies and their influence on economic freedom. Additional research on how taxes affect a country's degree of economic freedom can improve tax policy, support economic growth, and advance social fairness.

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