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EDITORIAL

Issue 3 Volume 23 Year 2021 of the *Economic Horizons* scientific journal contains four original scientific and two review papers, the Subject Matter Index of the Papers and the Overview of the Authors and the Titles of all the contributions published in the Journal in the year 2021. Simultaneously, as a result of the continued endeavor of the Editorial Board of the Journal to increase the Internationality Index of the Authors while improving the quality of the papers published in it, be advised of the fact that Volume 23 Year 2021 of the *Economic Horizons* has published a total of 12 scientific papers written by the authors from abroad (Mexico, Nigeria, India, South Korea, Poland, Sudan, Vietnam and Indonesia), which accounts for the two-thirds (actually 66.67 per cent) of the total number of the published scientific papers in the Journal in the year 2021.

Starting from the attitude that a state's territorial organization and political system is determined by the way how functions and resources are distributed across the government levels, the coauthors *Sasa Randjelovic* and *Svetlana Vukanovic* have done research in the relevant aspects of the fiscal decentralization and structural characteristics of local public finance in the Republic of Serbia, placing an emphasis on the public investment local policy. The research results show that a greater part of local public investments are focused on the maintenance of the road and administrative infrastructures, investment in the environment and education being at a low level. The authors point to the fact that a reduction in local disparities in the local infrastructure quality and the stimulation of economic convergence necessarily demand an improvement of the capacities for planning and performing investments and the introduction of systemic incentives for local public investment. This is true even more so because, according to the coauthors, the low level of both public and domestic private investments has been one of the main reasons for the slow growth of the Republic of Serbia's economy in the last two decades.

The influence of taxes on economic growth presented by a mutual relationship between the GDP per capita and tax obligations in the observed countries is the subject matter of the research study carried out by the coauthors *Lich Khac Hoang, Binh Tan Cao, Kim My Le* and *Dung Thi Thuy Nguyen*. Using the multicriteria classification technique, relevant data about the tax obligations and GDP per capita for 63 countries in the period from 2003 to 2017 are analyzed. It has been determined that different types of tax have different effects on economic growth. The research results show that the majority of taxes, except for personal income tax, exert a positive influence on economic growth in poor countries, whereas goods and services taxes positively influence economic growth in rich countries. It is also evident that property tax negatively influences economic growth in rich countries, whereas its influence is significantly positive in stimulating economic growth in poor countries.

Starting from the attitude that the dynamic changes influenced by digitalization have questioned the traditional factors of the successfulness of an enterprise, the author *Aleksandra Boskovic* has conducted a research study in which she points to the need for examining new ways to achieve sustainable value. The initial attitude implies that knowledge is an important qualitative factor of generating and applying new ideas and developing and implementing new technologies as well, whereas people are knowledge bearers, due to which fact the author indicates the need for doing research in the ways how to have their potential improved. Based upon the conducted empirical research study on the example of information-communication technologies, the author proves that employee autonomy positively impacts the level of their engagement in the digital environment,

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especially so in the conditions of remote work, simultaneously emphasizing the fact that autonomy should be based upon knowledge and expertise since it is only under that condition that positive effects can be achieved.

Considering the implications for peer-to-peer lending, financial bootstrapping and the support of the state for the performances made by micro-, small and medium-sized enterprises, the coauthors *Maria Rio Rita*, *Yeterina Widi Nugrahanti* and *Ari Budi Kristanto* especially point to the mediator role of innovations. Applying structural equation modelling by means of the partial least squares on the sample of micro-, small and medium-sized enterprises with the business seat in Salatiga City, Central Java, Indonesia, the coauthors indicate that peer-to-peer lending and financial bootstrapping positively influence business performances and innovations, whereas the support of the state has a positive influence on innovations but does not influence business performances. Simultaneously, the coauthors point to the fact that innovations have a positive influence on an enterprise's business performances, while simultaneously mediating with respect to the influence of peer-to-peer lending, strengthening the effect of financial bootstrapping and balance the effect of the support of the state.

Pursuant to the significance of the Association of Southeast Asian Nations (ASEAN) and its role in enhancing the trade flows of its member countries, the coauthors *Anh Thu Nguyen* and *Thi Mai Thanh Tran* have conducted the effect of trade facilities, considering them as the strength leading towards forming one market and one production base. It is expected that, strictly minimizing trade costs, promoting participation in global value chains and increasing participation on the private sector part, the ASEAN member countries will achieve an increase in trade flows. The coauthors establish a fact that the indicators of easing nontariff barriers and institutional coordination, on the one hand, and the indicators of the engagement of the Association's member states, on the other, were most successfully realized in the period from 2017 to 2019. The effects of trade flows in the Association have positively reflected on the extraregional trade of the member states as well.

The coauthors *Nyore Sandra Ofogbe*, *Chidiebere Nnamani*, *Chika Anastesia Anisiuba* and *Charity Nkeiru Ezuwore-Obodoekw* did research in the relationship between corporate social responsibility and the capital price on a sample of the 32 companies listed on the Nigerian Stock Exchange. As a measure of corporate social responsibility, the Thompson Reuther Index was used, whereas the cost of equity and the cost of debt were used as a measure of the capital price. Based upon the results of the research study, the coauthors conclude that the companies investing in corporate social responsibility have a better chance to obtain capital at a more favorable price. Because of the mentioned effect reflected in easier access to funds, at a more favorable price, the coauthors recommend that companies should continuously be investing in corporate social responsibility.

On behalf of the Editorial Board of the Journal and on my own behalf, I would first of all like thank the authors of the contributions published in this Issue of the Journal. My special gratitude simultaneously goes to the reviewers whose constructive and critical comments and suggestions given to the authors of the submitted contributions have contributed to raising the level of the quality of the published articles.

Issue 3 Year 2021 contains a comprehensive Subject Matter Index of the scientific papers published in the Journal in the year 2021, as well as the Overview of the Authors and Titles of all the contributions published in the *Economic Horizons* in the year 2021.

Editor-in-Chief
Vlastimir Lekovic

Vlastimir Lekovic is a full professor of the Faculty of Economics of the University of Kragujevac, in retirement. He earned his Ph.D. at the Faculty of Economics of the University of Kragujevac in the scientific field of general economics and economic development. He teaches the teaching disciplines of Institutional Economics in the master's studies, and Scientific Research Methodology and Market Regulation Policy in the doctoral studies. The key areas of his scientific research interest are the economic system, the economic policy, and institutional economics.

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FISCAL DECENTRALIZATION AND LOCAL PUBLIC INVESTMENT POLICY IN THE REPUBLIC OF SERBIA

Sasa Randjelovic[1*] and Svetlana Vukanovic[2]

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This paper analyses the level of fiscal decentralization and structural characteristics of local public finances in Republic of Serbia with focus on local public investments. Share of central government expenditures in consolidated government spending of 83%, indicates relatively high degree of fiscal centralization. In spite of significant rise in local public revenues in the last decade public investments remained low - amounting to 1% of GDP, which is significantly below EU and Central and Eastern Europe average (1.4 and 1.5% GDP, respectively). Our results indicate large variation in relative size of public investments across LSGs. Most local public investments are focused on roads maintenance administrative infrastructure, while investments in environment and education are low. To tackle local disparities in terms of quality of local infrastructure and to foster economic convergence, development of planning and implementation capacities and introduction of systemic incentives for local public investments should be considered.

Keywords: fiscal decentralization, local self-government, public finance, local-level public investments

JEL Classification: H70, H71, H72, H74

INTRODUCTION

The territorial and political organization of the state are largely determined by the way it has been formed, its cultural heritage, as well as the socio-political and economic characteristics of society. In this regard, one of the relevant issues in the domain of fiscal federalism refers to the optimal level of distribution of functions and resources by the levels of government and the impact of fiscal decentralization intensity on the overall economic performance of the state - primarily on long-term economic growth. Except for European transition economies, the levels of decentralization are relatively stable over time, revenue collection being relatively more centralized than expenditures (Dziobek, Mangas & Kufa, 2011). Theoretical arguments in support of fiscal decentralization are based on the so-called Tiebaut's model, which suggests that the existence of more political units (e.g. local governments) allows people to relocate in order to choose the one that best reflects their preferences, in

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terms of the quality of local public goods and services, and the amount and structure of taxes (Tiebaut, 1956). Therefore, it is considered that the existence of a larger number of local governments enables the adjustment of their policies to the preferences of their inhabitants, which has a positive effect on the overall social welfare (Stigler, 1957). This would indicate that fiscal competition between local governments leads to efficient resource allocation, which positively affects overall economic efficiency (Oates, 1972). These theoretical views are supported by some empirical research, which shows that the existence of a larger number of local governments per 100 thousand inhabitants, has a positive impact on local economic development (Akai & Sakata, 2002; Stansel, 2005). On the other hand, there is also a relatively large body of empirical studies that suggests a negative link between fiscal decentralization and economic growth (Martinez-Vazkues & McNab, 2003; Bodman, 2011; Baskaran & Feld, 2013).

The results of theoretical and empirical analyses also indicate that the link between fiscal decentralization and economic growth is not linear, but rather depends on the degree of decentralization, transparency of public finance, design of incentives created by the financing system, and the efficiency of use of public resources at the sub-central levels of government (Bird, 2000). Recent empirical research indicates that one of the main reasons for the relatively slow growth of the the economy of Republic of Serbia in the past two decades (compared to the growth achieved by, for example, Asian countries when they were at the same level of development), is the low level of investment - public investment, as well as domestic private investment (Arsić, Ranđelović and Nojković, 2019). Insufficient level of consolidated government public investment is a consequence of low investments of the central as well as the local government. At the same time, in the past few years, public investments at the central level of government have increased significantly, while local public investments have remained relatively low, despite the additional decentralization of public revenues (Ranđelović, 2020). Considering relatively significant size of fiscal multipliers with public investment in emerging European economies, found in empirical studies (Petrović, Arsić & Nojković, 2021), low public investment triggers significant losses in terms of the foregone future economic growth. Therefore, in order to encourage long-term economic growth, in addition to numerous other preconditions, it is necessary to improve institutional mechanisms that would provide a relatively high level of public investment at all levels of the state, the implementation of which would be transparent and efficient.

This paper is dealing with the evaluation of the state of fiscal decentralization in Republic of Serbia, the performances of local self-government (LSG) financing system, and the characteristics of local public expenditure policy, with the focus on LSG public investment policy.

In that respect, we test two main hypotheses:

H1: Local public investment in the Republic of Serbia are low.

H2: Revenue decentralization, without introduction of systematic incentives, does not trigger automatic rise in local public investment.

The aim of these analyses is to provide well-grounded evaluation characteristics of institutional arrangement related to LSG financing in Republic of Serbia and to identify areas for improvement of LSG financing mechanisms, aimed at promoting local public investment policy and fostering local economic development. The analysis in this paper is conducted using the methods of descriptive statistics, applied to the aggregated (macro-level) data available in the Public Finance Bulletin, for the period 2010-2019[i]. Evaluation of variation in structural features of local public finance policy is done using the LSG-level data for 27 sample cities and municipalities, for which the data on budget realization were collected by the authors. Sample LSGs account for 52% of total population in Republic of Serbia, 59% of total expenditures of LSGs and 62% of total revenues of LSGs.

The remaining of the paper is structured as follows. Section 2 provides insight into the key facts on the territorial organization and fiscal decentralization in

Republic of Serbia. Section 3 discusses LSG financing instruments and performances, while section 4 is dealing with the analysis of the state, structure and dynamics of LSG public expenditure policy, with the special focus on local public investment policy. Section 5 evaluates the institutional framework and performances in terms of fiscal balance and debt of LSGs, while the section 6 concludes.

TERRITORIAL ORGANIZATION AND FISCAL DECENTRALIZATION IN REPUBLIC OF SERBIA

Republic of Serbia is organized as unitary country, with dominant central government level and sub-central government levels consisting of local self-governments and autonomous provinces. Local self-governments can take the form of municipalities (normally above 10 thousand citizens) and cities (with more than 100 thousand citizens). These limits for formation of municipalities and cities can be alleviated for economic, geographical and historical reasons, which means that municipalities and cities may be formed even if the total population is less than 10 and 100 thousand respectively. According to the Law of Territorial Organization of the Republic of Serbia (2007), the territory of Republic of Serbia consists of 145 LSGs: 117 municipalities, 27 cities and the capital city (Belgrade). In addition to that, in Republic of Serbia there are 24 districts, which are defined as administrative units, without real functions and effective budgets.

Mean population per LSG in Republic of Serbia is close to 48 thousand, which is by 37% higher than the European Union (EU) or the Western Balkans (WB) average. On the other hand, mean land area of Serbian LSG is 534km^2, which is close to the EU average and somewhat higher than the WB average (Figure 1). These data indicate that LSGs in Republic of Serbia are rather large, especially in terms of population, in comparison with the prevailing European practice.

Territorial organization may shape to some extent the fiscal decentralization of a country. Fiscal

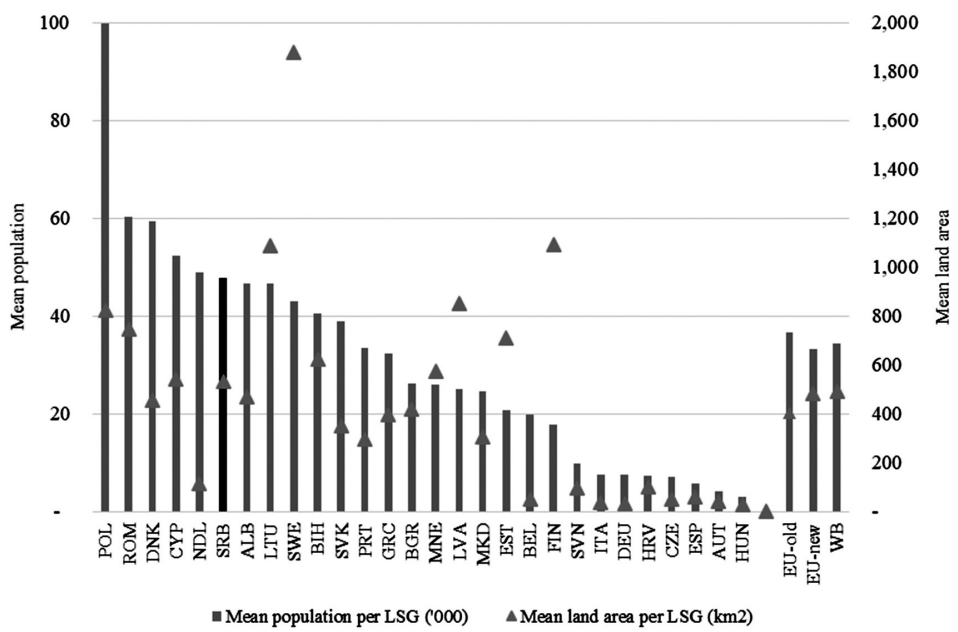

Figure 1 Mean population per LSG ('000) and mean land area per LSG (km^2) in Europe

Source: Authors

decentralization can be measured in different ways, the coefficient of centralization - the share of central government expenditures in consolidated government expenditures, being one of the common indicators (Rosen & Gayer, 2014). Due to unitary character of the government, 83 percent of consolidated government expenditures in Republic of Serbia are attributed to central government (budget of Republic of Serbia, social security institutions, etc.), which is above the EU-27 and the Western Balkans average (Figure 2). The data presented in Figure 2 suggest stronger fiscal decentralization in developed European countries than in emerging Europe. This is in line with the findings in other empirical studies based on the more sophisticated methodology that takes into account not only the budget allocation across the levels of government, but also the effective fiscal autonomy, in terms of functions and powers (Aristovnik, 2012; Molnar, 2014).

LOCAL SELF-GOVERNMENTS' FINANCING

Institutional framework

Financing of LSGs in Republic of Serbia is regulated by the Law on Local-Government Financing. Pursuant to the article 2 of that law, there are three groups of LSG financing instruments: own-source revenues, assigned revenues and central-government grants. Own-source revenues are revenue-raising instruments that are designed, imposed and collected by a LSG, which means that LSG is relatively free to decide on its characteristics, parameters and amounts. These are: recurring property tax, local administrative and communal taxes, tourist fees, public goods usage fees, concession fees, some fines and penalties, income from rental of assets owned by LSG, self-contribution, grants, etc. Assigned revenues are instruments designed, imposed and collected by the central government and then assigned to LSGs based on the statutory criteria. There are several types

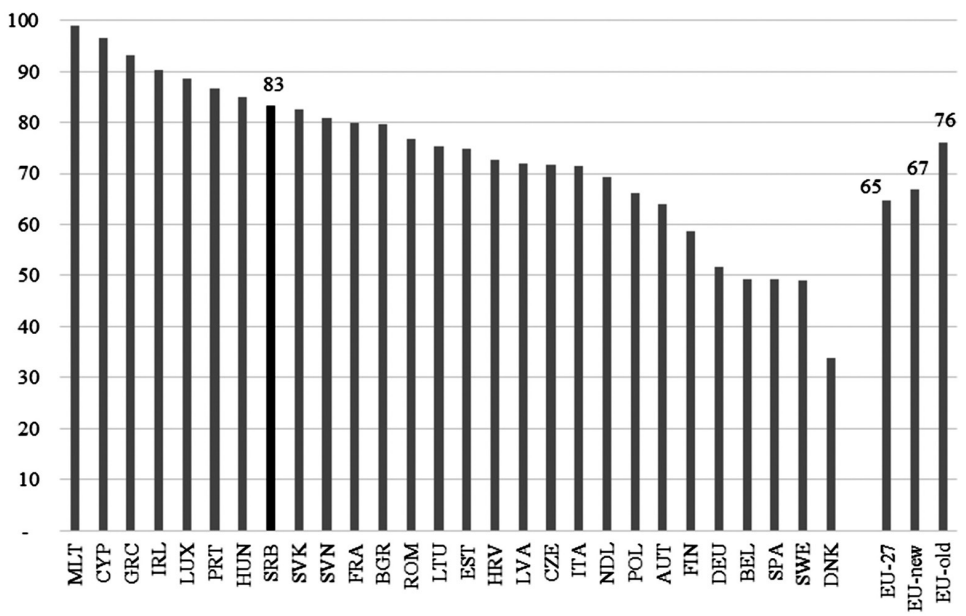

Figure 2 Coefficient of centralization in Europe in 2019 (%)

Source: Authors

of assigned revenues: 74% of wage tax revenues, full amount of other personal income taxes, inheritance and gifts tax and property transfer tax.

Central-government grants are transfers provided from the central government budget to LSGs budgets, in the form of Non-targeted or Targeted grants. Non-targeted grants are divided into: Equalization grant, General grant, Compensating grant and Solidarity grant. The total amount of Non-targeted grants is set out by the Law on Local Self-Government Financing (2006), at 1.7% of GDP. This amount is primarily used to finance Equalization grant that is aimed to assist LSGs, which underperform in terms of assigned revenues, due to underdevelopment. Equalization grant is paid to LSGs that have *per capita* assigned revenues below 90% of the average *per capita* assigned revenues in all LSGs in Republic of Serbia. Compensating grant is designed to compensate LSGs which lost revenues due to change in tax legislation, imposed by the central government. This grant should compensate LSGs for a fraction of foregone (assigned) tax revenues, so that the relative decline in the central and local governments' tax revenues is the same. General grant is provided to all LSGs. The maximum amount of the General grant is derived by subtracting Equalization and Compensating grants from the total amount of Non-targeted grants. According to the art 42 of the Law on Local Self-Government Financing (2006), there are several criteria based on which the amount of the General grant per LSG is calculated: LSG population (65% of the General grant), total land area of LSG (19.3%), number of classes in the primary schools (4.56%), number of primary schools (1.14%), number of classes in the secondary schools (2%), number of secondary schools (0.5%), number of children entitled to childcare service (6%), number of childcare institutions (1.5%). The amount of Equalization, Compensating and General grants for each LSG are corrected by the development coefficient that ranges from 0.5 to 1, in order to protect underdeveloped LSGs and to foster their economic growth. The amount of Equalization, General and Compensating grants, intended for the City of Belgrade is used to create fund for the Solidarity grant, which is disbursed to other LSGs based on their level of development.

Targeted grants can take the form of Functional and Strictly-targeted grant. Functional grant is aimed to provide funds to LSG needed to finance additional expenditures incurred by a LSG, due to shift of functions of powers from the central government to LSG. In a similar way, the central government may provide Strictly-targeted grant to LSGs, requiring from them to use that grant solely for delivery of a specific function as set out by the law. To ensure transparency of disbursement, data on Non-targeted grants provided to each LSG need to be disclosed in the Fiscal Strategy. However, in practice these data are not publically disclosed on a regular basis.

Description of the LSG financing scheme suggest that size of the LSG budget depends on its size, level of development, functions, features of public services, etc. while the efficiency of expenditure size of the budget (structure of expenditures) and local tax revenue-raising efforts have no direct impact on revenue allocation by LSGs. This means that the LSG financing scheme creates no systemic (positive) incentives in terms of (own-source) revenue raising as well as in terms of productive allocation of resources (Arsić, Ranđelović, Bućić and Vasiljević, 2012).

Revenue performances

Total revenues of LSGs in Republic of Serbia (including central government grants) in 2019, amounted to EUR 2.7 billion, which is equivalent to 5.9% of GDP. In relative terms, LSG revenues in Republic of Serbia are considerably below the EU average (9.9% of GDP). However, when benchmarked against the countries from the new EU member states from the Central and Eastern Europe (CEE), which are more comparable to Republic of Serbia, the difference is notably smaller (Figure 3). LSG revenues in Republic of Serbia account for 14% of consolidated government revenues, which is significantly below the EU-27 average (22%) and the new EU member states average (20.7%). This is the consequence of variation in territorial organization as well as vertical allocation of government functions. As a result of changes in LSG financing regulations and revenue collection efforts, the total LSG revenues in Republic of Serbia in 2019 rose by 15% in real

terms, comparing to 2010, mostly due to increase in wage tax and property tax revenues, while the central government grants remained almost unchanged.

Public health crisis caused by the COVID-19 pandemic has had considerable negative impact on economic trends in the most of the world. Many countries, including Republic of Serbia reacted through massive fiscal stimuli, which included the offer to corporate sector to defer payment of taxes, which has considerably dampened pandemic recession (Ranđelović, 2021). However, the data of the Ministry of Finance show that in 2020 tax revenues of LSGs in Republic of Serbia posted mild nominal growth (while in real terms they stagnated), while the total revenues of LSG posted mild nominal decline of 2.8% (Ministry of Finance, 2020). This is, *inter alia* because large part of LSG tax revenues comes from the taxes with the stable tax base (e.g. property taxes). As government subsidies prevented massive rise in unemployment, wage tax revenues have been stable as well. At the same time, LSGs adjusted their public expenditures, which in total decline by 3.4% in comparison with 2019.

Revenues from personal income tax account for 40% total LSG revenues, more than 4/5 of these revenues being related to wage taxes. The second largest financing instruments are recurrent property taxes, followed by the central government grants. These three financing instruments account for more than 70% of LSGs revenues, while the remaining part of revenues comes from inheritance and gifts tax, property transfer tax, signboard tax, other local communal and administrative taxes and fees, as well as other non-tax revenues.

Revenue structure (Figure 4) also indicates dominance of assigned revenues and grants, while the share of revenues that are parametrized and raised by the LSGs is relatively low, which to certain extent limits their autonomy. This is the consequence of the design of the public finance system, lack of incentives, and the relatively low revenue-raising efforts of LSGs.

According to municipal level data, average *per capita* revenues in the sample of 27 LSGs, amount to RSD 50,600. Distribution of *per capita* revenues across LSGs indicate relatively high inequality in terms of

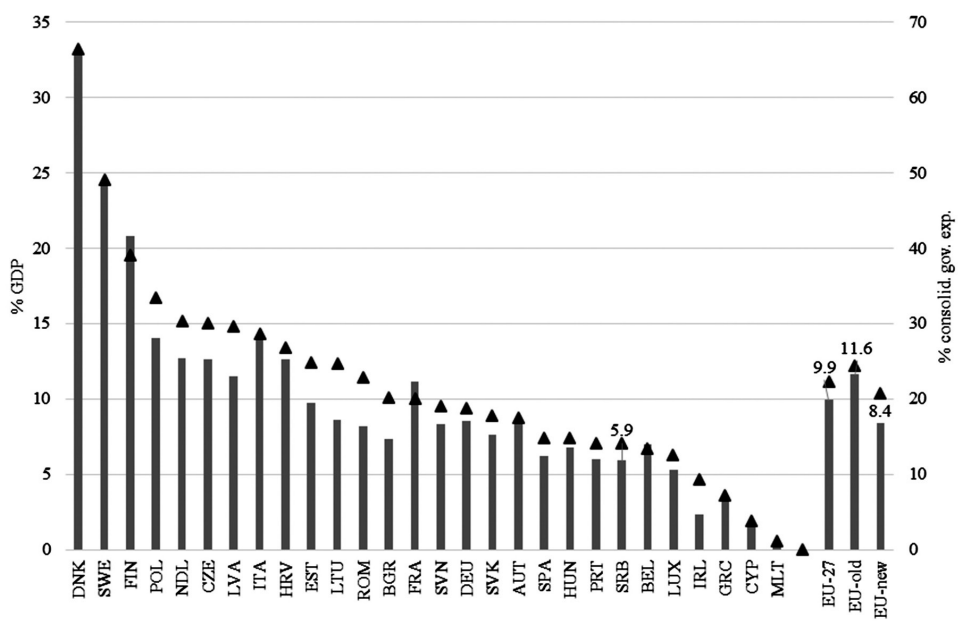

Figure 3 LSG public revenues in Republic of Serbia and Europe

Source: Authors

revenue allocation. Average coefficient of variation in the sample of 27 LSGs amount to 37 (Figure 5), which is the consequence of the design of LSG financing system and regional inequalities in terms of economic development. Inequality in revenue distribution is then translated into inequality in expenditures distribution, including inequality in local public investment (Figure 10), with adverse impact on local and regional disparities in terms of economic development.

LOCAL SELF-GOVERNMENTS' EXPENDITURE POLICY

Institutional framework

Functions and operations of LSGs in Republic of Serbia are regulated by the Law on Local Self-Government (2007). In overall terms, functions of LSGs in Republic of Serbia are similar to the roles assigned to LSGs in many other European countries:

- to make local economic development plans and facilitate doing business condition and inflow of investment;
- to provide local/communal services (e.g. waste and water management, heating, etc.), public transportation and to use construction land and business premises;
- to develop, maintain and manage local roads and other public infrastructure;
- to assist provision of services in education (pre-school, primary and secondary), primarily in terms of development and maintenance of education infrastructure (school buildings and equipment);
- to facilitate provision of services in research and innovation, culture, healthcare (maintenance and development of primary healthcare infrastructure), social protection and sports;
- to foster development of tourism, handcraft industry, trade and hospitality;

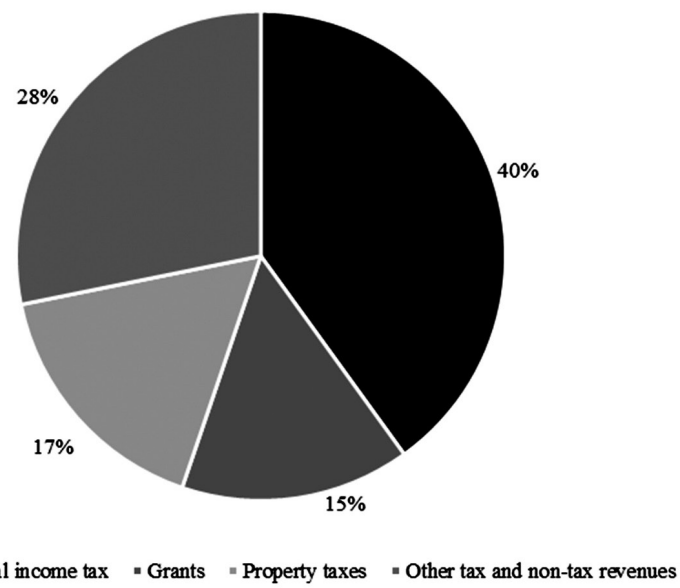

Figure 4 Composition of LSG revenues in Republic of Serbia in 2019 (%)

Source: Authors

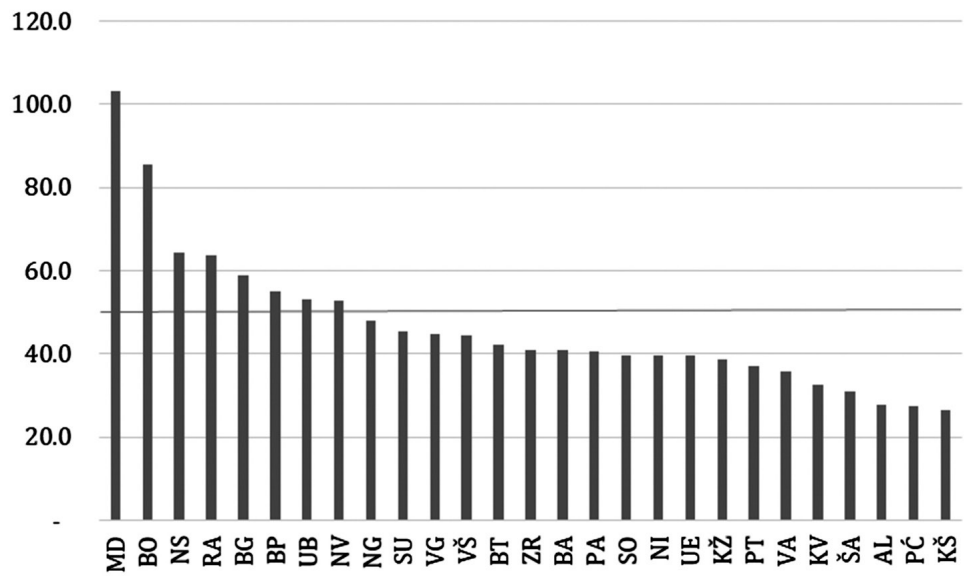

Figure 5 LSG revenues *per capita* in 2019 (RSD thousand)[ii]

Source: Authors

- to provide other services which are important for local development (construction permitting, firework protection, etc.).

Regulation and oversight of LSGs operations are done by the Government of the Republic of Republic of Serbia - Ministry of Public Administration and Local Self-Governments.

Expenditure composition and trends

The total expenditures of LSGs in Republic of Serbia in 2019, amounted to 6% of GDP, i.e. 14.1% of the consolidated government expenditures. Expenditures on goods and services represent the single largest expenditure item, with the share of 36% in the total spending, followed by other outlays - mostly related to social protection (22% of total spending) and wages (19% of total spending), while capital expenditures accounted for around one sixth of the total LSG spending (Figure 6).

Due to rise in revenues and inflation, LSG expenditures in Republic of Serbia rose in nominal terms by 71.7% from 2010 to 2019, while real growth (inflation-adjusted) amounted to 19.2% (Figure 7). This has been to large extent driven by the rise in spending on goods and services (which rose by 90% in real terms over that period). Increase in unproductive expenditures has been encouraged by buoyant inflow of revenues (due to reform of wage tax allocation in 2011), as well as by rather low level of accountability in terms of local public finance management and the fact that over that period there was a hiring freeze in the public sector, which is why many LSGs have started to outsource services that used to be provided internally.

Local public investment policy

Since 2011, capital expenditures (i.e. public investment in local infrastructure) have been on decline until 2015, in spite of inflow of additional tax revenues due to the reforms legislated in 2011 and 2014. LSG public investment started picking-up yet in 2015 and since then they are rising steadily. However, in 2019 LSG public investment amounted to approx. EUR 450 million, thus still being lower, by 13% in real terms, than in 2010. In relative terms, LSG public

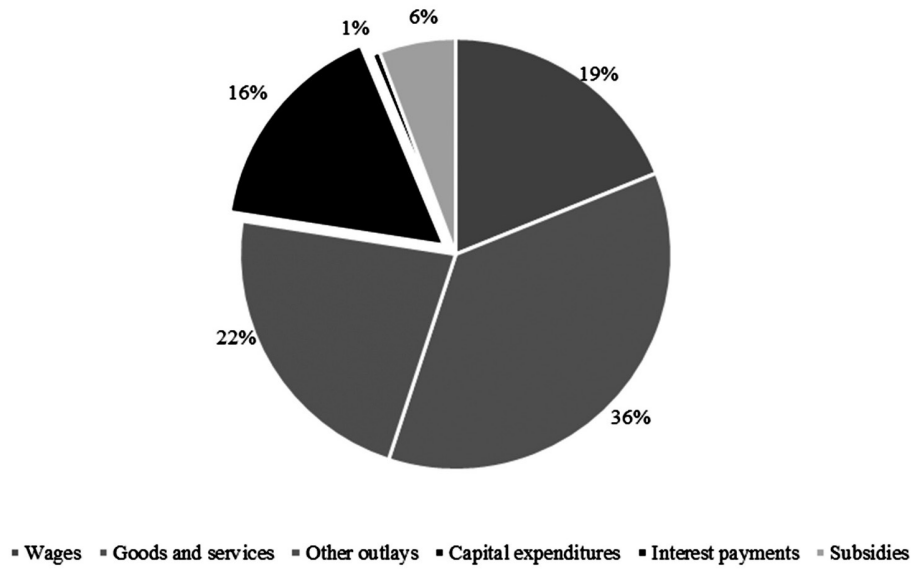

Figure 6 Composition of LSG expenditures in Republic of Serbia in 2019 (%)

Source: Authors

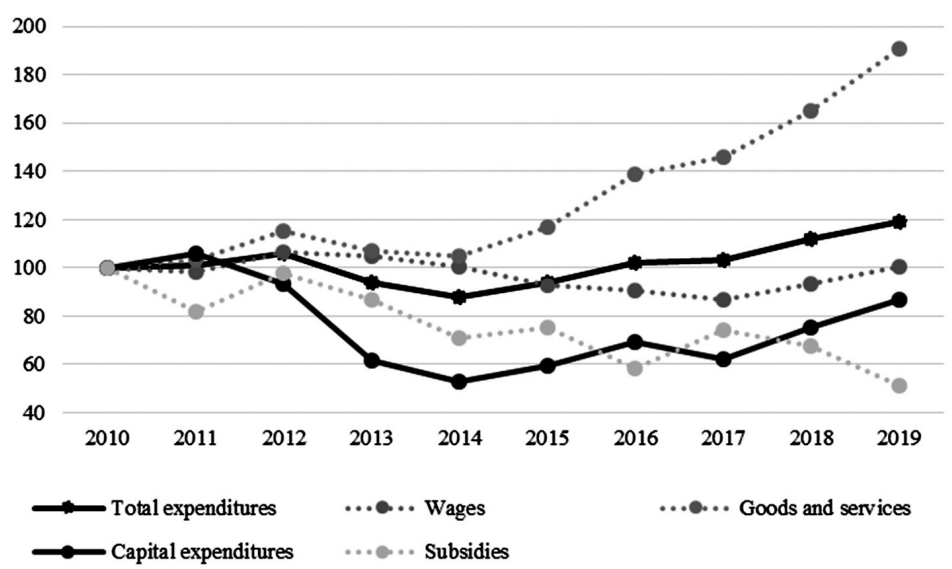

Figure 7 Index of real trends in LSG expenditures (2010=100)

Source: Authors

investment in 2019 (Figure 8) amounted to 1% of GDP, thus accounting for only one fifth of the consolidated government public investment.

Although starting from 2015 the LSG public investment have been on the rise (both in nominal and in real terms), they rose at the slower pace than the central government investment, which is why the share of LSG public investment in the consolidated government public investment was on a continuous decline since 2011. Thus in 2011, LSG public investment accounted for 40% of the total consolidated government public investment, while by 2019 that share has been halved (Figure 9).

In comparison with the other European countries, the total LSG public investment in Republic of Serbia are significantly below the EU-27 average (1.4% of GDP) and the CEE average (1.5% of GDP). New EU members from CEE tend to invest more from LSG budgets, than the developed European countries, in order to converge in terms of development of local infrastructure. Relatively low LSG public investment in Republic of Serbia in comparison with the other CEE countries may be, to some extent, explained by the lower local-level public spending. However, the data suggest that Republic of Serbia underperforms also in terms of the share of public investment in the total LSG expenditures. Low public investments of LSGs in Republic of Serbia can be explained by limited decentralization of revenues, by the weak local-level public finance policy, and lack of capacities to plan and deliver infrastructure projects.

Although it has been argued that fiscal decentralization on the revenue side is needed in order to foster local level public investment, the data (Figure 7 and 8) show that providing additional funding is not likely to result in the rise in public investment, without change in the institutional arrangement and capacities and introduction of systemic incentives. Without introduction of link between revenue allocation and the structure of LSG spending (e.g. by means of the pro-growth incentives and well-defined performance indicators), there is a risk revenue decentralization will be used to finance expenditures items that yield

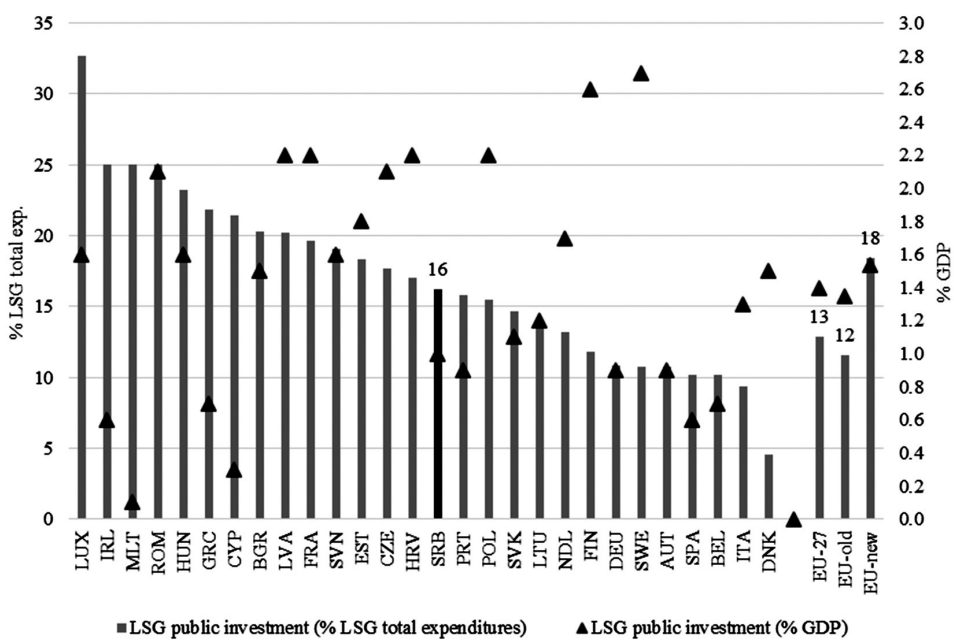

Figure 8 LSG public investment in 2019: Republic of Serbia *versus* Europe

Source: Authors

short-run political dividend, rather than focusing on development of prerequisites for the long-run growth. This is illustrated by the declining share of LSG public investment in the total expenditures of LSG - from 22% in 2010 to 16% in 2019 (Figure 9).

Analysis based on 2018 micro data for 27 sample LSGs also indicates strong variation in the relative amount of public investment across LSGs (Figure 10). The average share of public investment in the total expenditures stood at 13.7%, with the coefficient of variation equals 44.6%. Large variation in the local public investment may be caused by the lack of the systemic link between the LSG financing instruments and LSG's expenditure policy. However, the sample LSG data indicate that on average execution of public investment is lower by 20% than the amount disclosed in the projected annual budget while very close to collected revenues. This indicates that LSGs in general are systematically overestimating budgets to compensate for uncertainty in revenue collection and unforeseen efficiency in terms of project management.

Data on 27 sample LSGs also indicate that the LSG public investments are mostly focused on community development (29%)[iii] and traditional street reconstruction and maintenance (26.9%). Investments in education, culture and sports infrastructure account for close to 13%, while investments in green infrastructure (environment, waste management, water supply and water waste management) account for less than 6% of the total local governments' public investment (Figure 11). On the other hand, large chunk of public investment of LSGs (18.9%) goes to acquisition and development of the other types of infrastructure, required for provision of administrative and general services.

Considering relatively low quality of local level roads infrastructure, lack of appropriate waste management, water supply or waste water management system and low quality of air, it would be expected to see higher share of investment in these types of infrastructure, in the overall amount of capital expenditures. Presented data may suggest that it is not the case, *inter alia* due to a lack of systemic framework that would foster productive investment and potentially contribute to reconstruction and maintenance of critical infrastructure. Government of Republic of Serbia has

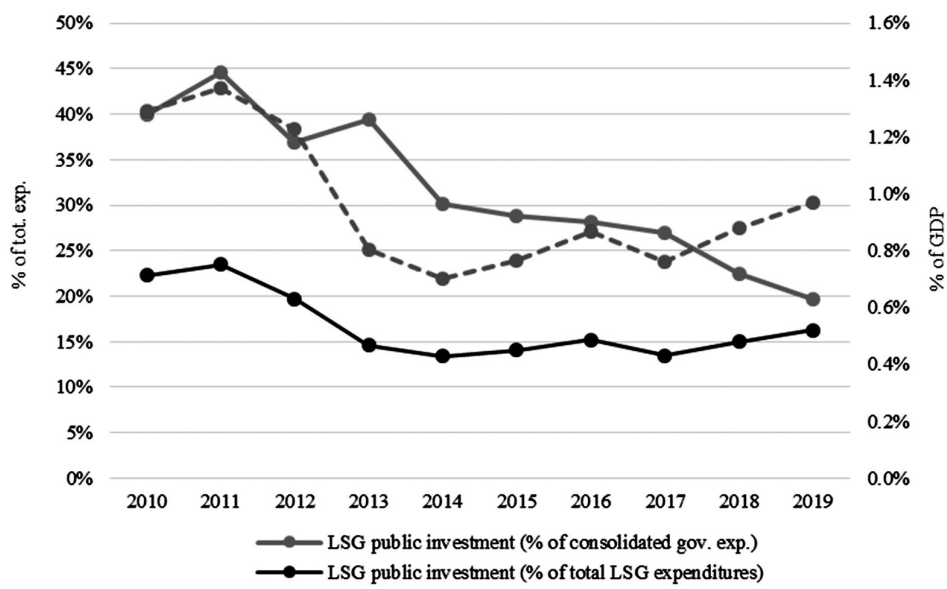

Figure 9 LSG public investment trends

Source: Authors

announced long-term public investment plan "Serbia 2025", in which investment in local infrastructure is seen as one of the priorities. Considering that it is the role of LSG to invest and maintain communal infrastructure, it may be advised to use the investment plan to introduce systemic incentives for LSGs to increase their efforts in developing and rehabilitating long neglected local infrastructure, rather than having the central government directly engaged in development of communal infrastructure. Having a clear plan and targets should revert from supply to demand driven mindset and enable LSGs to plan on medium and long term.

LOCAL SELF-GOVERNMENTS' FISCAL BALANCE

According to the Budget System Law (2009), LSG may run fiscal deficit only for the purpose of financing local public investment. Fiscal deficit of local self-government, however cannot be higher than 10% of its public revenues in the respective year. In case of implementation of large investment project, a LSG may request from the Ministry of Finance a permission to run fiscal deficit higher than this limit, while the decision of the Ministry of Finance shall depend on justification of the request and the general fiscal framework.

LSG deficit may be financed by means of lending. Art 33 of the Law on Public Debt (2005) allows LSGs to borrow money at the market, with a written consent of the Ministry of Finance. The total debt raised to fund current liquidity cannot exceed 5% of its total revenues in the last year. On the other hand, long-term borrowing is allowed only for the purpose of financing public investment project or repayment of debts, with the following limits:

- long-term debt may not exceed 50% of budget of LSG in the previous year;
- expenditures for payment of interest and repayment of debt may not exceed 15% of current revenues of LSG in the respective year.

LSGs are not allowed to issue guarantees. The LSG

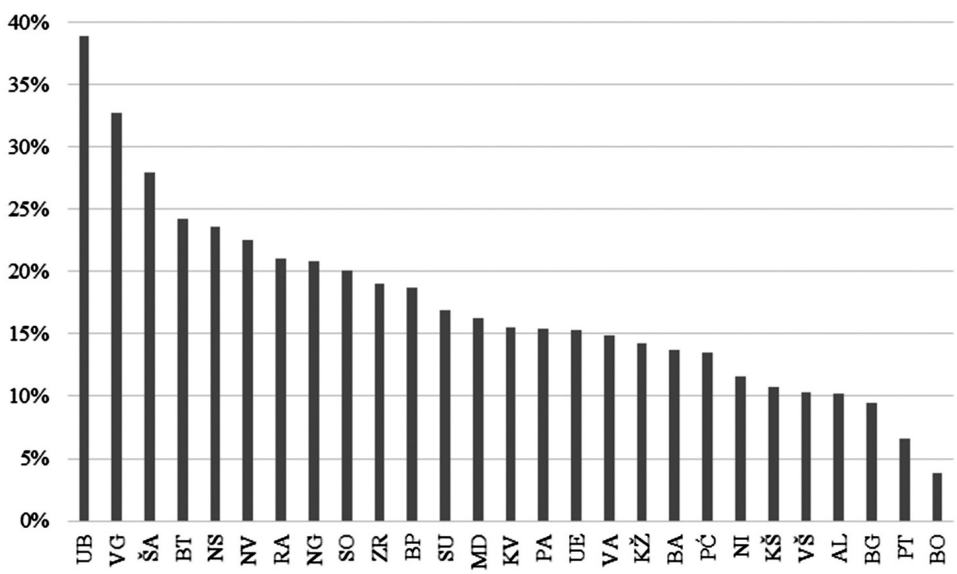

Figure 10 Share of public investment in the total local expenditures, by LSGs (%)

Source: Authors

fiscal rules set out by the Budget System Law (2009) are in line with the debt issuance provisions, provided by the Law on Public Debt (2005).

In the last decade (2020-2019) LSGs in Republic of Serbia have mostly been running fiscal surplus, while deficit has been posted only in 2012, 2013 and 2019. The average fiscal balance of LSGs in Republic of Serbia from 2010 to 2019 was close to RSD 5.5 bn (surplus), which is equivalent to 2.8% of their total revenues (Figure 12). This is considerably below the deficit ceiling (10% of public revenues), as set out by the Budget System Law (2009). Over the same timeline, the total expenditures for payment of interest and outlays related to repayment of debt in LSGs in Republic of Serbia amounted to RSD 12 bn (close to EUR 100 million) per year, which was equivalent to 5.5-6% of their revenues, thus also being far below the statutory limit (15% of revenues).

CONCLUSION

Empirical studies show that in the last two decades LSGs in Republic of Serbia posted convergence within two clusters, while Belgrade district shows no signs of convergence with any of the other clubs (Barrios et al, 2020). In spite of the club-convergence, there are still substantial local and regional disparities, which foster migrations of productive population towards more developed regions, thus undermining the convergence chances of underdeveloped areas. Results of empirical studies show that even relatively small changes in economic inequalities can have large effects on migration volumes (Denett, 2014). In this paper, we have evaluated the degree of fiscal decentralization in Republic of Serbia and features of local public finance policies, with the focus on local-level public investment policy, as strategic, green and growth oriented development of local infrastructure is one of the key reconditions for economic development.

Our results presented in this paper, imply several scientific and practical insights. First, it is concluded that LSGs in Republic of Serbia are rather sizeable, especially in terms of mean population, in comparison with the European practice. Second, the degree of fiscal decentralization in Republic of Serbia is below the European average. LSG public revenues and expenditures (relative to GDP) in Republic of Serbia

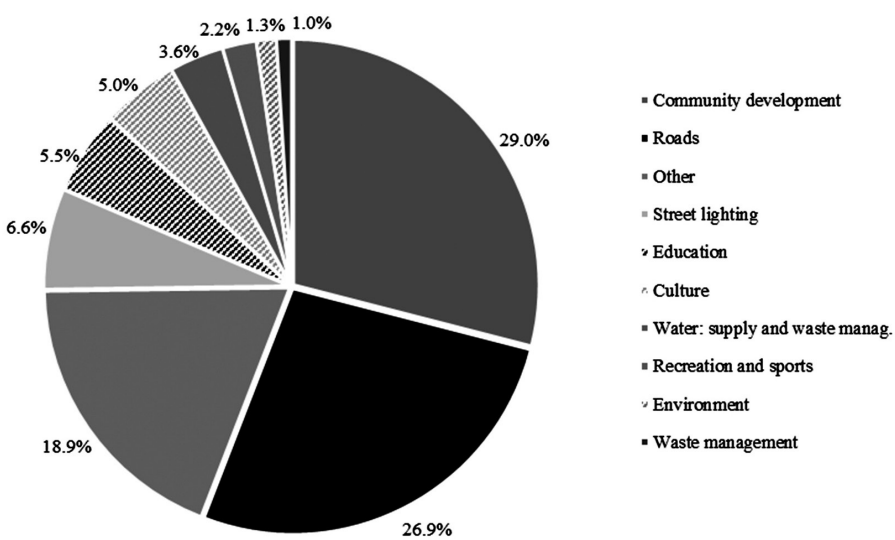

Figure 11 Structure of LSG public investment (%)

Source: Authors

are lower than the EU and CEE average. Three largest revenue raising instruments for LSGs are personal income tax, property taxes and grants from the central government, accounting for almost ¾ of the total revenues. More than half of LSG revenues are assigned or transferred by the central governments, indicating low degree of fiscal autonomy. Third, mentioned indicators show that local public investments in the Republic of Serbia have been low, while their variation across LSGS was high. Thus, on the spending side, the main items are purchase of goods and services and wages, accounting for 55% of total expenditures, while the share of public investment in total LSG outlays is yet 16% (i.e. one fifth of the consolidated government public investment). Relative size of LSG public investment in Republic of Serbia (1% of GDP) is considerably below the CEE average (1.4% of GDP). Fourth, decentralization of public revenues, implemented at the beginning of last decade has not led to rise in local public investments, which have been on decline for long time. Fifth, LSG public investment in Republic of Serbia are mostly oriented to community development and traditional streets reconstruction and maintenance, while investment in education, culture and sports infrastructure as well as in environmental infrastructure are rather low. In spite of rise in the total revenues (e.g. wage tax revenue decentralization) over the last decade, LSG public investment posted a real decline. Sixth, the fact that a significant number of LSGs had low public investments even in periods when they were running a budget surplus indicates that in addition to fiscal constraints, some of them also face limitations in terms of their capacity for planning and implementation of investment projects. The low level of local public investment and the fact that it has not increased even when revenues have risen, signal that LSGs lack mid and long term planning capacities and that institutional design of LSG financing system lacks systematic incentives for pro-growth investment local public finance policy and clear performance indicators. This is because the amount of revenues that local governments generate, as well as the grants they receive from the central government, do not depend on the quality and efficiency of their fiscal policy. Recent changes to planning legislation, requiring preparation of development plans (7 years) and mid term plans (3 years) could be an anchor to improve planning capacities provided properly prepared and monitored.

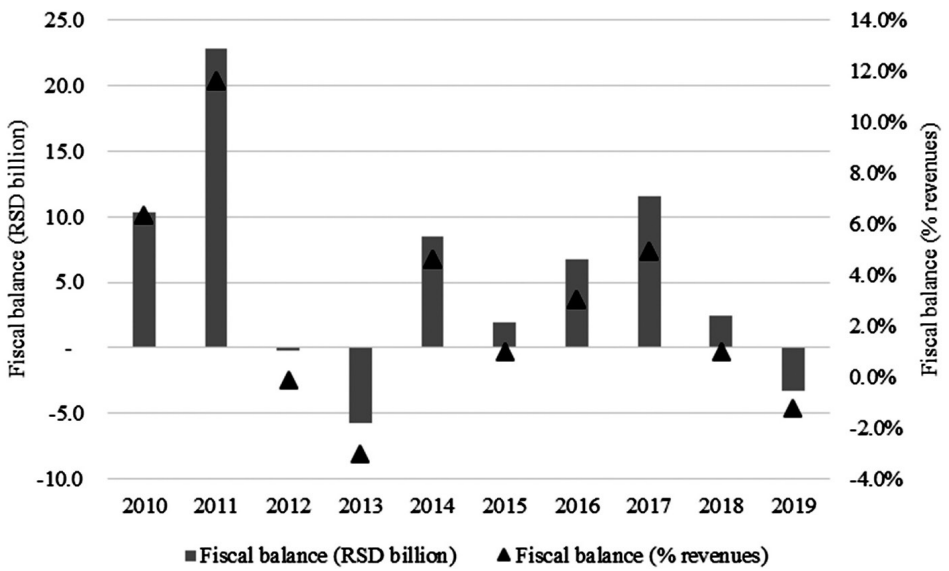

Figure 12 LSG fiscal balance dynamics, 2010-2019

Source: Authors

Lessons from comparative (international) practice suggest that for a more permanent and sustainable increase in the local growth and green oriented public investments introduction of systemic incentives can be effective. Those are the incentives that reward LSGs, which direct more of their public expenditures to productive purposes. In addition to that, systemic approach to public administration reform that would result in improvement of their administrative, technical, and planning capacities, may also contribute to enhancement of the overall efficiency of local public investment policy.

According to the above mentioned, the scientific relevance of the obtained results refers to the evaluation of the relationship between fiscal decentralization and public investment, and especially to the relationship between the dynamics of public revenues and the amount of local public investment, in the absence of systemic incentives for investment. In addition, the obtained results provide relevant insights for policy makers, since the paper, in addition to analysing the situation, identifies the causes of low local public investment, as well as key institutional barriers to their increase. The analysis in this paper is based on the methods of descriptive statistical analysis. To provide additional robust insights into the relationship between the level of fiscal decentralization and the level of local public investment, it would be necessary to apply relevant methods of econometric analysis, in order to control for the impact of other factors. In addition to the relationship between fiscal decentralization and local public investment, the issue of the impact of the level and structure of local public investment on local economic development is relevant, which may be an interesting issue for further research.

ENDNOTES

[i] As economic and fiscal trends in 2020 may have been affected by extraordinary processes caused by the COVID-19 pandemic, discussion of structural characteristics of local public finance policy based on 2020 data may be misleading, which is why the sample is restricted to the period until 2019. The data on Serbia, disclosed in this study refer to the territory of the Republic of Serbia without Kosovo and Metohija*, as according to the UN Security Council Resolution 1244 it is formally the area under administration of the UN since 1999.

[ii] Data are related to the year 2019. Data on expenditure *per capita*, per LSG, presented in the Figure 10, are related to the year 2018, which is the latest year for which expenditure data per municipality are available.

[iii] According to the official COFOG classification, Community Development includes: administration of community development affairs and services - administration of zoning laws and land-use and building regulations, planning of new communities or of rehabilitated communities, planning the improvement and development of facilities such as housing, industry, public utilities, health, education, culture, recreation, etc. for communities; preparation of schemes for financing planned developments; production and dissemination of general information, technical documentation and statistics on community development affairs and services.

REFERENCES

Akai, N., & Sakata, M. (2002). Fiscal decentralization contributes to economic growth: Evidence from state-level cross-section data for the United States. *Journal of urban economics*, *52*(1), 93-108. doi.org/10.1016/S0094-1190(02)00018-9

Aristovnik, A. (2012). Fiscal Descentralization in Eastern Europe: Trends and selected issues. *Transylvanian Review of Administrative Sciences*, *8*(37), 5-22. doi:10.2139/ssrn.2187475

Arsić, M., Ranđelović, S., Bućić, A. i Vasiljević, D. (2012). *Reforme poreza na imovinu u Srbiji: Rezultati i perspektive*. Beograd, RS: Univerzitet u Beogradu - Ekonomski fakultet, Fondacija za razvoj ekonomske nauke.

Arsić, M., Ranđelović, S. i Nojković, A. (2019). Uzroci i posledice niskih investicija u Srbiji. U M. Zec i O. Radonjić (Ur.). *Ekonomska politika Srbije u 2019. godini* (str. 63-84). Beograd, RS: Univerzitet u Beogradu - Ekonomski fakultet.

Barrios, M. C., Jandrić, M., Molnar, D., & Tanasković, S. (2021). Convergence clubs in different regions of Serbia. *Applied Economics Letters*, *28*(7), 594-598. doi.org/10.1080/13504851.2020.1765960

Baskaran, T., & Feld, L. P. (2013). Fiscal decentralization and economic growth in OECD countries: Is there a relationship? *Public finance review*, *41*(4), 421-445. doi.org/10.1177/1091142112463726

Bird, R. M. (2000). Intergovernmental fiscal relations: Universal principals, local applications. *Working Paper 00-2*, Georgia State University, Andrew Young School of Policy Studies, Atlanta.

Bodman, P. (2011). Fiscal decentralization and economic growth in the OECD. *Applied Economics*, *43*(23), 3021-3035. doi.org/10.1080/00036840903427208

Dennett, A. (2014). Quantifying the effects of economic and labour market inequalities on inter-regional migration in Europe-a policy perspective. *Applied Spatial Analysis and Policy*, *7*(1), 97-117. doi:10.1007/s12061-013-9097-4

Dziobek, C. H., Mangas, C. A. G., & Kufa, P. (2011). Measuring fiscal decentralization: Exploring the IMF's databases. *IMF Working Papers*, *11*(126).

Martinez-Vazquez, J., & McNab, R. M. (2003). Fiscal decentralization and economic growth. *World development*, *31*(9), 1597-1616. doi.org/10.1016/S0305-750X(03)00109-8

Molnar, D. (2014). Fiskalna decentralizacija i privredni rast: Evropska unija i Srbija. *Reforme i razvoj*, 73.

Oates, W. E. (1972). *Fiscal Federalism*. New York, NY: Harcourt Brace Jovanovich

Petrović, P., Arsić, M., & Nojković, A. (2021). Increasing public investment can be an effective policy in bad times: Evidence from emerging EU economies. *Economic Modelling*, *94*, 580-597. doi:10.1016/j.econmod.2020.02.004

Ministarstvo finansija. (2020). *Public Finance Bulletin No. 12/2020.* Ministry of Finance of the Republic of Serbia, Belgrade. Retrieved Marc 14. 2021. from: https://www.mfin.gov.rs//upload/media/K1WfqN_6042278628737.pdf

Ranđelović, S. (2020). Pro-growth public investment policy in Serbia: Sufficiency and efficiency. *Ekonomika preduzeća*, *68*(1-2), 137-146. doi:10.5937/EKOPRE2002137R

Ranđelović, S. (2021). Determinants of volatility of economic activity in Europe during the Covid-19 pandemic: Stylized facts. *Ekonomika preduzeća*, *69*(3-4), 231-242. doi:10.5937/EKOPRE2103231R

Rosen, H. S., & Gayer, T. (2014). *Public Finance*, 10th edition. New York, NY: McGraw-Hill Irwin.

Stansel, D. (2005). Local decentralization and local economic growth: A cross-sectional examination of US metropolitan areas. *Journal of Urban Economics*, *57*(1), 55-72. doi:10.1016/j.jue.2004.08.002

Stigler, G. (1957). The Tenable Range of Functions of Local Government. In *Federal Expenditure Policy for Economic Growth and Stability* (pp. 213-219). US Congress Joint Economic Committee, Government Printing Office, Washington, DC.

Tiebout, C. M. (1956). A Pure Theory of Public Expenditures". *Journal of political economy*, *64*(5), 416-424.

Zakon o budžetskom sistemu. (2009). Sl. glasnik RS, br. 54/2009, 73/2010, 101/2010, 101/2011, 93/2012, 62/2013, 63/2013 - ispr., 108/2013, 142/2014, 68/2015 - dr. zakon, 103/2015, 99/2016, 113/2017, 95/2018, 31/2019, 72/2019 i 149/2020).

Zakon o finansiranju lokalne samouprave. (2006). Sl. glasnik RS, br. 62/2006, 47/2011, 93/2012, 99/2013 - usklađeni din. izn., 125/2014 - usklađeni din. izn., 95/2015 - usklađeni din. izn., 83/2016, 91/2016 - usklađeni din. izn., 104/2016 - dr. zakon, 96/2017 - usklađeni din. izn., 89/2018 - usklađeni din. izn., 95/2018 - dr. zakon, 86/2019 - usklađeni din. izn. i 126/2020 - usklađeni din. izn.).

Zakon o javnom dugu. (2005). Sl. glasnik RS, br. 61/2005, 107/2009, 78/2011, 68/2015, 95/2018, 91/2019 i 149/2020).

Zakon o lokalnoj samoupravi. (2007). Sl. glasnik RS, br. 129/2007, 83/2014 - dr. zakon, 101/2016 - dr. zakon i 47/2018).

Zakon o teritorijalnoj organizaciji Republike Srbije. (2007). Sl. glasnik RS, br. 129/2007, 18/2016, 47/2018 i 9/2020 - dr. Zakon).

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TAXATION AND ECONOMIC GROWTH: A REGRESSION ANALYSIS BASED ON A NEW CLASSIFICATION

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This paper examines the impact of taxes on the economic growth based on classifying countries by GDP *per capita* and a tax burden. The Partitioning Around Medoids (PAM) technique is used because it is not too sensitive to outliers. Through this multicriteria classification technique, the Generalized Method of Moments (GMM) is employed to analyze the data of the three groups consisting of 63 countries from 2003 to 2017. The results show that most taxes have a positive impact on economic growth in poor countries (Group 1). Interestingly, taxes on goods and services promote economic growth in rich countries (Group 3), rather than having a negative effect, as is concluded by some previous studies. Specially, while the property tax has a negative effect on economic growth in rich countries, its impact is significantly positive in poor countries.

Keywords: tax structure, economic growth, clustering technique, GMM estimation

JEL Classification: E62, H0, O47

INTRODUCTION

The relationship between tax and economic growth has attracted a lot of attention in recent years. Theoretically, endogenous growth models show that the accumulation of productive capital can promote long-term economic growth. Therefore, any tax policy that changes the accumulation of physical capital and/or human capital can affect long-term economic growth (Romer, 1986; Lucas Jr, 1988; Barro, 1990). However, this effect can be either positive or negative because raising tax increases the likelihood of government spending, on the one hand, and crows out private investments, on the other.

According to I. Palić, B. Žmuk and B. Grofelnik (2017), the impact of taxes on economic growth depends on the structure of the tax system. A proper tax system will help a government achieve national fiscal goals most effectively, limit undesirable distortions, minimize welfare losses, and ultimately promote economic growth (Stoilova, 2017). Previous research papers state that every adjustment of tax components can influence economic growth. For

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example, R. Kneller, M. F. Bleaney and N. Gemmell (1999), J. M. Arnold, B. Brys, C. Heady, Å. Johansson, C. Schwellnus and L. Vartia (2011) and D. Baiardi, P. Profeta, R. Puglisi and S. Scabrosetti (2019) suggest that reducing the proportion of direct tax and increasing the proportion of indirect tax will positively impact economic growth. This adjustment is both to secure the budget revenue and to facilitate investment in the private sector.

It is worth noting that the tax structure may be optimal in one country, but it may not be as good in other countries, due to many reasons such as differences in the economic structure, political characteristics, society, a tax burden and governments' management ability. For instance, Sweden has a tax-to-GDP ratio of 43.9%, while the OECD countries' ratio is about 34.3%. Sweden's personal income tax rate is about 57%, the highest among all European countries, but its corporate income tax rate is the lowest, about 22%. It cannot be generalized that European countries or the US should learn from Sweden, or conversely, that Sweden should learn from the US's or European's tax systems because of the differences in the context of each country. In order to learn valuable lessons in restructuring the tax system, a good way is to examine a group of countries which are similar in terms of the level of economic development and the tax burden.

In fact, to examine different groups of countries, many studies have applied the classification of the World Bank (WB) or the International Monetary Fund (IMF). However, the WB and the IMF only use one criterion to classify countries, normally based on their geographical area or the GNI *per capita*. This classification ignores the similarities on other aspects, such as the ones related to a country's tax system. Additionally, some studies classify countries based on their own criteria: for example, A. Vasiliauskaitė and E. Stankevičius (2009) divide the European countries into six groups by GDP *per capita* with an equal income gap of EUR 5000/*per capita* before assessing the impact of a tax burden on economic growth. Similarly, P. LeMay-Boucher and K. McNabb (2014) and S. Acosta-Ormaechea, S. Sola and J. Yoo (2019) arrange countries into three groups based on the GDP *per capita* by the three-percentile threshold, 33% and 66%, respectively. However, the equidistant grouping cannot highlight the similarities between the countries within the same group, and thus suggests applying a strictly statistical technique to identify the thresholds between the groups.

To the best of our knowledge, there are not many research studies on the fiscal policy classification of countries based purely on statistical techniques such as a classification by more than one criterion. Recently, A. Andrejovská and M. Hudáková (2016) have used a nonhierarchical clustering method, such as the K-means and the fuzzy c-means to divide the EU countries into five groups based on the common characteristics including corporate income tax, economic performance, and the public debt ratio. M. Zaharia, A. Pătrașcu, M. Gogonea, A. Tănăsescu and C. Popescu (2017) use hierarchical clustering to classify the EU-28 member states by a criterion representing the energy tax policy. In general, the common purpose of these works is to group countries with similarities in economic and fiscal indicators, depending on the research purpose of each paper. Under these classifications, each country's policy design has more information for reference; furthermore, making a general policy for the whole group becomes more effective.

A new classification method appropriate for doing research in the impact of taxes on economic growth is approached in this paper. Among the popular classification techniques, the Partitioning Around Medoids (PAM) clustering technique was chosen, because it is not too sensitive to outliers. Moreover, under small data sample conditions, PAM is considered to have good cluster performance (Kaufman & Rousseeuw, 1990; Park & Jun, 2009). In particular, countries are simultaneously classified according to the two criteria: the GDP *per capita* and a tax burden. Firstly, the development level of a country is reflected by its GDP *per capita*. Although this indicator is a single index showing the average income of people in the territory of a country, it implies a lot of information about the economic development level. Hence, it lays the basis for the classification of the World Bank intended to categorize countries as either

developed or developing ones. Secondly, a tax burden is measured by the ratio of tax to the GDP, indicating the proportion of the income that economic agents contribute to the government budget.

Thanks to the PAM clustering technique, the impact of the six types of taxes (namely corporate income tax, personal income tax, social security contributions, good and services tax, trade tax, and property tax) on economic growth is examined in three groups of countries. As will be seen later, average income and a tax burden gradually increase from Group 1 to Group 3. According to the foregoing, the hypotheses of this study read as follows:

H1: Personal income tax has a negative effect on economic growth.

H2: Corporation income tax negatively impacts economic growth.

H3: Property tax promotes economic growth.

H4: Trade tax positively affects economic growth.

H5: Goods and service tax has a negative effect on economic growth.

H6: Social security contribution negatively influences economic growth.

Stationary and cointegration tests are performed prior to using the difference and system generalized method-of-moments (GMM) estimators in order to examine the impact of taxes on economic growth. The data sample is the well-balanced panel data of 63 countries with 945 observations collected from the World Bank's database from 2003 to 2017.

The remaining part of the paper is structured as follows: the literature review is presented in Section 2, and the data and the methodology are presented in detail in Section 3; Section 4 is dedicated to the discussion on the research findings and the conclusion, and some policy suggestions are provided in Section 5.

LITERATURE REVIEW

The theoretical perspective

Theoretical models have described the mechanism in which taxes affect economic growth. Particularly, neoclassical models (Engen & Skinner, 1996; Lin, 1998; Zagler & Dürnecker, 2003) point out five channels, including:

- increasing corporate income and personal income taxes leads to a decrease in disposable income, which in turn results in a reduction of the savings rate, thus discouraging investment;
- increasing tax may encourage individuals to take up more leisure, which may lead to a decrease in the total labor supply, which negatively affects production;
- increasing tax restrains an improvement in labor productivity because it limits R&D activities and reduces the amount of venture capital for high-tech industries;
- taxes can reduce the marginal product of capital as it reduces investment in the high-productivity and high-tax economic sectors and makes an increase in the low-productivity and low-tax ones;
- increasing personal income tax may discourage workers from working in highly productive industries, but with a large tax burden.

However, neoclassical models argue that taxes do not affect long-term economic growth because the factors including savings and investments will only lead to growth in the short run. The law of the diminishing marginal product of capital will force the economy toward a stable state, where growth only depends on technological progress - which is considered as an exogenous factor in the model. Therefore, governments cannot control economic growth in the long run by fiscal policies. In contrast, endogenous growth models such as the AK model (Romer, 1986, Barro, 1990), the R&D model (Grossman & Helpman, 1991) and the human capital model (Lucas Jr, 1988) argue that taxes can have an impact on growth

in the long run. Specifically, capital is categorized into two types: physical capital and human capital. Investment in human capital leads to growth in the long run as it does not follow the law of diminishing marginal product. Thus, governments can provide tax incentives to encourage investment in education or to encourage the development of knowledge-intensive industries.

Empirical findings

There is a vast body of the literature examining the impact of taxes on economic growth. The previous studies approach the topic in various manners, such as by using different methods and datasets. Therefore, the results are usually inconsistent.

The impact of the corporate income tax

Most studies show that increasing the rate of the corporate income tax reduces net income and limits capital for reinvestment activities, especially for the investment activities related to productivity improvement, such as innovation and R&D, thereby affecting the overall productivity of the economy (Johansson, Heady, Arnold, Brys & Vartia, 2008; Karras & Furceri, 2009; Gemmell, Kneller & Sanz, 2011; Edame & Okoi, 2014). In addition to this, a high corporate income tax restricts FDIs, hindering technology transfer and knowledge sharing to local enterprises and consequently restraining economic growth. For example, Arnold *et al* (2011) examine the effect of income taxes on economic growth in the 21 OECD countries over the period from 1971 to 2004. The paper estimates the long-term effects of various revenue-neutral tax shifts using the estimated dynamic equation. The results show a negative coefficient on the share of (personal and corporate) income taxes in the total tax revenues, indicating that an increase in the share of these taxes that is balanced by a decrease in the share of the consumption and property taxes will reduce the long-term GDP *per capita*, thus reducing economic growth.

The impact of the personal income tax

An increase in the personal income tax, on the one hand, creates a substitution effect. Under the substitution effect, workers tend to replace working with leisure, which negatively affects economic growth. On the other hand, the personal income tax also causes income effects: as net income decreases, workers tend to cut on leisure to focus on working in order to compensate for taxed income. Furthermore, a rise in this tax demotivates learners' efforts as they perceive fewer benefits from learning, which consequently degrades the quality of labor and negatively affects economic growth. If used to invest in the infrastructure and education, however, this tax revenue will contribute to the quality of labor and economic growth (McClelland & Mok, 2012).

Many studies confirm the negative impact of the personal income tax on economic growth (Kneller *et al*, 1999; Widmalm, 2001; Gemmell *et al*, 2011). Notably, F. Widmalm (2001) finds a robust negative correlation between the two variables in the 23 OECD countries during the period from 1965 to 1990. This finding is consistent with the hypothesis that a progress tax is harmful for economic growth under a given tax rate since the personal income tax is levied in a progressive fashion in the largest number of the Western countries. By contrast, D. Stoilova (2017) applies two-stage least square (2SLS) estimates to show the positive effect of the personal income tax on economic growth in the EU-28 member states over the period between 1996 and 2013.

The impact of the goods and services tax

If the personal income tax is considered a progressive tax, the goods and services tax can be considered a regressive tax, in which the tax burden is put on the end users instead of suppliers - taxpayers. Moreover, the goods and services tax puts more pressure on the low-income group rather than the high-income one, because both these groups pay the same amount of tax when they consume goods and services. Unlike the personal income tax, the goods and services tax directly affects the market price and the inflation rate.

Thus, it might encourage savings, which leads to an increase in investment and economic growth.

The greatest number of empirical studies find that the goods and services tax negatively affects growth: for instance, the case of the 26 OECD countries (Karras & Furceri, 2015) and the case of the EU-28 countries (Stoilova, 2017). There are only a few studies claiming the positive impact of the goods and services tax on economic growth (Baiardi *et al*, 2019). The inconsistency in the findings might be due to the different taxation methods in each country. More specifically, if the goods and services tax is equally imposed on all products, it will have the same effect as the income tax. In the case of an unequally imposed tax, which is only applied to certain goods and services, the consumer's decision to make a purchase may be changed; this in turn leads to an expansion of or a decline in industries. The goods and services tax can promote economic growth if expansion is greater than the decline (Zagler & Dürnecker, 2003). If a goods and services tax policy is unstable and often changed, it will alter consumers' consumption choices, thus leading to a nonoptimal resource allocation. The imposition of the goods and services tax may result in the expansion of illegal economic activities, particularly so in more transactions on the black market, thus leading to a miscalculated GDP.

The impact of the property tax

Several research studies have found that the property tax negatively impacts economic growth (Xing, 2012; Baiardi *et al*, 2019). For instance, when property transactions or real estates are taxed, investors make incentives to transfer their investment from the real estate sector to the activities generating a bigger profit, and the economy consequently grows (Arnold *et al*, 2011). Besides, the property tax is considered to be an effective tax, because it barely touches the resource distribution and has a smaller impact on economic behaviors than the personal income tax does. The property tax is an efficient fund of local public services aiming to stimulate the growth of the economy and social welfare (Slack & Bird, 2014). In contrast to this, G. Karras and D. Furceri (2009) find a negative impact of the property tax on economic growth, but the obtained result is not statistically significant. In spite of the vague argument, the property tax applied to housing transactions limits the transactions transferring real estate ownerships. Moreover, investment capital tends to be more mobile than housing capital, and investment properties should be taxed less than housing properties in order to stimulate the economy. In reality, however, investment capital is taxed more than housing capital, and the difference made by the property tax leads to a false decision on the property usage and promotes the personal usage of a property instead of the commercial and industrial usage of a property (Paugam & Maurer, 2001).

The impact of the trade tax

There is a debate among economists over whether taxes on international trade boost economic growth or not. S. Acosta-Ormaechea *et al* (2019), for example, study the relationship between trade taxes and the economic growth of 70 countries during the period between 1970 and 2009. The authors find that trade taxes have different effects on the economic growth of different country groups. In particular, trade taxes seem to have a negative impact on economic growth for low-income countries. Similarly, I. Khujamkulov (2016) states that trade taxes are often the major sources of revenue in lower-middle-income transitional countries, because they are easier and less costly to collect than income taxes. This result is found in 33 transition countries over the period from 1991 to 2014. Interestingly, N'Y. Nantob (2014) uses the system GMM estimator to analyze the effects of taxes on the economic growth of 47 developing countries during the period from 2000 to 2012. This study finds that there is a nonlinear (U-shaped) relationship between taxes on international trade and economic growth. This means that a low-level tax rate discourages economic growth in the short run, and then stimulates economic growth as the tax level increases.

The impact of the social contribution tax

The prior literature is often inconsistent with respect to the impact of the social contribution tax on economic growth. For example, while D. Stoilova (2017) reports a positive impact, R. Macek (2015), G. Karras and D. Furceri (2009) find a negative one. In particular, R. Macek (2015) evaluates the impact of taxes on economic growth by utilizing panel regression analysis on the OECD countries over the period from 2000 to 2011. The author states that the social security contribution is the most harmful for economic growth. In addition, the results also indicate that the government spending decreases economic growth. These results can be most probably linked to the existence of the crowding out effect and the structure of the total government spending where unproductive spending predominates. Unproductive spending is connected to the spending on social security, which has as the ultimate consequence a lower rate of economic growth. As far as the tax burden approximated by the tax quota is concerned, there is a negative relationship between economic growth and social security contributions.

DATA AND METHODOLOGY

Data

In this research study, the countries are classified based on the two criteria, simultaneously including the GDP *per capita* and the tax burden collected from the World Bank's database. The tax burden is measured by the total tax revenue on the GDP and is the indicator representing a country's tax policy. The GDP *per capita* is used as the indicator representing the economic development of a country (Wang, 2007). The control variables in the regression model are exports, savings, the investment rate in physical capital (as a percentage of the GDP), population growth, inflation (collected from the World Bank), and human development index (i.e, HDI, collected from the UNDP database). Finally, the taxes including the goods and services tax, the trade tax, the property tax, the corporate income tax, the personal income tax, and social security contributions (measured by the tax/GDP ratio) are collected from the government revenue dataset.

Dropping out the countries that lack all the data pertaining to the period from 2003 to 2017, there are the data of 117 countries from the original dataset of 217 countries. Then, the countries are clustered according to the GDP *per capita* and the tax burden. The PAM result shows that the countries should be divided into three groups for all the years (Figure 1 and Figure 2). Average income and the tax burden gradually increase from Group 1 to Group 3. After the addition of the control variables to the clustered dataset and after the elimination of the countries containing the missing data for five consecutive years, a balanced data table of 945 observations of the 63 countries are obtained.

In terms of the tax structure, a large proportion in the total tax revenue is accounted for the goods and services tax, social security contributions, the personal income tax and the corporate income tax. The goods and services tax and social security contributions make up the biggest share of the total tax in the developed countries (Group 2 and Group 3). The personal income tax and social security contributions gradually increase from Group 1 to Group 3. In addition, the goods and services tax is the highest in Group 2. The trade tax decreases from Group 1 to Group 3, which is aligned with the findings of the previous studies (Bird & Zolt, 2008; LeMay-Boucher & McNabb, 2014).

Methodology

According to Y. Lee and R. H. Gordon (2005), the tax structure of rich countries is often different from that of the poor. Therefore, ignoring differences among countries can lead to endogeneity. By clustering countries with similarities in the GDP and the tax burden, said endogeneity was partly overcome. In order to cluster the countries, the PAM technique is used. This technique effectively processes noise data and the presence of outliers. The PAM algorithm proposed by L. Kaufman and P. J. Rousseeuw (1990)

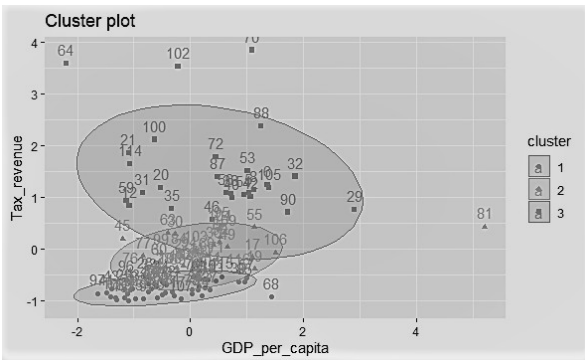

Figure 1 The country clusters in 2003

Source: Authors

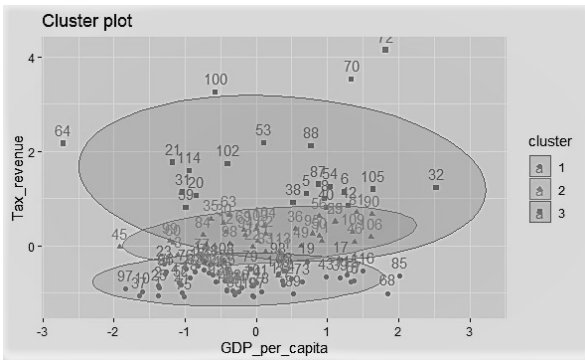

Figure 2 The country clusters in 2017

Source: Authors

is an extension of the K-Means algorithm that uses a medoid to represent data clusters (a medoid is the object located at the center of each cluster). Therefore, the medoid is less affected by particles far from the center. PAM initializes the k-medoid objects and distributes the remaining objects into the clusters corresponding to the other medoid objects, so that they are the most similar to the medoid object. The PAM algorithm helps find the countries that are virtually stable in each cluster over a period of 15 years (2003-2017). The number of the clusters is predicted by the Elbow method (Makles, 2012). The effectiveness of the clustering is based on the average of the silhouette index. The results show that the average silhouette is quite stable, the highest being 0.58 in 2017, and the lowest being 0.52 in 2008. The index also shows the highest similarity in Group 1 and the lowest similarity in Group 3.

After clustering the countries, panel regression analysis is carried out so as to examine the impact of the taxes on economic growth for every country group. Capital accumulation is considered the most important factor determining the growth of the economy (Rodrik, 1994; Lee, 1995). Both the classical growth models and the endogenous growth models indicate that economic growth is stimulated through the accumulation of physical capital and human capital (Solow, 1957; Lucas, 1988; Barro, 1990). To accumulate capital, a nation needs to create savings, invest from household savings, and accumulate through the government policy. The countries with a high household savings rate tend to have a higher physical capital investment rate, which leads to the expansion of business activities and thus to the growth of the economy. The accumulation of physical capital also funds the fundamental public services such as the public infrastructure, the education expense, and the healthcare expense in order to support economic growth. In addition, the human development index (HDI) is also a measurement of the development level because it takes into account education through the adult literacy rate, the years of schooling, healthcare, and income. The other control variables in the regression equation are the population growth rate (Widmalm, 2001; Lee & Gordon, 2005), the savings (Lin, 1998), the export to the GDP ratio (Frankel & Romer, 1999; Dollar & Kraay, 2003), and the inflation rate (Friedman, 1977; Stockman, 1981).

Thus, the regression equation is written down as follows:

$$Y_{it} = \beta_0 + \beta_1 Y_{it-1} + \beta_2 T_{it} + \beta_3 X_{it} + \varepsilon_i$$

where:

Y_{it} is the growth rate of the GDP *per capita*; T_{it} includes the tax variables: the corporate income tax, the personal income tax, the social security contributions, the goods and services tax, the trade tax, the property tax, and the other tax (in % of the GDP); X_{it} includes the control variables: population growth, gross

savings, export to the GDP ratio, the total tax burden, the human development index, the investment rate in physical capital and the inflation rate.

The panel data properties are tested for the stationarity and cointegration. The dependent variable (the growth rate of the GDP *per capita*) is found to be stationary for every country group. A decision was made to use the explanatory variables at the level data instead of the variable in the form of the differences, given the fact that the explanatory power with the R-squared by estimating the model with the explanatory variables in the form of the differences is weaker than that originating from the regression using the explanatory variables at the level data. To solve the endogenous problems more effectively, the generalized method-of-moments estimators are used. The instrumental variables are the lagged tax variables. The degree of the lagged variables is determined based upon the partial correlation test. The largest number of the instrumental variables in the three groups are one-year lagged variables. The J-statistic results confirm the proper use of the instrumental variable in the GMM regression (Table 1).

RESULTS

The conducted analysis provides the six main results.

First, the personal income tax is found to negatively affect the GDP *per capita* growth rate of the Group 1 countries (the poor countries group). Specifically, if the personal income tax increases by 1%, then these countries' GDP *per capita* growth rate will decline by 0.596%. The finding proves that the substitution effect overwhelms the income effect in Group 1. Additionally, increasing the personal income tax rate may demotivate the labor force because they notice a decline in the education benefit. The finding aligns with the hypothesis H1 of the paper and the previous studies by N. Gemmell, R. Kneller and I. Sanz (2011), F. Widmalm (2001), and R. Kneller *et al* (1999). However, no evidence whatsoever can be found for the impact of the personal income tax on the economic growth rate in Group 2 and Group 3 (the richer countries groups).

Second, the regression result indicates that the corporate income tax has a positive effect on the economic growth rate in both Group 1 and Group 2. Specifically, an increase of 1% in the corporate income tax raises the GDP *per capita* growth rate by 0.223% and 1.09% in Group 1 and Group 2, respectively. Therefore, the hypothesis H2 can be rejected. The finding is also aligned with the finding of D. Stoilova (2017). A possible explanation for this finding is that the corporate income tax is an important source of tax revenue funding investments in public services, which usually need to be paid more attention to in developing countries. Thus, the economic growth rate benefits from the corporate income tax.

Third, the goods and service tax is found to have a negative effect on the economic growth of Group 2, whereas it has a positive effect on the economic growth of Group 3. The finding is in contrast with the hypothesis H5 and the majority of the previous studies stating that the goods and services tax has a negative effect on economic growth. The result obtained in this research study is consistent with the study by D. Baiardi *et al* (2019. One possible explanation for that is that, even though the increase in underground economic activities cannot be quantified, it increases income for some economic sectors anyway (Johansson *et al*, 2008). This additional income also finances expenditures and investments, thus boosting economic growth. In addition, an uneven increase in the goods and services tax may lead to the expansion of or a decline in some economic sectors. As a result, economic growth can be promoted if the expansion portion is greater than the decline portion (Zagler & Dürnecker, 2003).

Fourth, the property tax has a significant positive impact on the economic growth rate of the Group 1 countries. The result shows that an increase of 1% in the property tax raises the GDP *per capita* growth rate by 2.012%, and the finding matches the hypothesis H3 and many other studies such as J. M. Arnold *et al* (2011) and S. Acosta-Ormaechea *et al* (2019). It is worth noticing that the property tax revenue only contributes 0.2 % to the GDP on average (the lowest between the three groups). The results, however, show that there is a negative impact of the property tax on the GDP *per capita* growth rate in Group 3, which is

Table 1 The GMM regression results

	Cluster 1	Cluster 2	Cluster 3
Personal income tax	-0.596***	0.191	0.952
	(0.000)	(0.166)	(0.254)
Corporate income tax	0.223*	1.090*	-0.706
	(0.096)	(0.057)	(0.627)
Property tax	2.012***	-0.390	-4.899**
	(0.001)	(0.218)	(0.018)
Goods and services tax	-0.0228	-0.416**	2.660**
	(0.796)	(0.048)	(0.047)
Trade tax	0.476**	3.064	10.289
	(0.042)	(0.280)	(0.522)
Other tax	0.204	-1.029**	-31.820
	(0.656)	(0.045)	(0.206)
Social Security Contribution	-0.041	0.225	-1.717**
	(0.640)	(0.109)	(0.021)
Investment rate	0.173***	0.226***	0.202***
	(0.000)	(0.000)	(0.000)
Inflation	-0.176***	-1.745**	0.285
	(0.000)	(0.019)	(0.391)
Export to GDP	-0.019	-0.006	0.028
	(0.172)	(0.511)	(0.649)
Population growth	-0.912***	-1.879**	-2.850*
	(0.000)	(0.012)	(0.106)
Gross saving	0.016	0.164*	0.368
	(0.456)	(0.079)	(0.313)
Human development index	-1.459	10.248	-28.926
	(0.683)	(0.482)	(0.652)
Observations	364	247	208
Sargan test - Prob > chi^2	0.297	0.204	0.187

Note: * Significant at 10%, ** Significant at 5%, *** Significant at 1%

Source: Authors

the group with the highest property tax revenue to the aggregate GDP ratio (nine times higher than the Group 1). The finding aligns with the research studies conducted by A. Paugam and R. Maurer (2001) and M. Cabral and C. Hoxby (2012).

Fifth, the social security contributions have a negative relationship with the economic growth of the Group 3 countries, which is similar to the findings of G. Karras and D. Furceri (2009). If this type of tax increases by 1%, the countries' GDP *per capita* growth rate will decrease by 1.717% for Group 3, which has the highest social security contribution rate by up to 9%. This result is also completely consistent with the hypothesis H6. The reason for this is that social security contributions finance social welfare, which largely do not generate economic growth, but rather have a negative impact on economic growth (Feldstein, 1974).

Sixth, the findings show that the trade tax does not affect economic growth in Groups 2 and 3, whereas it has a positive effect on economic growth in Group 1. Specifically, a 1% increase in the trade tax may lead to an increase in the GDP *per capita*l growth rate for Group 1 by 0.476%. This outcome is in line with the findings of M. S. Tosun and S. Abizadeh (2005); O. H. Fjeldstad (2013); N'Y. Nantob (2014) and I. Khujamkulov (2016).

Several other control variables in the model also affect the GDP *per capita* growth rate. The investment rate has a positive impact on economic growth in all the three groups. Nonetheless, the population growth rate has a negative relationship with the dependent variable. In addition to those two control variables, inflation has a negative impact on economic growth both in Group 1 and in Group 2, while there is significant relationship in Group 3. Finally, the gross savings rate coefficient has no statistical significance in Group 1 and Group 3 but is statistically significant in Group 2. To conclude, the effect of the control variables mostly aligns with the prior studies.

CONCLUSION

The paper focuses on the relationship between the six types of taxes and the economic growth of 63 countries over the period from 2003 to 2017. The results show that only the personal income tax is statistically significant and negatively impacts the GDP *per capita* growth rate in Group 1, whereas the trade tax is only positive in this group. The social contribution tax is significant and negative in Group 3. The corporate income tax has a positive effect on economic growth in Group 1 and Group 2. The property tax is positively related in Group 1, whereas it is negative in Group 2. In contrast to this, the goods and services tax is negative in Group 2 and positive in Group 3. In addition, the impact of the control variables is also significantly noticeable. The investment rate in physical capital has a positive and significant effect on economic growth across all the three groups. Besides, inflation and population growth are negatively related to economic growth.

This paper contributes to the empirical literature on taxation by integrating and extending theoretical and empirical studies on the relationship between the tax structure and economic growth. An important finding is that a tax burden causes differences in the countries' tax structures, and different types of taxes have different effects on economic growth. Therefore, the article focuses on analyzing the impact of the tax structure on economic growth by grouping the countries based on the economic development level and the tax policy. This study has been successful in reclassifying the countries using the PAM clustering method to identify the three highly similar groups in terms of the GDP *per capita* and the tax burden. According to this classification, Group 1 includes the countries with low-to-moderate income (as defined by the World Bank). Some moderate-to-high and high-income countries fall into Group 2. The remaining wealthiest countries fall into Group 3.

Based on this classification, the analysis of the impact of the six types of taxes on economic growth in each group is a new and valuable contribution made by this research study. The paper, however, also faces difficulties in the missing data over many years. Adding the missing data from other reliable sources could be a good solution to increase the number of observations and expand the research period. Moreover, due to the limitations of the paper, no comparison has been made between the regression analysis results based on the classification presented in this paper and the findings based on the classification of the WB and other organizations. That may be an interesting research direction in subsequent papers.

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REFERENCES

Acosta-Ormaechea, S., Sola, S., & Yoo, J. (2019). Tax composition and growth: A broad cross-country perspective. *German Economic Review*, *20*(4), 70-106. doi.org/10.1111/geer.12156

Andrejovská, A., & Hudáková, M. (2016). Classification of EU countries in the context of corporate income tax. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *64*(5), 1699-1708. doi.org/10.11118/actaun201664051699

Arnold, J. M., Brys, B., Heady, C., Johansson, Å., Schwellnus, C., & Vartia, L. (2011). Tax policy for economic recovery and growth. *The Economic Journal*, *121*(550), 59-80. doi.org/10.1111/j.1468-0297.2010.02415.x

Baiardi, D., Profeta, P., Puglisi, R., & Scabrosetti, S. (2019). Tax policy and economic growth: Does it really matter? *International Tax and Public Finance, 26*(2), 282-316. doi.org/10.1007/s10797-018-9494-3

Barro, R. J. (1990). Government spending in a simple model of endogeneous growth. *Journal of political economy*, *98*(5, Part 2), 103-125. doi/abs/10.1086/261726

Bird, R. M., & Zolt, E. M. (2008). Tax policy in emerging countries. *Environment and Planning C: Government and policy*, *26*(1), 73-86. doi.org/10.1068/cav3

Cabral, M., & Hoxby, C. (2012). The hated property tax: Salience, tax rates, and tax revolts. *NBER Working Paper, No.18514*.

Dollar, D., & Kraay, A. (2003). Institutions, trade, and growth. *Journal of monetary economics*, *50*(1), 133-162. doi.org/10.1016/S0304-3932(02)00206-4

Edame, G. E., & Okoi, W. W. (2014). The impact of taxation on investment and economic development in Nigeria. *Academic Journal of Interdisciplinary Studies*, *3*(4), 209-218. doi.org/10.36941/ajis

Engen, E. M., & Skinner, J. (1996). Taxation and economic growth. *National tax journal*, *49*(4), 617-642.

Feldstein, M. (1974). Social security, induced retirement, and aggregate capital accumulation. *Journal of political economy*, *82*(5), 905-926. doi.org/10.1086/260246

Fjeldstad, O. H. (2013). Taxation and development: A review of donor support to strengthen tax systems in developing countries. *UNU-Wider Working paper.*

Frankel, J. A., & Romer, D. H. (1999). Does trade cause growth? *American economic review, 89*(3), 379-399. doi.org/10.1257/aer.89.3.379

Friedman, M. (1977). Nobel lecture: Inflation and unemployment. *Journal of political economy, 85*(3), 451-472. doi.org/10.1086/260579

Gemmell, N., Kneller, R., & Sanz, I. (2011). The timing and persistence of fiscal policy impacts on growth: Evidence from OECD countries. *The Economic Journal*, *121*(550), 33-58. doi.org/10.1111/j.1468-0297.2010.02414.x

Grossman, G. M., & Helpman, E. (1991). Trade, knowledge spillovers, and growth. *European economic review*, *35*(2-3), 517-526. doi.org/10.1016/0014-2921(91)90153-A

Johansson, Å., Heady, C., Arnold, J., Brys, B., & Vartia, L. (2008). Taxation and economic growth. *Working Papers No 620*, OECD Economics Department. doi.org/10.1787/18151973

Karras, G., & Furceri, D. (2009). Taxes and growth in Europe. *South-Eastern Europe Journal of Economics*, *7*(2), 181-204.

Kaufman, L., & Rousseeuw, P. J. (1990). *Finding Groups in Data: An Introduction to Cluster Analysis*. New Jersey, NJ: John Wiley & Sons.

Khujamkulov, I. (2016). Tax revenues in transition countries: Structural changes and their policy implications, *WIDER Working Paper*, No. 2016/180

Kneller, R., Bleaney, M. F., & Gemmell, N. (1999). Fiscal policy and growth: Evidence from OECD countries. *Journal of Public Economics*, *74*(2), 171-190. doi.org/10.1016/S0047-2727(99)00022-5

Lee, J. W. (1995). Capital goods imports and long-run growth. *Journal of Development Economics*, *48*(1), 91-110.

Lee, Y., & Gordon, R. H. (2005). Tax structure and economic growth. *Journal of Public Economics*, *89*(5-6), 1027-1043. doi.org/10.1016/j.jpubeco.2004.07.002

LeMay-Boucher, P., & McNabb, K. (2014). Tax structures, economic growth and development. *ICTD Working Paper 22*, Available at SSRN. doi.org/10.2139/ssrn.2496470

Lin, S. (1998). Labor income taxation and human capital accumulation. *Journal of Public Economics*, *68*(2), 291-302. doi.org/10.1016/S0047-2727(97)00094-7

Lucas Jr, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics, 22*(1), 3-42. doi.org/10.1016/0304-3932(88)90168-7

Macek, R. (2015). The impact of taxation on economic growth: Case study of OECD countries. *Review of Economic Perspectives*, *14*(4), 309-328, doi.org/10.1515/revecp-2015-0002

Makles, A. (2012). Stata tip 110: How to get the optimal k-means cluster solution. *The Stata Journal*, *12*(2), 347-351. doi.org/10.1177/1536867X1201200213

McClelland, R., & Mok, S. (2012). A review of recent research on labor supply elasticities. *Working Paper 2012-12*, Washington, DC: Congressional Budget Office.

Nantob, N'Yilimon. (2014). Taxes and economic growth in developing countries: A dynamic panel approach. *MPRA Paper No. 61346*, Togo, University of Lome.

Palić, I., Žmuk, B., & Grofelnik, B. (2017). The long-run impact of personal income taxation on economic development: Evidence from Croatia. *Croatian Review of Economic, Business and Social Statistics*, *3*(1), 35-44. doi.org/10.1515/crebss-2017-0003

Paugam, A., & Maurer, R. (2001). Reform toward ad valorem property tax in transition economies: Fiscal and land use benefits. *Background Series 13*, World Bank.

Park, H. -S., & Jun, C. -H. (2009). A simple and fast algorithm for K-medoids clustering. *Expert systems with applications, 36*(2), 3336-3341. doi.org/10.1016/j.eswa.2008.01.039

Rodrik, D. (1994). Distributive politics and economic growth. *Quarterly Journal of Economics*, *109*(2), 465-490. doi.org/10.2307/2118470

Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of political economy*, *94*(5), 1002-1037. doi/abs/10.1086/261420

Slack, E., & *Bird,* R. (*2014). The political economy* of *property tax reform*. OECD Working Papers on Fiscal Federalism. doi.org/10.1787/22265848

Stockman, A. C. (1981). Anticipated inflation and the capital stock in a cash in-advance economy. *Journal of monetary economics*, *8*(3), 387-393. doi.org/10.1016/0304-3932(81)90018-0

Stoilova, D. (2017). Tax structure and economic growth: Evidence from the European Union. *Contaduría y Administración*, *62*(3), 1041-1057. doi.org/10.1016/j.cya.2017.04.006

Solow, R. M. (1957). Technical change and the aggregate production function. *Review of Economics and Statistics*, *39*(3), 312-320. doi.org/10.2307/1926047

Tosun, M. S. & Abizadeh, S. (2005). Economic growth and tax components: An analysis of tax change in OECD. *Applied Economics*, *37*(19), 2251-2263. doi/abs/10.1080/00036840500293813

Vasiliauskaitė, A., & Stankevičius, E. (2009). Tax burden management and GD growth: Case of EU countries. *Economics & Management*, 14, 202-209. doi:10.5755/j01.em.0.14.9301P

Wang, D. H.-M. (2007). Convergence tests on tax burden and economic growth among China, Taiwan and the OECD countries. *Physica A: Statistical Mechanics and its Applications, 380*, 278-286. doi.org/10.1016/j.physa.2007.02.046

Widmalm, F. (2001). Tax structure and growth: Are some taxes better than others? *Public Choice*, *107*(3-4), 199-219. doi.org/10.1023/A:1010340017288

Xing, J. (2012). Tax structure and growth: How robust is the empirical evidence? *Economics Letters, 117*(1), 379-382. doi.org/10.1016/j.econlet.2012.05.054

Zagler, M., & Dürnecker, G. (2003). Fiscal policy and economic growth. *Journal of economic surveys*, *17*(3), 397-418. doi.org/10.1111/1467-6419.00199

Zaharia, M., Pătrașcu, A., Gogonea, M., Tănăsescu, A., & Popescu, C. (2017). A cluster design on the influence of energy taxation in shaping the new EU-28 economic paradigm. *Energies*, *10*(2), 1-21. doi.org/10.3390/en10020257

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APPENDIX

Table 1 The descriptive statistics

Variable	Classified Group	Obs	Mean	Std. Dev	Min	Max
GDP *per capita* growth rate	Group 1	420	3.58	3.89	-14.38	17.03
	Group 2	285	0.79	2.98	-8.51	23.98
	Group 3	240	1.53	3.66	-14.277	10.8
Personal income tax	Group 1	420	2.2	2.1	0	9.9
	Group 2	285	4.2	1.7	0.9	8.3
	Group 3	240	10.4	4.2	4.3	26.2
Corporate income tax	Group 1	420	2.7	1.5	0	8.1
	Group 2	285	2.6	1	0.8	6.5
	Group 3	240	3	1	1.2	7.2
Property tax	Group 1	420	0.2	0.3	0	1.6
	Group 2	285	0.6	0.6	0	2.9
	Group 3	240	1.8	1	0.2	4.2
Trade tax	Group 1	420	2.3	4.3	-1.6	0
	Group 2	285	0.3	0.5	-0.01	3.9
	Group 3	240	0.08	0.15	-0.007	0.86
Good and Service tax	Group 1	420	8.8	3.5	2.4	22.1
	Group 2	285	11.9	2.7	4.1	17.3
	Group 3	240	10.2	3	4	16.7
Other tax	Group 1	420	0.37	0.6	-0.000512	4.8
	Group 2	285	0.17	0.39	-0.39	3.38
	Group 3	240	0.12	0.3	0	1.5
Social Security Contribution	Group 1	420	2.04	3.7	-0.05	15.5
	Group 2	285	8.4	4.4	0	15
	Group 3	240	8.99	4.96	0	16.92
Inflation	Group 1	420	6.14	5.94	-18.11	51.46
	Group 2	285	3.29	3.09	-1.54	21.6
	Group 3	240	1.54	1.22	-4.48	4.9
Investment rate	Group 1	420	5.59	14.97	-57.4	53.98
	Group 2	285	1.91	9.74	-23.85	52.08
	Group 3	240	1.29	13.44	-42.33	72.17
Export to GDP	Group 1	420	36.54	12.25	11.15	71.42
	Group 2	285	55.32	27.94	20.45	165.21
	Group 3	240	53.73	41.83	9.04	224.84
Population growth	Group 1	420	1.14	1.04	-1.75	5.43
	Group 2	285	0.19	0.91	-2.26	2.74
	Group 3	240	0.75	0.6	-1.85	2.89
Gross saving	Group 1	420	22.78	10.23	3.84	53.05
	Group 2	285	21.85	41.87	9.73	36.12
	Group 3	240	24.61	5.6	11.05	39.66
Human development index	Group 1	420	0.69	0.07	0.5	0.81
	Group 2	285	0.9	0.02	0.85	0.94
	Group 3	240	0.87	0.03	0.8	0.92

Source: Authors

Table 2 The countries classification

Group 1	Group 2	Group 3
Armenia	Bulgaria	Australia
Bangladesh	Chile	Austria
Bosnia and Herzegovina	Czechia	Belgium
Bhutan	Estonia	Canada
China	Croatia	Switzerland
Cabo Verde	Hungary	Germany
Costa Rica	Israel	Denmark
Dominican Republic	Korea, Rep.	Finland
Ghana	Lithuania	France
Guatemala	Latvia	United Kingdom
Honduras	Mexico	Ireland
Jamaica	Malta	Japan
Jordan	Mauritius	Luxembourg
Cambodia	Poland	Netherlands
Sri Lanka	Portugal	Sweden
Lesotho	Romania	United States
Morocco	Slovakia	
Moldova	Slovenia	
Nicaragua	Turkey	
Peru		
Philippines		
Paraguay		
El Salvador		
Togo		
Thailand		
Tunisia		
Ukraine		
South Africa		

Source: Authors

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EMPLOYEE AUTONOMY AND ENGAGEMENT IN THE DIGITAL AGE: THE MODERATING ROLE OF REMOTE WORKING

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In the digitalization era, traditional organizational success factors have been called into question, so it is necessary to reconsider the established work patterns and find new ways to create sustainable value. Given the fact that, as bearers of knowledge, people are the key drivers of value, it is important to explore possible ways to improve their potential. The research study carried out in this paper is aimed showing that autonomy contributes to the development of employee engagement in the digital environment, especially so in remote working conditions. In that sense, the concept of employee engagement was explained, as a state of high vigor, dedication and absorption. Possible ways to improve engagement through increasing autonomy are pointed out as well. The empirical research has confirmed that autonomy has a positive effect on vigor and dedication as the engagement dimensions. The impact autonomy exerts on vigor is stronger in the employees working remotely in comparison with those who do not work remotely.

Keywords: autonomy, job design, employee engagement, remote working, digital environment, organizational design

JEL Classification: M20, M12, J28

INTRODUCTION

The psychological relationship employees establish with their jobs is a research field gaining in importance in the knowledge economy in the time of accelerated technological progress, when human capital is becoming an increasingly important driver of competitiveness. The development of the sophisticated skills that lead to superior performance depends on a combination of complex organizational, intellectual, psychological, sociological and other factors.

In the era of knowledge, innovation and technological progress, a company's competitive advantage depends on the generation and implementation of new ideas, as well as the application of new technologies (Simić, Slavković & Ognjanović, 2020; Savović, Zlatanović & Nikolić, 2021). Since people are the key bearers of knowledge and capacity for innovation, modern

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organizations require high commitment, investment and energy from employees in order for them to create sustainable value in a highly dynamic environment. Frequent changes and strong pressures on people to quickly adapt to them performing increasingly complex and cognitively demanding tasks can lead to opposite effects. According to *Job Demands-Resources Theory*, demands can be perceived as challenges or obstacles which will imply a positive or a negative response from employees. Negative reactions are associated with overload, stress and burnout, whereas positive reactions are expected in the case when employees develop high engagement, i.e. vigor, dedication and absorption (Bakker & Demerouti, 2007).

Numerous factors form the circumstances in which employees' reactions will be shaped. One of the most important antecedents of engagement, however, is the organizational context, especially the way in which a job is designed. Previous research indicates an extremely important role of the workplace autonomy (Kahn, 1990; Saks, 2006; Christian, Garza & Slaughter, 2011; Shantz, Alfes, Truss & Soane, 2013; Radošević, Jelić, Matanović and Popov, 2018). Autonomy arises from a greater degree of decentralization, so it is inherent in modern structures, which are flatter, i.e. which have a smaller number of hierarchical levels. Such structures favor the development of innovation and the entrepreneurial capacity in the company (Erić Nielsen, Babić, Stojanović-Aleksić & Nikolić, 2019; Erić Nielsen, 2020). Freedom encourages creativity and makes it easier to adapt to change. In this context, new leadership models have been developed that support the idea that, under certain conditions, a part of power should be transferred to followers themselves, so that they and the entire organization can achieve an above-average performance (Stojanović-Aleksić, 2016).

This is especially significant in the digital age characterized by exponential changes not only in the development of technology, but also in the economy and society. Previous research has not sufficiently empirically examined the role of autonomy in such a specific context. Although the theory points to the benefits of autonomy both in terms of meeting certain psychological needs and the general well-being of an individual, the digital environment is rarely considered as a context for examining the autonomy-engagement relationship. In conditions where the relationship between people and machines has become almost as important as interpersonal relationships, it is necessary to reconsider the traditional mechanisms of encouraging engagement and look for the new ways or mediating factors that can contribute to building long-term and sustainable employee engagement, which will contribute to their personal satisfaction, feeling better at work and in life, and also increase the company's productivity and innovation (Halbesleben, 2010; Christian *et al,* 2011; Kwon & Kim, 2020).

Having in mind the importance of the problem area, the subject of the research done in the paper implies the relationship between the workplace autonomy and employee engagement in the digital environment. In this paper, the digital environment means the business environment in which ICT is intensively used in performing tasks. Accordingly, the main research goal is to determine whether and in what way autonomy affects employee engagement in the information technology (IT) sector, which is an example of an industry with pronounced digitalization.

Regarding autonomy, it is important to consider one of the relatively recent trends in organizational design which stands out in the digital environment and relates to remote working. Modern technology has enabled, and newer forms of organizational design have supported, the implementation of the idea that the physical location of work is not always important and that some work can be done outside the office at a location chosen by an employee (e.g. from home, the library, a park, a cafeteria). Recently, this trend has been developing even faster due to the Covid-19 pandemic, because of which some governments have even introduced an obligation for companies to enable their employees to work remotely, specifically from home (Pattnaik & Jena, 2020). This feature is certainly easier to apply to the jobs done on a computer and not highly dependent on the location/personal contact as is the case, among other jobs, in the IT sector. Although

remote working has its drawbacks related to isolation and reduced social interactions, research indicates the dominance of positive implications. The following can be mentioned amongst the most significant benefits of teleworking: lower costs (Thomson, 2008), a more pleasant environment in which an employee is more easily committed to performing complex tasks (Golden & Gajendran, 2019), greater satisfaction and responsible behavior, which leads to greater engagement (Anderson & Kelliher, 2009). The main advantage of working remotely should be a greater freedom of choice in terms of the place, time and manner of performing tasks. If autonomy is not provided to employees when they work remotely, the positive implications of this concept may not manifest themselves. Therefore, the specific research goal is to determine the moderating influence of remote working in the relationship between autonomy and employee engagement.

Both qualitative and quantitative methodologies are applied in the paper. According to the complex, dynamic and ambiguous nature of the considered phenomena, systemic thinking provides the base. The methods of analysis and synthesis, abstraction and concretization, as well as induction and deduction, are applied. When speaking about the quantitative methodology, the statistical method is used. The data were collected by conducting a survey and analyzed by various statistical techniques.

In addition to the introduction and the conclusion, the paper consists of the literature review, based on which the research hypotheses were developed, and an empirical research study, which served to test the hypotheses. Within the literature review, the essence of the engagement concept is clarified and the key factors influencing the development of employee engagement in modern companies are highlighted. Then, the role of job design as an engagement factor is elaborated and autonomy, as the key characteristic of job design whose effects on engagement are most pronounced in the digital business environment as well. The possible moderating effects of remote working are pointed out as the special circumstances in which the positive effects of autonomy on engagement increase. The research methodology is explained, and the results are presented and discussed.

REFERENCES AND HYPOTHESES DEVELOPMENT

The concept of employee engagement

Engagement is a relatively new concept in the scientific literature. However, it has been known in managerial practice for decades. The most successful consulting companies all around the world set the improvement of employee engagement as one of the key goals, as a factor that increases profitability through increased productivity and employee and customer satisfaction (Schaufeli & Bakker, 2010). Research has later shown that engagement has a number of positive implications, both at individual and at organizational levels. From the positive psychology perspective, work engagement contributes to the individual's need to lead a life fulfilled in every possible aspect (Youssef-Morgan & Bockorny, 2014). Therefore, the employees who develop a high degree of engagement can be expected to be more satisfied. There are even certain indicators of better physical and mental health in highly engaged workers (Johns, 2012; Shuck, Ghosh, Zigarmi & Nimon, 2012). Engaged employees are generally more productive, and show higher creativity and proactivity. The organizations that manage to develop high employee engagement can also expect better financial results in the long run (Macey, Schneider, Barbera & Young, 2009). It is exactly this dual dimension which benefits from engagement (both for individuals and for the organization itself) that is believed to be making this phenomenon so significant.

The concept has received attention in the literature since W. Kahn (1990, 700) defined engagement as "the harnessing of organisation members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances". The author sees engagement as the complete involvement of

oneself physically, cognitively and emotionally in a job or work role. People establish a kind of symbiotic relationship with their job and it makes them happy.

There is a relatively high degree of agreement in the literature that engagement is a unique and distinctive motivational concept that can be described through the following three dimensions (Salanova, Agut & Peiró, 2005): vigor, dedication and absorption. Vigor refers to a high level of energy and willingness to put effort into work, regardless of potential difficulties. Dedication indicates high work inspiration, enthusiasm and a sense of pride for the tasks performed. Absorption implies complete immersion in work tasks and activities, as well as the difficulty that a person has to stop working.

The main specificity of the engagement concept, especially as a kind of a company's success indicator, is that it cannot be ordered and is very difficult to be directly controlled. It is created through building long-term relationships and the development of a pleasant working environment. Ever since the concept appeared until today, researchers have tried to determine all the relevant antecedents of engagement in order to find the most concrete and the most detailed answers to the question of how to build an engaged workforce. The literature review has identified certain engagement factors which can be classified into the two broad categories: individual and organizational factors.

Individual factors refer to the different concepts related to an individual's personality, such as personal resources and the personality characteristics. According to job demands-resources theory, the personal resources that stand out as the key engagement factors ž are as follows: self-efficiency, i.e. a personal belief in one's own ability to effectively respond to the demands of different situations, and optimism, which reflects a person's view of the world or the belief that things will go in the desired direction, which increases their enthusiasm and desire to invest themselves in the work role (Crawford, Rich, Buckman & Bergeron, 2014). In addition to personal resources, there are certain personal characteristics that affect engagement, although the evidence for this assumption is not firmly theoretically grounded, nor is it empirically proven. Certain studies have shown that the characteristics including conscientiousness, proactivity and positive affect are positively correlated with engagement (Saks & Gruman, 2014). Also, some empirical data suggest that openness and extroversion are the most significant engagement factors among the characteristics that make up the Big Five group (Wollard & Shuck, 2011). Bearing in mind the importance of personal characteristics as a factor of organizational behavior, as well as the behavior and life of people in general, there is a great lack of research in these issues in the literature.

The organizational factors of employee engagement can be found at the level of work, a group/team and the organization as a whole. The following are amongst the most important: job characteristics, leadership, organizational justice and organizational support. Job characteristics are considered to be the most significant factors influencing employee engagement. Although all job characteristics can affect engagement the following can be highlighted based on the results obtained in the existing empirical research: autonomy, job complexity, problem solving, task variety, feedback from others, person-job harmony, development opportunities, social support (Crawford, LePine & Rich, 2010; Christian *et al*, 2011).

The importance of job design for engagement development

Job design is a system that organizes the performance of a particular job (Sinha & Van de Ven, 2005, 390). There are many properties that can describe a job, but one of the most comprehensive classifications singles out the three basic dimensions (Morgeson & Humphry, 2006), namely the task dimension, which describes the structure of the tasks that make up a job (the structural dimension); the knowledge dimension, which contains the characteristics that knowledge requires to perform tasks (the cognitive dimension) and the dimension that describes social interactions at work (the social dimension). The structural dimension includes the following characteristics: the autonomy, variety, significance and identity of tasks, as well as

job feedback. The cognitive dimension includes job complexity, information processing, problem solving, skill variety and specialization. The social dimension refers to social support, work interdependence, interactions and feedback (Morgeson & Humphry, 2006). In addition to the three basic work dimensions, job design also includes the context dimension (ergonomics, physical working conditions, etc.), as well as the characteristics of workers themselves. In this paper, the focus is on the aforementioned three basic work dimensions.

The initial, theoretical-methodological basis for considering the relationship between job design and employee engagement is set by *Job Demands - Resources Theory*, which starts from the question why some people are exhausted from work while others feel enthusiastic and energetic at work. It seeks an answer to this question in the concept of job design. The theory is an extension of the job demands-resources model set by E. Demerouti, A. B. Bakker, F. Nachreiner and W. B. Schaufeli (2001) and further developed by A. B. Bakker and E. Demerouti (2007). The researchers identified the limitations of the existing employee well-being and workplace stress models (the demand-control model and the investment and reward balance model) that were too simplistic and static because they dealt with a limited number of variables and did not apply to all people or activities. To overcome the perceived limitations, the job demands-resources model encompassed a wide range of variables. It is based on the assumption that each occupation could have specific risk factors associated with stress at work and engagement, and these factors can be divided into the two general groups called demands and resources.

Job demands are "…those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs … (e.g. work pressure, an unfavorable physical environment, and emotionally demanding interactions with clients)" (Bakker & Demerouti, 2007, 312). Although demands do not necessarily have to be negative, they always require an additional effort to be made. Sometimes, if an employee is unable to respond to a demand, it may lead to negative consequences, such as stress, burnout and health problems. Demands can be classified into challenges (e.g. work responsibilities, deadlines, workload) or hindrances (e.g. an emotional/affective conflict, the organizational policy) (Crawford *et al*, 2010). Therefore, the relationship between job demands and engagement depends on the type of demands, so challenges are positively associated with engagement, and hindrances are negatively associated with engagement.

Job resources are defined as "those physical, psychological, social, or organizational aspects of the job that are either/or: functional in achieving work goals; reduce job demands and the associated physiological and psychological costs; stimulate personal growth, learning, and development" (Bakker & Demerouti, 2007, 312). Resources are not exclusively focused on dealing with demands, but also have a motivational role. Internal motivational factors come from the resources that encourage employee personal growth, whereas external motivators come from the resources that are the key instruments for achieving work goals. Job resources can be found at the organizational level, in interpersonal and social relationships and at the job design level as well. Some examples of work-level resources are autonomy, creative tasks, support from superiors and colleagues.

According to Job Demands-Resources theory, stress and burnout will occur when demands are high and available resources are low. However, resources can mitigate the negative effects of a demand (Bakker, Demerouti, Taris, Schaufeli & Schreurs, 2003) and encourage motivation and engagement.

Autonomy as a factor of employee engagement in the IT sector

Autonomy can be understood as "the freedom an individual has in carrying out work" (Humphrey, Nahrgang & Morgeson, 2007, 1333) or as the extent to which work allows for the individual's freedom, independence and discretion with regard to the

choice of work order, working methods and decision-making (Morgeson & Humphrey, 2006). Autonomy, therefore, has four aspects, which relate to:

- work order planning,
- method selection,
- work site selection, and
- general job decision-making.

It can be real and perceived. Real autonomy refers to the actual degree of the freedom granted to an employee to decide on the organization of their work. Perceived autonomy implies the degree to which an employee believes they have the freedom to organize the work independently. Both real and perceived autonomy are thought to affect engagement. According to self-determination theory, the need for autonomy is one of the three key prerequisites for the development of engagement, in addition to the needs for competence and relatedness (Ryan & Deci, 2000).

In the digital age, there are numerous changes in job design. Some jobs are no longer performed by people, but by machines instead. This includes the jobs that require certain intellectual efforts, for the needs of which artificial intelligence is applied. There are also changes in traditional job characteristics and the emergence of completely new jobs and tasks as well. The key change is reflected in the fact that technology has enabled the faster and easier collection and processing of large amounts of data, which simultaneously makes some tasks simpler and others more complex. This implies changes in the design of the jobs related to increasing the number of the tasks that one person can perform and increasing their complexity, too. In a complex and uncertain environment, the limitations concerning the mental capacity of each individual as a decision-maker, as well as access to a large amount of information (Nikolic, 2018), are becoming more pronounced, so authority must be delegated in order to avoid mistakes in the decision-making process.

On the other hand, the modern competitive environment requires that organizations be highly agile and innovative in order to survive and develop (Crocitto & Youssef, 2003; Tallon & Pinsonneault, 2011; Teece, Peteraf & Leih, 2016). At the job level, this requires facing challenges and doing creative tasks. It is believed that, with increasing autonomy, employees can successfully respond to these demands. Specifically, autonomy contributes to employees' creativity and responsiveness provided that employees have adequate knowledge and experience, as well as the passion for the job (Liu, Chen & Yao, 2011; Chang, Huang & Choi, 2012).

Recently, positive implications of the job crafting have been pointed out. The concept implies a very high level of autonomy, employees' complete freedom to adjust the way they do work at their own discretion, taking into account both personal and organizational needs. This includes changes in the job structure, relationships with other jobs, cognitive requirements, and so on. (Wrzesniewski & Dutton, 2001). Research has shown that such a high degree of freedom can have an extremely strong motivational potential, which also leads to better performance (Bakker, Tims & Derks, 2012; McClelland, Leach, Clegg & McGowan, 2014).

Although most contemporary research studies highlight the important role of autonomy in improving individual performance, satisfaction, innovative behavior, and the passion for the work they do (Kahn, 1990; Saks, 2006; Shantz *et al*, 2013; Spiegelaere, Van Gyes & Van Hootegem, 2016; Zhang, Jex, Peng & Wang, 2017), there are also opposing views that indicate the "dark side" of autonomy, believing that it encourages or at least enables the unethical behavior of the individuals who discretionary decision-making rights are delegated to (Lu, Brockner, Vardi & Weitz, 2017). However, even these authors point out the fact that the effect of autonomy on unethical behavior is weaker in the individuals who rated autonomy as a business resource very important to them personally. Since the digital working environment, especially in the case of remote working, provides high autonomy

and low control, it is important to find out whether autonomy has positive or negative consequences in this kind of environment. By examining the effects it has on engagement, it can be assessed whether autonomy has positive implications or not.

In the employees who work with information and communication technologies (ICT), autonomy has proven to increase job satisfaction, because it provides them with the opportunity to make the most of their capacities (Madanagopal & Thenmozhi, 2015). These are usually complex jobs which require using various skills and the constant collection and processing of new information, given the fact that technology is advancing and competition is fierce. Jobs are based on the maximum use of knowledge and the freedom and flexibility make it easier. Therefore, it can be expected that, in addition to greater job satisfaction, employees will be able to achieve better results. ICT work is mostly done by the professionals who are narrowly specialized, so it is not expected that strict control or any mechanism based on issuing orders and top-down communication will be able to generate good results, because the individuals who do the work are the ones who know the job requirements as well as the ways how to respond to them.

Therefore, the first research hypothesis was developed:

H1: Autonomy has a positive influence on employee engagement in the digital environment.

The moderating effect of remote working

Remote working is a situation in which the usual office space is not the central location from which the employee performs his/her tasks. The individual, therefore, works in a particular remote location and maintains communication with the rest of the organization through ICT (Bailey & Kurland, 2002; Pattnaik & Jena, 2020). In the last year, the COVID-19 pandemic has accelerated the digital transformation of many organizations, which includes, among other things, greater reliance on remote working. This change has found many workers unprepared to adapt to new circumstances and continue to achieve high performance while simultaneously preserving personal well-being. In that sense, the research in engagement as a condition reflecting a good feeling at work and high productivity, as well as the factors that accelerate its development, has become increasingly important.

At first glance, there is naturally greater freedom in the remote workplace in terms of flexibility in organizing their daily tasks. On the one hand, that is true. However, there are certain obstacles, such as the difficulty of maintaining a work-life balance, especially if people choose their family home as a place to work from. Working from home requires a balance between home and family responsibilities, as well as work responsibilities, which challenges autonomy. Research has confirmed that duties towards the household and the family restrict freedom when working from home (Manzo & Minello, 2020). On the other hand, the freedom of choice in terms of the location, time and manner of working in teleworking conditions helps employees to establish a balance and motivates them (Kossek, Lautsch & Eaton, 2009).

It is important to emphasize the fact that remote working does not always mean high autonomy. Thus, autonomy is an important precondition of engagement in remote working, perhaps even more important than in the regular office workspace. In a nonremote workplace, there are other possible antecedents of engagement, such as social characteristics of work (e.g. good interpersonal relationships, the perception of belonging to a group/team, feedback from supervisors and others) (May, Gilson & Harter, 2004; Bakker & Demerouti, 2007; Bakker & Bal, 2010). On the other hand engagement in remote working will depend on a small number of possible incentives, among which autonomy stands out as potentially the most important given its dominant role in regular conditions (Christian *et al*, 2011). Thus, the second research hypothesis reads as follows:

H2: The impact of autonomy on employee engagement in the digital environment is stronger if employees work remotely.

Research model

According to the formulated hypotheses, a research model was developed that shows the relationships between the variables (Figure 1).

METHODOLOGICAL FRAMEWORK OF THE EMPIRICAL RESEARCH

Data collection and processing

In order to test the hypotheses, an empirical research study was conducted using the survey method. The data were collected from a sample of 158 respondents employed in the IT sector in the territory of the Republic of Serbia from the end of 2020 to the beginning of 2021. A questionnaire based on the existing, well-established measurement scales adapted for the needs of the research study was used as a data collection instrument. Autonomy was measured using the three items related to job scheduling autonomy, decision-making autonomy and the choice of the working methods. The items were based on the comprehensive job design questionnaire developed by F. P. Morgeson and S. E. Humphrey (2006). The broadly used *UWES-9* scale was used to measure employee engagement. It includes the following three dimensions: vigor, dedication and absorption (Schaufeli & Bakker, 2003). The scales were translated into Serbian. Both scales are seven-point scales.

Data processing was performed using the Social Science Statistical Software (SPSS) 25.0 and AMOS 24.0. The sample structure was analyzed using descriptive statistics. To test the reliability of the measurement scales, Cronbach's alpha coefficient was applied, after which confirmatory factor analysis was carried out. The hypotheses were tested using Structural Equation Modeling (SEM).

The sample

The results of the demographic structure analysis are shown in Table 1. The sample is dominated by the male respondents (55.7%) in comparison to the female respondents (42.4%) and those who did not want to declare/answer (1.48%). The largest number of the respondents are between 20 and 30 years old (44.9%)

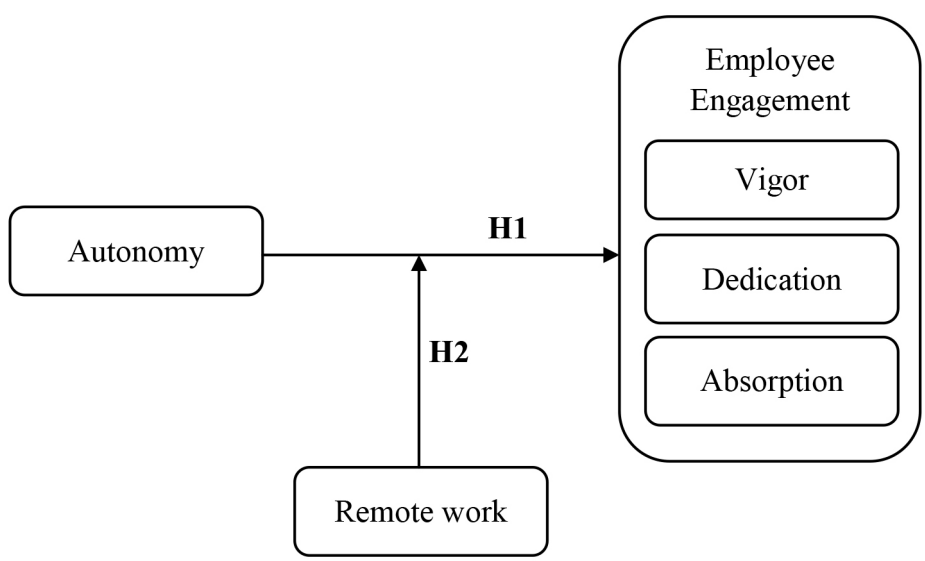

Figure 1 The research model

Source: Author

and the fewest respondents are classified into the 61-70-years-of-age category (0.6%). According to their education, the respondents with a university degree predominate (47.5%), whereas the smallest number of them has are with a PhD (0.6%).

Table 1 The demographic structure of the sample

Gender	Number	Percentage
Male	88	55.7 %
Female	67	42.4 %
I do not want to declare / Data is missing	3	1.9 %
Age	Number	Percentage
20-30	71	44.9 %
31-40	68	43.0 %
41-50	12	7.6 %
51-60	2	1.3 %
61-70	1	0.6 %
Data is missing	4	2.5 %
Education level	Number	Percentage
High school	29	18.4 %
College	16	10.1 %
Bachelor's degree	75	47.5 %
Master's degree	37	23.4 %
PhD/doctoral degree	1	0.6 %
Data is missing	0	/
Total	158	100%

Source: Author

RESULTS AND DISCUSSION

The reliability of the scales and the common method bias

The reliability of the scales was tested by Cronbach's alpha coefficient (Table 2). All the coefficients are above the threshold of 0.7 (Nunnally, 1978), which makes them highly reliable for further analysis.

Table 2 The reliability of the scales

Scale	Cronbach's alpha	Number of items
Autonomy	0.760	3
Engagement - the whole scale	0.916	9
Vigor	0.913	3
Dedication	0.826	3
Absorption	0.706	3

Source: Author

Harman's single factor test was applied in order to test the common method bias. The results showed that the total variance for a single factor was less than 50%, namely 48.51%. Therefore, the common method bias should not be affecting the data.

Structural equation modeling

In order to test the model validity, confirmatory factor analysis (CFA) was conducted. After removing the items with low factor loadings, below 0.6 (two out of the three items on the Absorption scale), the whole Absorption scale was removed from further analysis because a single item left is all but sufficient to meet the criteria for the CFA. The value $\chi 2/df$ is 2.067, which is below the threshold 3 (Carmines & McIver, 1981). The values CFI = 0.973, IFI = 0.973, TLI = 0.957 and GFI = 0.936 are above the threshold 0.90 (Byrne, 1998). RMSEA is 0.082, which is below 0.1. The model also shows the satisfactory values of composite reliability (CR), above 0.6 (Bagozzi & Yi, 1988), and the average variance extracted (AVE), above 0.5 (Fornell & Larcker, 1981). Table 3 shows the results of the CFA.

Since the model is valid, it is possible to proceed to the hypotheses testing. The results (Table 4) show

Table 3 Confirmatory factor analysis (CFA)

Items	Factor loadings	AVE	CR
Autonomy		0.516	0.761
The job allows me to make my own decisions on how to schedule my work.	0.66		
The job allows me to make a lot of decisions on my own.	0.76		
The job allows me to make decisions on what methods I use to complete my work.	0.73		
Vigor - 1st dimension of engagement		0.793	0.920
At my work, I feel bursting with energy.	0.91		
At my job, I feel strong and vigorous.	0.91		
When I get up in the morning, I feel like working.	0.86		
Dedication - 2nd dimension of engagement		0.608	0.820
My job inspires me.	0.88		
I am enthusiastic about my job	0.81		
I am proud of the work that I do.	0.63		

Source: Author

Table 4 Testing the direct impact of autonomy on employee engagement

Relation	Standardized estimate (β)	Estimate (B)	Statistical significance (p-value)
Autonomy → Vigor (1st dimension of Engagement)	0.887	1.368	0.000***
Autonomy → Dedication (2nd dimension of Engagement)	0.890	1.085	0.000***

***p<0.001

Source: Author

that autonomy has a statistically significant positive influence on two out of the three engagement dimensions.

After this, the second research hypothesis is tested. Specifically, whether remote working has a moderating impact on the relationship between autonomy and engagement (vigor and dedication) or not is examined. Two groups of employees are identified in the sample, namely those who state that they never work remotely (n1 = 42) and those who work remotely at least once a week (n2 = 116). A comparison is made to determine the statistically significant differences between the two groups in terms of the impact of autonomy on their engagement. Invariance testing (Table 5) shows there are statistically significant differences ($p = 0.078 < 0.1$).

Table 5 Invariance testing in the models

	χ2	df
Unconstrained model	171.913	48
Constrained model	177.015	50
Difference	5.102	2
p-value	0.078*	

*p<0.1

Source: Author

A regression coefficient comparison test is then conducted to examine whether there are statistically significant differences in the impact of autonomy on engagement between the group of the respondents working remotely and those not working remotely (Table 6).

A statistically significant difference in terms of the impact of autonomy on vigor is found in the analysis of the moderating impact of remote working. Specifically, the positive impact of autonomy on vigor is stronger when employees work remotely (β = 1.002) than when they do not (β = 0.758). When the impact of autonomy on dedication is concerned, no statistically significant difference is identified.

Discussion

The results have shown that autonomy has a positive impact on employee engagement in the digital environment, namely on its two dimensions: vigor and dedication. The impact on the dimension of absorption was not tested, because it became clear during the CFA that that subscale did not meet the conditions for a further analysis. Therefore, Hypothesis 1 is partially supported. The result is complementary to the previous research (Saks, 2006; Christian *et al,* 2011; Shantz *et al,* 2013) and indicates that an increase in employee engagement can be expected if autonomy is increased. Unlike the previous research done in various industries, the findings this research has come to are closely related to the information and communication industry, mainly the companies that deal with ICT. These are the activities in which employees' and the entire organization's innovation, responsiveness and proactivity are the key success factors, and autonomy makes it easier for them to achieve these performances.

It can also be concluded that remote working moderates the impact autonomy exerts on vigor as the engagement dimension, so Hypothesis 2 is partially supported. In this way, the relevant role of autonomy in modern organizations is once again confirmed, which was also emphasized in the previous research (Christian *et al,* 2011), but the step forward made in relation to the previous research refers to the remote working context. This means that autonomy is an even more significant factor of employee engagement in the remote workplace than in the office, at least in terms of vigor. For the people who work remotely, the freedom to choose the exact workplace, the exact methods of work and the exact worktime has proven to be even more important than in regular conditions, given the specifics and the limiting factors of remote working, such as family responsibilities, limited

Table 6 The moderating impact of remote working

Influence	β – no remote working	β – remote working	Δ β	p-value of difference
Autonomy → Vigor (1st dimension of Engagement)	0.758***	1.002***	-0.244	0.042**
Autonomy→ Dedication (2nd dimension of Engagement)	0.958***	0.906***	0.052	0.414

*** p<0,001 **p<0,05

Source: Author

resources, isolation from other colleagues, a reduction in interpersonal interactions, and a lack of social support sometimes.

CONCLUSION

The paper provides insights into the mutual relationships between autonomy, as one of the most important structural features of work, employee engagement and remote working in specific conditions such as the modern, digital environment, especially characteristic of the companies dealing with ICT, as well as many others going through the digital transformation process in order to adapt to the contemporary economic order and the so-called Industry 4.0.

Previous research studies have shown that the organizational design that can successfully meet digital transformation demands should be highly agile (Teece, Peteraf & Leih, 2016). An agile organization must be supported by job redesign, which will be shaped so as to enable fast and quality decision-making, as well as high motivation and performance. Faced with rising and changing demands, stress and dissatisfaction may develop in people if jobs are not adequately designed. Conversely, the state of pronounced energy and high performance can develop, such as engagement, and a properly designed job is among the basic drivers of this state (Tims & Bakker, 2014).

The study has confirmed that the workplace autonomy is an important factor in employee engagement. Employees' discretionary rights to decide on the manner, place and time of performing tasks also increase their perception of the meaningfulness of their work. In addition, if an individual believes that they have control over the work they do and its outcomes, their responsibility for the results increases, as well as their motivation. However, autonomy must be based on individual expertise (Erić Nielsen, 2020), because it is only then that positive effects may be achieved, not only in the engagement context, but also in the development of entrepreneurial behavior and overall organizational performance.

The results also suggest that it might be difficult for employees to respond to rigidly set requirements in terms of time and working conditions in remote conditions when they have to balance between their work and their life and in situations when they might not have all the available resources present in the office (the equipment, social contacts, etc.). It can also be assumed that the importance of autonomy is particularly pronounced in these conditions because the other, alternative drivers of engagement, such as social contacts, support and feedback, are limited.

The research has a scientific contribution in the areas of organizational design and organizational behavior. The significance of autonomy is emphasized as the important characteristics of the so-called "workplace of the future" in the development of engagement - the state of high performance that leads to individuals' greater proactivity and innovation. Previous studies have mainly been done in other industries, so that the knowledge of the autonomy-engagement relationship has been deepened by doing research in the IT sector. Speaking in methodological terms, a deeper insight into the effects of autonomy on engagement is provided, as individual effects on the three dimensions of engagement are considered, with a demonstrated positive impact on vigor and dedication. The moderating role of remote working in the relationship between autonomy and engagement is found. Thus, the study expands the existing knowledge and strengthens the foundation for drawing new theoretical conclusions about the job design-engagement relationship in the digital environment.

The study has relevant practical implications. It highlights the importance of employee engagement as a target condition to be achieved in modern conditions in order for not allowing demanding work requirements to lead to stress and burnout, but to an increase in energy, dedication, interest in work, and consequently work performance instead. Furthermore, the study points to one of the job characteristics that is considered the most important

for achieving engagement. That characteristic is providing freedom and independence to employees in terms of allowing them to make a choice of the way how, the place where and the time at which they will work. The managers who strive to successfully take their company through the digital transformation process should consider the possibility of increasing employee autonomy whenever that may be allowed by the nature of the workplace, employees' knowledge and skills and other situational factors as well.

The paper also has certain limitations. First, the research study was conducted only in Serbia and only in the IT industry, which makes it somewhat difficult to generalize the conclusions. Second, the sample size is always a limitation in the research of this type, so there is a possibility of expanding it in order to increase the reliability of the obtained results. Finally, it should be noted that the survey as a method of data collection has its drawbacks, which include respondents' potential subjectivity. However, it is smaller compared to some other methods (e.g. an interview) since the survey was conducted anonymously.

The findings presented in the paper open up some new questions, providing recommendations for future research. Given the fact that the relatively strong evidence of the positive effects of autonomy on engagement has been established, the question arises as to whether there are exceptional situations in which autonomy will not result in positive effects and which those cases are. Therefore, it is necessary to analyze this relationship in a variety of circumstances in order to examine the potential situational variables that may affect it. It is also possible to include additional indicators of autonomy as a variable so as to include the other aspects of it. In addition, by identifying the moderating role of remote working, the specific context of remote working and its indirect effects should be further examined. Future research should focus on examining the implications of the other structural, cognitive and social characteristics of work on employees as well.

REFERENCE

Anderson, D., & Kelliher, C. (2009). Flexible working and engagement: The importance of choice. *Strategic HR Review, 8*(2), 13-18. doi.org/10.1108/14754390910937530

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74-94. doi.org/10.1007/BF02723327

Bailey, D. E., & Kurland, N. B. (2002). A review of telework research: Findings, new directions, and lessons for the study of modern work. *Journal of Organizational Behavior, 23*(4), 383-400. doi.org/10.1002/job.144

Bakker, A. B., Demerouti, E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. G. (2003). A multigroup analysis of the job demands-resources model in four home care organizations. *International Journal of Stress Management*, *10*(1), 16-38. doi.org/10.1037/1072-5245.10.1.16

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology, 22*(3), 309-328. doi.org/10.1108/02683940710733115

Bakker, A. B., & Bal, P. M. (2010). Weekly work engagement and performance: A study among starting teachers. *Journal of Occupational and Organizational Psychology, 83*(1), 189-206. doi.org/10.1348/096317909X402596

Bakker, A. B., Tims, M., & Derks, D. (2012). Proactive personality and job performance: The role of job crafting and work engagement. *Human Relations, 65*(10), 1359-1378. doi:10.1177/0018726712453471

Byrne, B. M. (1998). *Structural Equation Modeling with LISREL, PRELIS, and SIMPLIS: Basic Concepts, Applications, and Programming*, New Jersey, NJ: Lawrence Erlbaum, Hillsdale.

Carmines, E., & McIver, J. (1981). Analysing models with unobserved variables: Analysis of covariance structures. In G. Bohmstedt, & E. Borgatta (Eds.). *Social Measurement: Current Issues* (pp. 56-77). Beverly Hills, CA: Sage.

Chang, J., Huang, D. W., & Choi, J. (2012). Is task autonomy beneficial for creativity? Prior task experience and self-control as boundary conditions. *Social Behavior and Personality, 40*(5), 705-724. dx.doi.org/10.2224/sbp.2012.40.5.705

Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*, *64*(1), 89-36. doi.org/10.1111/j.1744-6570.2010.01203.x

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology, 95*(5), 834-848. doi.org/10.1037/a0019364

Crawford, E. R., Rich, B. L., Buckman, B., & Bergeron, J. (2014). Antecedents and drivers of employee engagement. In C. Truss, R. Delbridge, K. Alfes, A. Shantz, & E. Soane (Eds.). *Employee engagement in theory and practice* (pp. 57-81). London & New York, UK & NY: Routledge, Taylor & Francis Group.

Crocitto, M., & Youssef, M. (2003). The human side of organizational agility. *Industrial Management & Data Systems*, *103*(6), 388-397. doi.org/10.1108/02635570310479963

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499-512. doi.org/10.1037/0021-9010.86.3.499

Erić Nielsen, J. (2020). *Korporativno preduzetništvo*. Kragujevac, RS: Ekonomski fakultet Univerziteta u Kragujevcu.

Erić Nielsen, J., Babić, V., Stojanović-Aleksić, V., & Nikolić, J. (2019). Driving forces of employees' entrepreneurial intentions - Leadership style and organizational structure. *Management: Journal Of Sustainable Business And Management Solutions In Emerging Economies*, *24*(3), 59-71. doi:10.7595/10.7595/management.fon.2019.0020

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-80. doi.org/10.2307/3151312

Golden, T. D., & Gajendran, R. S. (2019). Unpacking the role of a telecommuter's job in their performance: Examining job complexity, problem solving, interdependence and social support. *Journal of Business and Psychology*, *34*(1), 55-69. doi.org/10.1007/s10869-018-9530-4

Halbesleben, J. R. B. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences. In A. B. Bakker, & M. P. Leiter (Eds.). *Work engagement: A handbook of essential theory and research* (pp. 102-117). New York, NY: Psychology Press.

Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology, 92*(5), 1332-1356. doi.org/10.1037/0021-9010.92.5.1332

Johns, T. (2012). Employee Engagement. In: S. Taylor, & C. Woodhams (Eds.). *Managing People and Organisations* (pp. 83-110). London, UK: Chartered Institute of Personnel and Development.

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*(4), 692-724. doi.org/10.2307/256287

Kossek, E. E., Lautsch, B. A., & Eaton, S. C. (2009). "Good teleworking": Under what conditions does teleworking enhance employees' well-being? In Y. Amichai-Hamburger (Ed.). *Technology and Psychological Well-being* (pp. 148-173). Cambridge, UK: Cambridge University Press.

Kwon, K., & Kim, T. (2020). An integrative literature review of employee engagement and innovative behavior: Revisiting the JD-R model. *Human Resource Management Review*, *30*(2), 1-18. doi.org/10.1016/j.hrmr.2019.100704

Liu, D., Chen, X.-P., & Yao, X. (2011). From autonomy to creativity: A multilevel investigation of the mediating role of harmonious passion. *Journal of Applied Psychology*, *96*(2), 294-309. doi.org/10.1037/a0021294

Lu, J. G., Brockner, J., Vardi, Y., & Weitz, E. (2017). The dark side of experiencing job autonomy: Unethical behavior. *Journal of Experimental Social Psychology*, *73*, 222-234. doi.org/10.1016/j.jesp.2017.05.007

Macey, W. H., Schneider, B., Barbera, K. M., & Young, S. A. (2009). *Talent Management Essentials.Employee Engagement: Tools for Analysis, Practice, and Competitive Advantage*. Hoboken, NJ: Wiley-Blackwell.

Madanagopal, D., & Thenmozhi, S. (2015). Relationship between job autonomy and job satisfaction among male employees in the ITeS sector from Chennai city. *Annamalai International Journal of Business Studies & Research*, 73-78.

Manzo, L. K. C., & Minello, A. (2020). Mothers, childcare duties, and remote working under COVID-19 lockdown in Italy: Cultivating communities of care. *Dialogues in Human Geography*, *10*(2), 120-123. doi.org/10.1177/2043820620934268

May, D. R., Gilson, R. L., & Harter, L. M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology, 77*(1), 11-37. doi.org/10.1348/096317904322915892

McClelland, G. P., Leach, D. J., Clegg, C. W., & McGowan, I. (2014). Collaborative crafting in call centre teams. *Journal of Occupational and Organizational Psychology, 87*(3), 464-486. doi:10.1111/joop.12058

Morgeson, F. P., & Humphrey, S. E. (2006). The work design questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology, 91*(6), 1321-1339. doi.org/10.1037/0021-9010.91.6.1321

Nikolić, J. (2018). Biases in the decision-making process and possibilities of overcoming them. *Economic Horizons, 20*(1), 43-57. doi:10.5937/ekonhor1801045N

Nunnally, J. C. (1978). *Psychometric Theory*. 2nd Edition, New York, NY: McGraw-Hill.

Pattnaik, L., & Jena, L. K. (2020). Mindfulness, remote engagement and employee morale: Conceptual analysis to address the "new normal". *International Journal of Organizational Analysis, 29*(4), 873-890. oi.org/10.1108/IJOA-06-2020-2267

Radošević, V., Jelić, D., Matanović, J. i Popov, B. (2018). Zahtevi posla i resursi na radu kao prediktori izgaranja na radu i radne angažovanosti: Glavni i interaktivni efekti. *Primenjena psihologija, 11*(1), 105-125. doi:10.19090/pp.2018.1.105-125

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. doi.org/10.1037/0003-066X.55.1.68

Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology, 21*(7), 600-619. doi.org/10.1108/02683940610690169

Saks, A. M., & Gruman, J. A. (2014). What do we really know about employee engagement? *Human Resource Development Quarterly, 25*(2), 155-182. doi.org/10.1002/hrdq.21187

Salanova, M., Agut, S., & Peiró, J. M. (2005). Linking organizational resources and work engagement to employee performance and customer loyalty: The mediation of service climate. *Journal of Applied Psychology, 90*(6), 1217-1227. doi.org/10.1037/0021-9010.90.6.1217

Savovic, S., Zlatanovic, D., & Nikolic, J. (2021). Technology acquisitions as a supporting tool for improving companies' innovative potential. *Economic Horizons, 23*(1), 3-17. doi:10.5937/ekonhor2101003S

Schaufeli, W. B., & Bakker, A. B. (2003). *Test manual for the Utrecht Work Engagement Scale*. Unpublished manuscript, Utrecht University, The Netherlands. Retrieved May 15, 2021, from http://www.schaufeli.com

Schaufeli, W. B., & Bakker, A. B. (2010). Defining and measuring work engagement: Bringing clarity to the concept. In A. B. Bakker, & M. P. Leiter (Eds.). *Work Engagement: A Handbook of Essential Theory and Research* (pp. 10-24). New York, NY: Hove and New York, Psychology Press, Taylor & Francis Group.

Shantz, A., Alfes, K., Truss, C., & Soane, E. (2013). The role of employee engagement in the relationship between job design and task performance, citizenship and deviant behaviours. *The International Journal of Human Resource Management, 24*(13), 2608-2627. doi.org/10.1080/09585192.2012.744334

Shuck, B., Ghosh, R., Zigarmi, D., & Nimon, K. (2012). The jingle jangle of employee engagement: Further exploration of the emerging construct and implications for workplace learning and performance. *Human Resource Development Review, 12*(1), 11-35. doi:10.1177/1534484312463921

Simić, M., Slavković, M., & Ognjanović, J. (2020). Information literacy competencies in digital age: Evidence from small-and-medium-sized enterprises. In V. Domanović, & D. Zlatanović (Eds.). *Proceedings of the 6th International Scientific Conference on Contemporary Issues in Economics, Business and Management (EBM 2020)* (pp. 105-114). Kragujevac, RS: Faculty of Economics University of Kragujevac, The Republic of Serbia.

Sinha, K. K., & Van de Ven, A. H. (2005). Designing work within and between organizations. *Organization Science, 16*(4), 389-408. doi.org/10.1287/orsc.1050.0130

Spiegelaere, S., Van Gyes, G., & Van Hootegem, G. (2016). Not all autonomy is the same. Different dimensions of job autonomy and their relation to work engagement & Innovative work behavior. *Human Factors and Ergonomics in Manufacturing, 26*(4), 515-527. doi.org/10.1002/hfm.20666

Stojanovic-Aleksic, V. (2016). Followers in the organizational leadership process: From attribution to shared leadership. *Economic Horizons, 18*(2), 135-148. doi:10.5937/ekonhor1602139S

Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: Insights from a mediation model. *MIS Quarterly, 35*(2), 463-486. doi.org/10.2307/23044052

Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review, 58*(4), 13-35. doi.org/10.1525/cmr.2016.58.4.13

Thomson, P. (2008). The business benefits of flexible working. *Strategic HR Review, 7*(2), 17-22. doi:10.1108/14754390810853129

Tims, M., & Bakker, A. B. (2014). Job design and employee engagement. In C. Truss, K. Alfes, R. Delbridge, A. Shantz, & A. Soane (Eds.). *Employee Engagement in Theory and Practic*e (pp. 131-148) London & New York, UK & NY: Routledge, Taylor & Francis Group

Wollard, K. K., & Shuck, B. (2011). Antecedents to employee engagement: A structured review of the literature. *Advances in Developing Human Resources, 13*(4), 429-446. doi.org/10.1177/1523422311431220

Wrzesniewski, A., & Dutton, J. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review, 26*(2), 179-201. doi.org/10.5465/amr.2001.4378011

Youssef-Morgan, C. M., & Bockorny, K. M. (2014). Engagement in the context of positive psychology. In C. Truss, R. Delbridge, K. Alfes, A. Shantz, & E. Soane (Eds.). *Employee Engagement in Theory and Practice* (pp. 36-56). London & New York, UK & NY: Routledge, Taylor & Francis Group.

Zhang, W., Jex, S. M., Peng, Y., & Wang, D. (2017). Exploring the effects of job autonomy on engagement and creativity: The moderating role of performance pressure and learning goal orientation. *Journal of Business and Psychology, 32*(3), 235-251. doi.org/10.1007/s10869-016-9453-x

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PEER-TO-PEER LENDING, FINANCIAL BOOTSTRAPPING AND GOVERNMENT SUPPORT: THE ROLE OF INNOVATION MEDIATION ON MSME PERFORMANCE

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This study aims to examine whether Peer-to-Peer (P2P) lending, financial bootstrapping and government support affect the performance of Micro, Small, and Medium-sized Enterprises (MSMEs) by adding a mediating variable in the form of innovation. Innovation mediation is expected to be able to optimize the influence of government funding and incentives towards improving business performance. This study used an SEM-PLS analysis technique. The study samples were the MSMEs located in the city of Salatiga - Central Java, Indonesia. The results showed that P2P lending and financial bootstrapping had a positive effect on business performance and innovation. While government support had a positive effect on innovation, on the one hand, it had no effect on business performance, on the other. Innovation itself is proven to have an influence on business performance. This study also finds that innovation mediates the effect of P2P lending on business performance, facilitates the effect of financial bootstrapping on business performance and reconciles the effect of government support on business performance.

Keywords: P2P lending, financial bootstrapping, government support, MSME performance, innovation

JEL Classification: A1, D9

INTRODUCTION

The availability of financial resources has the ability to stimulate the creation of opportunities for innovation and better business processes (Gergely, 2016). The results of the previous research in Micro-, Small and Medium-sized Enterprises (MSMEs) in several countries in the Asian and African regions have been faced with obstacles in gaining access to external funding, which has resulted in hindering their business development (Abor & Quartey, 2010; Shinozaki, 2014; Mabonga, 2020; Rita & Huruta, 2020).

MSME credit statistics from the Bank Indonesia for 2014 to 2019 show an increase in the MSME outstanding credit by almost 50 percent. However, this amount is still far below the credit received by non-MSMEs. Conventional MSME funding (banking)

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also has various constraints, whether from the point of view of banks' interests or from the point of view of MSME entrepreneurs themselves (Mitrasevic & Bardarova, 2020). This condition implies that MSMEs' utilization of credits is still far below that of non-MSMEs. This empirical condition occurred in normal economic conditions. Beginning in March 2020, changes were made in the conditions of society and the business world due to the COVID-19 pandemic in Indonesia. The COVID-19 pandemic has the ability to change an individual's behavior, including behavior in business management. Entrepreneurs tend to perceive risky situations in an optimistic frame of mind compared to an average person (Cheung & Chow, 2006). This phenomenon is what drives this study to examine funding strategies during the COVID-19 pandemic to improve the performance of MSMEs using an opportunity-based entrepreneurship theory framework.

P2P lending is a platform that connects fund owners and borrowers directly through online media (Chen, Lai & Lin, 2014), namely through applications developed by financial technology (fintech) service providers. Funding activities cannot be separated from the government's role through financial and nonfinancial incentives provided to MSMEs. Barriers for MSMEs to gain access to formal funding and online loans such as Peer-to-Peer lending (P2P lending) encourage entrepreneurs to seek alternative funding with high opportunities for funding, an easy fulfillment of requirements, and a fast process. In the literature on small businesses or startups, this nonconventional funding strategy is referred to as financial bootstrapping (Lam, 2010). The collaboration of the three elements (online funding, government support, and financial bootstrapping) is alleged to be able to improve the performance of MSMEs.

This research is aimed at examining whether Peer-to-Peer (P2P) lending, financial bootstrapping and government support affect the performance of MSMEs by considering the mediating effect of innovation. The framework of this research model is based on the opportunity-based entrepreneurship theory, which views that an entrepreneurial activity can be derived from changes in the external environment. As far as is known, there are still limited studies regarding funding strategies for MSMEs, through the synergy of financiers, the government, and MSME entrepreneurs in order to improve business performance. The contribution of this research is to place the role of three parties who play the central role (the government, entrepreneurs, and financiers), in formulating a model for strengthening the performance of MSMEs during the pandemic. The MSME development strategy is very important to pay attention to the roles and interests of various parties. The MSME development strategy is very important to examine the roles and interests of various parties (Ilić, Vujičić & Mićić, 2006). Financiers are represented by the implementation of fintech in the form of P2P lending; while the government element, as the regulator and guarantor of stability in the business world, is represented by financial and nonfinancial support for MSMEs; and the entrepreneurial elements that are proxied from their capabilities take advantage of nonconventional funding alternatives to meet working capital needs. The research subject is the micro-, small, and medium-scale entrepreneurs in the city of Salatiga, Central Java, Indonesia. This research uses a survey method to obtain primary data about the practice of managing MSMEs in this pandemic period. Next, the research data will be processed with the SEM-PLS technique to test the formulated hypotheses. This study consists of five sections, namely: the Introduction, the Literature Review, the Research Methodology, the Analysis and Discussion, and the Conclusion.

LITERATURE REVIEW

The Opportunity-Based Entrepreneurship Theory (OBET) discusses external resources that can stimulate entrepreneurship, consisting of the locus of changes, the sources of opportunity, and the initiator of changes (Eckhardt & Shane, 2003). The role of the government that is effective in supporting MSMEs is realized as the facilitator, regulator, and catalyst (Gede, 2009). As the facilitator, the government facilitates production training, access to funding, access to markets, and so on. As the regulator, the government makes policies that are conducive to

the development of MSMEs. As the catalyst, the government accelerates the development of MSMEs into fast-moving enterprises, through empowering creative communities, protecting intellectual property rights, and facilitating capital.

The birth of a business begins with an individual's observant identification of opportunities. If these opportunities are not followed up by efforts to mobilize and assemble the required resources, then the business is only a wishful thinking/a dream. There is an ease in facilitation in P2P lending; business funding opportunities from business networks, as well as assistance from the government, are the resources able to stimulate the activities of small entrepreneurs in difficult conditions. By utilizing these resources, entrepreneurs have the potential to start and even develop their businesses.

One of the obstacles faced by MSMEs is the difficulty of accessing funding from formal financial institutions, such as banks (Adeyele, 2018). P2P lending is a funding alternative that is easier, cheaper, and more flexible than banking funding. As an alternative to funding, P2P lending will contribute to improving the performance of MSMEs. P2P lending opens opportunities for MSMEs to grow (Eldridge, Nisar & Torchia, 2021) and creates a network between MSMEs and investors. Strengthening this network will encourage the improvement of the performance of MSMEs (Cenamor, Parida & Wincent, 2019).

H1: Peer-to-Peer lending improves business performance.

Financial bootstrapping is an alternative solution in order to overcome the scarcity of capital resources from external sources (Efrata & Herdinata, 2012). This strategy has implications for the low cost of capital borne by MSMEs. Working capital management from bootstrapping is able to increase sales turnover, thereby increasing business performance (Jones & Jayawarna, 2010), given that adequate working capital ensures smooth daily business operations.

H2: Financial bootstrapping improves business performance.

Government funding assistance can be used for working capital (Bygrave & Zacharakis, 2010) to carry out promotional, customization, distribution, and customer service strategies. The government can also provide nonmonetary support, such as production training, technology training, marketing training, and management training. Management training allows MSMEs to identify the strengths, weaknesses, threats, and opportunities, which will support increased performance (Matusik, George & Heeley, 2008). The combination of financial support and nonmonetary support will increase the commercialization of MSMEs, sales growth, and the ability of MSMEs to survive (Åstebro & Serrano, 2015; Park, Lee & Kim, 2020).

H3: Government support improves business performance.

There is an influence between P2P lending and innovation (Culkin, Murzacheva & Davis, 2016; Rosavina & Rahadi, 2018). The availability of funds from P2P lending is the key to innovation (Stanko & Henard, 2016; Paschen, 2017). The MSMEs that access P2P lending will have more opportunities to innovate because MSMEs are not burdened with very high loan interest rates (Chen & Chen, 2012). The financial service companies that connect fund owners and MSMEs are monitored by regulators, so that the amount of loan interest is also monitored.

H4: Peer-to-Peer lending improves innovation in Micro-, Small and Medium-sized Enterprises.

The individuals who have the ability to recognize opportunities will seek and mobilize homogeneous resources into heterogeneous outputs through efficient business operations (Alvarez & Barney, 2008). Financial bootstrapping is often carried out by new and small companies when facing a scarcity of resources (Löfqvist, 2017). These startup business constraints can be overcome by utilizing the social capital of entrepreneurs in the form of personal networks.

H5: Financial bootstrapping stimulates innovation in Micro-, Small and Medium-sized Enterprises.

When associated with the two elements in this MSME funding model, it appears that the positive relationship exists between government support

and innovation (Dahlstrand & Stevenson, 2010; Doh & Kim, 2014). MSMEs often experience limited capital constraints (Bygrave & Zacharakis, 2010). On the other hand, innovation requires sufficient funds for research, so that financial support from the government will support MSMEs to innovate. Government support for innovation can also be in the form of various training programs and the policies that are conducive to innovation, and providing incentives for the MSMEs that have succeeded in making innovations (Patanakul & Pinto, 2014). In addition, the government can also facilitate MSMEs to acquire technology through various training and funding schemes. Mastery of these technologies will support increased innovation in MSMEs (Savović, Zlatanović & Nikolić, 2021).

H6: Government support improves innovation in Micro-, Small and Medium-sized Enterprises.

Referring to previous research, innovation is another factor that can affect the performance of MSMEs (Otero-Neira, Tapio Lindman & Fernández, 2009; Love & Roper, 2015; Mustikowati & Tysari, 2015). The high element of business uncertainty requires entrepreneurs to quickly adapt and be innovative, so that businesses can survive. Innovation activities will thrive in an open environment (Malinen, Puhakainen & Paasio, 2009). MSMEs are considered more innovative than large companies, because of their flexibility and ability to integrate their findings quickly and efficiently into their business activities (Verhees & Meulenberg, 2004). The ideas and creativity of entrepreneurs are embodied in business strategies so as for them to be able to operate and outperform competitors (Guo, Tang, Su & Katz, 2017), which may result in an increase in business performance.

H7: Innovation improves Micro-, Small and Medium-sized Enterprises performance.

However, there are findings that access to funding does not necessarily have an effect on improving the performance of MSMEs (Goldhausen, 2017; Ruslan, Gan, Hu & Quang, 2020). Likewise, there are findings of direct and indirect effects of financial bootstrapping on the performance of MSMEs (Jones & Jayawarna, 2010), as well as government support that has no effect on the performance of MSMEs (Ratnawati & Hikmah, 2013; Pramaishella, 2017). It is suspected that there is a role for the mediating variable in the relationship between these variables. The consideration of testing the innovation variable as the mediator of the effect of P2P lending, government support, and financial bootstrapping on the performance of MSMEs is also based on the results of the previous research which concluded that P2P lending was a funding alternative capable of supporting product innovation and new business processes (Sangwan, Null, Prakash & Singh, 2019). In addition, government support is proven to increase product promotion and innovation (Ashford, 2000), so that innovation is also possible to bridge the influence of government support on the performance of MSMEs. Apart from being influenced by P2P lending and government support, innovation can also be determined by financial bootstrapping. Adequate capital allows companies to always be able to carry out an innovation process, which is the key to business continuity, including continuity for small and medium-sized enterprises. Financial bootstrapping is one of the funding alternatives that can be performed by MSMEs (Carter & Van Auken, 2005). Furthermore, innovation will improve the performance of MSMEs (Abraham & Rahardjo, 2015; Ranatiwi & Mulyana, 2018; Kalil & Aenurohman, 2020).

P2P lending, which makes access to MSME funding easier, will provide opportunities for innovation (Stanko & Henard, 2016; Paschen, 2017). In turn, innovation will bring benefits in the form of an improvement of the performance of MSMEs. Useful innovation increases the competitive advantage and performance of MSMEs (Anwar, 2018). P2P lending allows MSMEs to innovate and grow, which in turn will improve performance.

H8: Innovation mediates the influence of Peer-to-Peer lending on business performance.

In addition to being influenced by financial bootstrapping (Jones & Jayawarna, 2010), the performance of MSMEs is also determined by innovation (Sok, O'Cass & Sok, 2013), where innovation itself is influenced by financial bootstrapping (Löfqvist, 2017). MSME entrepreneurs seek to overcome scarce resource access by implementing easier, lower-cost, flexible, and independent ways to

produce something new. Innovation is a company's mechanism enabling it to adapt to a dynamic environment, maintain business continuity, and produce superior performance (Utaminingsih, 2016).

H9: Innovation mediates the influence of financial bootstrapping towards business performance.

Sustainable performance will be realized if MSME actors innovate in accordance with environmental dynamics (Russell & Millar, 2014). Therefore, innovation is thought to bridge the influence of government support on the performance of MSMEs. Increased innovation will help MSMEs realize product/ service differentiation strategies and increase efficiency, which in turn improves the performance of MSMEs.

H10: Innovation mediates the influence of government support towards business performance.

RESEARCH METHODOLOGY

The population in this study was MSMEs in the city of Salatiga, which in 2019 was recorded with as many as 1,969 business units (Badan Pusat Statistik, 2020). The study sample was obtained by a convenience sampling technique, as there was no permanent list of enterprises on this scale. By referring to the Slovin formula, the minimum target sample was 95 business units. The research data were obtained from primary sources through direct surveys of the business actors. The questionnaires were distributed to 200 respondents, and 124 questionnaires were returned (a 62% response rate). Of the 128 questionnaires, there were 12 incomplete questionnaires, so the total data used in this study came from 112 SME entrepreneur respondents (meets the target sample of at least 95 respondents). The data analysis techniqu e in this study used Partial Least Squares (PLS) - Structural Equation Modeling (SEM) with the WarpPLS 7.0 application.

Table 1 provides the variables in the model and their respective measurements.

EMPIRICAL RESULTS

According to Table 2 below, it is known that the respondents' business performance in this study is, generally speaking, in the medium category. The interests, intentions, and efforts of the businesspeople in using online loans are low. The financial bootstrapping strategy implemented by the business actors is also moderate. With regard to government support, the business actors consider that financial support is considered more pronounced than non-financial support. In general, the respondents' innovations are in the medium category, but the business network innovation and the new market innovation are considered more intensive than the innovation related to new processes.

The value of the R-squared variation (R^2) which affects BP is included in the moderate category because $R2 < 0.45$ (Latan & Ghozali, 2016). Furthermore, based on the Q-squared value, it can be interpreted that the model has predictive relevance (Latan & Ghozali, 2016). The value of the R^2 variation that affects IN is included in the strong category because $0.45 < R2 < 0.7$ (Latan & Ghozali, 2016). Furthermore, the resulting Q-squared value for the IN variable shows that the model has predictive relevance (Latan & Ghozali, 2016).

Based on the output in Table 3 and Figure 1, it is confirmed that the hypotheses 1, 2, 4, 5, 6, and 7 are accepted. However, hypothesis 3 is rejected. Table 4 shows that IN mediates all indirect effects in this study, namely the effect of P2P, FB, and GS on BP with the p-value results significant at the level of $p < 0.1$ and $p < 0.01$. Furthermore, the VAF analysis shows that the P2P-IN-BP and FB-IN-BP mediation pathways produce a VAF value <80 percent (0.463 and 0.576), which indicates that IN-mediation is partial mediation. Meanwhile, the GS-IN-BP mediation pathway results in a VAF value of >80 percent (1.312), which indicates the role of IN mediation as full mediation. Therefore, the hypotheses 8, 9, and 10 are accepted.

Table 1 The variables and their measurements

Variable	Dimension	Indicator	Reference
Business performance	Financial Nonfinancial Entrepreneurial	Profit Business turnover Customer growth Market access growth Entrepreneur satisfaction towards the profit produced The level of employee welfare Growth in the number of employees	Adopted from Rita and Thren (2019)
P2P Lending	Interest Intention Plan Execution	Interest to use P2P lending to fulfill startup capital The intention to use P2P lending to fulfill startup capital A plan to use P2P lending An effort to look for the newest information about P2P lending	Adopted from Soegesty, Fahmi & Novianti (2020)
Financial bootstrapping	Customer-related bootstrapping Owner-related bootstrapping Joint utilization	Keep the accounts receivable levels as low as possible Keep supply as low as possible Delay payments to maintain the business cash cycle Entrepreneurs rely more on personal resources than on external funding Various resources to reduce costs	Adopted from Winborg & Lanstrom (2001)
Government support	Financial support Nonfinancial support	Funding assistance Capital access assistance Marketing access assistance Production training Management training Marketing training Business management training Bookkeeping training Policies/regulations/ procedures which facilitate MSMEs	Modified from Gede (2009)
Innovation	New product New process New market New raw materials	Introduction to a new product The perfection of a production process The creation of a new market The use of new raw materials	Modified from Schumpeter (1934)

Source: Authors

DISCUSSION

This research study has established the fact that the hypothesis 1 is accepted. P2P lending can be said to have a positive effect on business performance. This means that more P2P lending will further improve business performance. This funding can be used by MSME entrepreneurs to meet working capital needs in normal business activities and to expand their businesses. Smooth access to funding is proven to be able to improve the performance of MSMEs (Pan, 2019). Loans through P2P lending are one of the funding solutions, because they are relatively more accessible than bank credit funding.

This study proves that the hypothesis 2 is accepted, where FB has a significant positive effect on BP. This means that financial bootstrapping can improve business performance. The advantages of using bootstrapping funding include the fact that it is easy to obtain, has minimum requirements, no business plan in much detail is needed, and no guarantees

Table 2 The average scores of research variables

	Average		Category
	Dimension	Variable	
Financial performance	2.66		Medium
Nonfinancial performance	3.10		Medium
Entrepreneurial performance	2.90		Medium
Business performance (BP)		2.89	Medium
Interest to use online borrowing	1.96		Low
The intention to use online borrowing	1.96		Low
A plan to use online borrowing	2.02		Low
An effort to find out about online borrowing	2.15		Low
P2P lending (P2P)		2.02	Low
Financial bootstrapping - customer-related	3.37		Medium
Financial bootstrapping - owner-related	3.56		Medium
Financial bootstrapping - joint utilization	1.95		Low
Financial bootstrapping (FB)		2.96	Medium
Government support - Financial	2.79		Medium
Government support - Nonfinancial	2.57		Medium
Government support (GS)		2.68	Medium
A new product innovation	3.01		Medium
A new process innovation	2.82		Medium
A new market innovation	4.08		High
A new raw material innovation	3.28		Medium
The business network innovation	3.77		High
Innovation (IN)		3.39	Medium

Source: Authors

are required (Efrata & Herdinata, 2012). The working capital management that emerged due to the use of bootstrapping funding allowed the smooth running of daily business operations. The bootstrapping funding strategy allows MSME entrepreneurs to develop a competitive advantage by creating an environment where all businesses involved in the bootstrapping network use the most efficient resources, because they do not require capital costs. This increase in efficiency will have an impact on improving the performance of MSMEs (Vanacker, Manigart, Meuleman & Sels, 2011). Bootstrapping allows MSME entrepreneurs to be able to react more quickly to new opportunities and change business strategies when it is deemed to be necessary.

Hypothesis 3 in this study, namely the hypothesis reading that GS has a positive effect on BP, has not been proven. This means that the amount of government support does not determine good or bad business performance. Based on the results, the GS variable demonstrates a negative and insignificant effect on BP. The hypothesis 3 is assumed to be rejected. This is presumably because most government support received by MSME entrepreneurs in Salatiga is in the form of financial support. In the current condition of the COVID-19 pandemic, there is a possibility that this financial assistance will be used more by MSME entrepreneurs to maintain the viability of their businesses than to improve performance, because most of the phases of the lifecycle of MSMEs in this study are at the early/startup stage. This results in government support unable to improve the performance of MSMEs (Ratnawati & Hikmah, 2013; Pramaishella, 2017).

Table 3 The estimation results of the relationships between the variables

Description Path	Path Coefficient	P-value	R^2	Q^2	Hypothesis
P2P → BP	0.094	0.097**	0.413	0.412	H1 is accepted
FB → BP	0.114	0.058**			H2 is accepted
GS → BP	-0.065	0.182			H3 is rejected
IN → BP	0.572	<0.001*			H7 is accepted
P2P → IN	0.141	0.026*	0.523	0.525	H4 is accepted
FB → IN	0.271	<0.001*			H5 is accepted
GS → IN	0.460	<0.001*			H6 is accepted

* significant at 0.5 ** significant at 0.1

Source: Authors

Next, this research has concluded that the hypothesis 4 is accepted. The P2P variable has a significant positive effect on IN. Financial bootstrapping can be said to have demonstrated the ability to stimulate SME

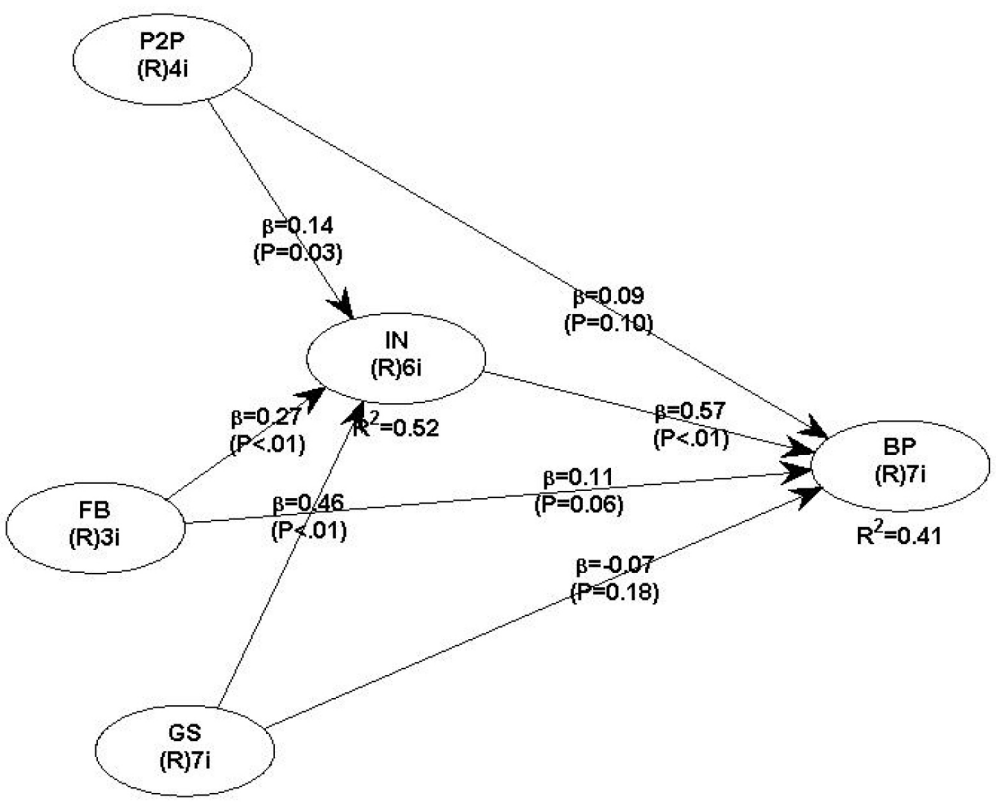

Figure 1 The estimation results of the relationships between the variables

Source: Authors

Table 4 Testing the role of innovation mediation on the influence of P2P, FB, and GS towards BP

Description	Coefficient	P-Value	Conclusion	Hypothesis
P2P → IN → BP	0.081	0.057**	Mediation	H8 is accepted
FB → IN → BP	0.155	0.001*	Mediation	H9 is accepted
GS → IN → BP	0.263	<0.001*	Mediation	H10 is accepted

* significant at 0.5 ** significant at 0.1

Source: Authors

innovation. The greater the impact the P2P variable has, the greater the innovation of MSMEs. Therefore, it can be concluded that the greater the impact the P2P variable has, the greater the innovation of MSMEs. The results of this study are in line with the research of J. Paschen (2017) as well as M. A. Stanko and D. H. Henard (2016). F. Herve and A. Schwienbacher (2018) stated that P2P lending could reduce the funding gap for startups and MSMEs by providing more flexible funding alternatives, especially so for innovation-based startups and MSMEs. The MSME innovation process is very dependent on the funds availability (Freel, 2007; Ayyagari, Demirgüç-Kunt & Maksimovic, 2010). P2P lending provides a funding alternative relatively easy for MSME entrepreneurs to access. P2P lending funding agreements do not require MSMEs to give up business control to the fund provider and the engagement is formally supervised by the Financial Services Authority (OJK). This encourages MSMEs to develop innovations because MSME entrepreneurs are not burdened with very high loan interest rates (Chen & Chen, 2012).

The FB variable has a significant positive effect on IN. Thus, these results support the hypothesis 5. Financial bootstrapping can be said to have demonstrated the ability to stimulate SME innovation. The pandemic conditions have forced the business sector not to operate freely. Therefore, a nonconventional funding strategy (financial bootstrapping) is needed for MSME innovation to be able to continue. Based on the empirical conditions of this research sample, MSME entrepreneurs in the city of Salatiga are known to be taking advantage of financial bootstrapping through relationships with customers (for example: selling products in cash, asking for down payments for product orders, and producing goods when there are orders only); and the utilization of the owner's personal funds (self-finance) at a moderate level to reduce financial risks during this pandemic. Meanwhile, bootstrapping through joint utilization during the pandemic shows to be at a low level. This indicates that, during the pandemic, demand for MSME products is reduced so that entrepreneurs do not need to outsource the orders they receive to their business partners. This bootstrapping strategy can stimulate innovation activities in MSMEs by utilizing the social capital owned by entrepreneurs namely in the form of personal networks (Schoonjans, Van Cauwenberge & Vander Bauwhede, 2013).

The output of this study allows us to notice that the GS variable has a significant positive effect on IN. That the hypothesis 6 is accepted is confirmed. To sum up, government support improves innovation in SMEs. According to institutional theory, the government supports the existence of MSMEs through the policies that are conducive to creating an environment and efforts to grow new businesses through interactions with industries and academia, especially at risky business stages (Chandra & Silva, 2012). However, the government still plays a major role in this case, considering the fact that all the policies/regulations already set will become a working reference for the parties concerned. Government policies are designed to generate business innovation through the provision of funds and other resources, which may encourage the quantity and quality of entrepreneurial activities in society (Wanhill, 2013).

The IN variable has a significant positive effect on BP. It is concluded that the hypothesis 7 is accepted. Innovation can be said to improve SME performance. Innovation is the hallmark of an entrepreneur,

especially when dealing with oscillations/shock conditions due to the COVID-19 epidemic, as is the case today. Opportunity recognition is very important for entrepreneurs. Entrepreneurs need to take certain actions to translate the previously recognized opportunities in order for them to be able to perform well (Shane, Locke & Collins, 2003). A. Eggert, C. Thiesbrummel and C. Deutscher (2014) agree on the fact that innovative products and services have a positive effect on business performance. This effort can be made through the creation of a business model innovation different from its competitors (business model innovation) (Guo *et al*, 2017).

Furthermore, the innovation variable positively mediates the effect of PP on BP. It is concluded that the hypothesis 8 is accepted. During this pandemic, entrepreneurs are being faced with changes in various aspects of their business, including collaboration between businesses (Crick & Crick, 2020), marketing strategies (Kristinae, Wardana, Giantari & Rahyuda, 2020), and the supply chain aspects (Iyengar, Vaishya, Bahl & Vaish, 2020). During a pandemic, access to funding is one of the serious problems faced by business actors. The availability of credit, bank loans, and due payments to suppliers is increasingly limited due to the impact of the COVID-19 pandemic (Ferrando & Ganoulis, 2020). In this condition of limited access, P2P lending is one of the solutions adopted by business actors (Bella, 2020). Theoretically, broad access to funding during a pandemic will encourage innovation in anticipation of changes in the business environment. Based on the research data, however, business actors' innovation is not high. This is consistent with low access to P2P lending funding during the pandemic, so that innovation is not high. Furthermore, this study has also found that business performance is of moderate value. Therefore, these findings indicate that the innovation mediates the influence of P2P lending on business performance.

Based on the result above, the role of innovation mediation on the effect of FB on the growth of KU is the category of partial mediation. Thus, these results support the hypothesis 9. Innovation can be said to mediate the influence of financial bootstrapping towards business performance. Theoretically, the existence of financial bootstrapping will increase innovation which in turn will have an impact on strengthening business performance. In pandemic conditions, businesses experience a decrease in the demand and supply chain disruptions (Thaha, 2020). This low business turnover condition enables entrepreneurs to meet their business needs from the resources they currently have. This is indicated by the low level of financial bootstrapping, particularly in the joint utilization indicator. During the pandemic, business actors reduce employee working hours and reduce outsourcing (Serrano & Kazda, 2020). This also results in low innovation, which in turn results in lower business performance. The logic that innovation mediates the relationship between financial bootstrapping and business performance is confirmed by the results of this study, which particularly in an abnormal condition shows low resource utilization due to reduced demand.

It can also be seen that the IN variable positively mediates the effect of GS on BP. The role of innovation mediation on the effect of DP on the growth of KU is in the full mediation category. Thus, the hypothesis 10 is accepted. Business performance will be achieved if entrepreneurs continuously innovate (Russell & Millar, 2014). However, the characteristics of MSME players generally have limitations in terms of human resources, operational resources, funding, and imitation behavior by competitors, often becoming obstacles to innovation (Sari & Asad, 2018). In the midst of these limitations, MSME entrepreneurs need the role of the government. The government has a role in bridging innovation, so that it can have an impact on business performance through research and policies (Demirbas, Hussain & Matlay, 2011). The government provides more support that focuses on the availability of short-term cash flows such as direct cash assistance and tax relief.

CONCLUSION

This research found that peer-to-peer lending and financial bootstrapping contribute to improving business performance and innovation. Government

support is shown to be able to increase innovation, but it does not influence business performance. Innovation is also proven to be able to influence business performance. In addition, innovation has also demonstrated it can mediate the effects of peer-to-peer lending on business performance, facilitate the effects of financial bootstrapping on business performance, and reconcile the effects of government support on business performance.

These findings are in line with the resource-based entrepreneurship theory, which states that there are various external resources available in the business environment to achieve a competitive advantage (Gupta, Guha & Krishnaswami, 2013; Salder, Gilman, Raby & Gkikas, 2020). Theoretically, the results of this study contribute to the context of research during a pandemic, by accommodating the roles of the three parties (the government, financiers, and entrepreneurs) within the framework of the resource-based entrepreneurship theory. The results of this study have an applicative contribution through recommendations to MSME entrepreneurs. In the context of a pandemic, entrepreneurs may take advantage of government support facilities, financial bootstrapping, and P2P lending to support their business performance. In particular, this study also contributes in that said resources can also be used to strengthen innovation in response to changes in the business environment during a pandemic.

The findings based on which a fact is established that there is no proof of government support having a significant positive effect on business performance need to be further studied. Nearly 70 percent of the samples are the businesses still at the early/startup stage, so they are still focused on strategies to survive during a pandemic. Government assistance in the form of direct cash assistance is more beneficial for startup businesses to support their daily business operations, rather than to be focused on innovation activities. The basic limitation of this research study is that the study has not separated the cycle/phase categories of the MSMEs included in the sample in this study. This limitation creates gaps in the way how resources around MSMEs have specific roles in various MSME cycles/phases. Therefore, future research may add to the category of business phases/cycles to moderate the influence of government assistance on business performance in order to obtain a study perspective different from the previous research.

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REFERENCES

Abor, J., & Quartey, P. (2010). Issues in SME development in Ghana and South Africa. *International Research Journal of Finance and Economics*, 39, 218-228.

Abraham, L. A., & Rahardjo, J. (2015). Peran organisasi dan suasana inovasi untuk kinerja UKM. *Jurnal Titra*, *3*(2), 235-240.

Adeyele, J. (2018). Financial institutions' criteria and mechanisms in financing small and medium enterprises in Plateau state, Nigeria. *Economic Horizons*, *20*(2), 109-124. doi.org/10.5937/ekonhor1802109A

Alvarez, S. A., & Barney, J. B. (2008). Resource-Based Theory and the Entrepreneurial Firm. In M. A. Hitt, R. D. Ireland, S. M. Camp, & D. Sexton (Eds.). *Strategic Entrepreneurship: Creating a New Mindset* (pp. 89-105). doi.org/10.1002/9781405164085.ch5

Anwar, M. (2018). Business model innovation and SMEs performance - Does competitive advantage mediate? *International Journal of Innovation Management*, *22*(7), 1-31. doi.org/10.1142/S1363919618500573

Ashford, N. A. (2000). An innovation-based strategy for a sustainable environment. In J. Hemmelskamp, K. Rennings, & F. Leone (Eds.). *Innovation-Oriented Environmental Regulation* (pp. 67-107). ZEW Economic Studies. doi.org/10.1007/978-3-662-12069-9_5

Åstebro, T., & Serrano, C. J. (2015). Business partners: Complementary assets, financing, and invention commercialization. *Journal of Economics and Management Strategy*, *24*(2), 228-252. doi.org/10.1111/jems.12095

Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2010). Formal *versus* informal finance: Evidence from China. In *Review of Financial Studies*, *23*(8), 1-75). doi.org/10.1093/rfs/hhq030

Badan Pusat Statistik (BPS). (2020). *Kota Salatiga Dalam Angka 2020*. Retrieved March 21, 2021, from https://salatigakota.bps.go.id/publication/2020/04/27/e13f5ab768ebe34d45108b60/kota-salatiga-dalam-angka-2020.html

Bella, F. I. (2020). Optimization of Islamic peer-to-peer lending for micro and small enterprises (MSEs) after pandemic of Covid-19. *Journal of Islamic Economic Laws*, *3*(2), 108-123. doi.org/10.23917/jisel.v3i2.11337

Bygrave, W. D., & Zacharakis, A. (2010). *The Portable MBA in Entrepreneurship* (4th ed.). Hoboken, NJ: John Wiley & Sons.

Carter, R. B., & Van Auken, H. (2005). Bootstrap financing and owners' perceptions of their business constraints and opportunities. *Entrepreneurship and Regional Development*, *17*(2), 129-144. doi.org/10.1080/08985620500067548

Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research*, *100*(July), 196-206. doi.org/10.1016/j.jbusres.2019.03.035

Chandra, A., & Silva, M. A. M. (2012). Business incubation in Chile: Development, financing and financial services. *Journal of Technology Management and Innovation*, *7*(2), 1-13. doi.org/10.4067/S0718-27242012000200001

Chen, D., Lai, F., & Lin, Z. (2014). A trust model for online peer-to-peer lending: A lender's perspective. *Information Technology and Management*, *15*(4). doi.org/10.1007/s10799-014-0187-z

Chen, H., & Chen, S. (2012). Investment-cash flow sensitivity cannot be a good measure of financial constraints: Evidence from the time series. *Journal of Financial Economics*, *103*(2), 393-410. doi.org/10.1016/j.jfineco.2011.08.009

Cheung, C., & Chow, S. (2006). An investigation of the success factors of young Chinese entrepreneurs in Hong Kong. *International Journal of Entrepreneurship*, *10*, 43. doi:10.5353/th_b3124410

Crick, J. M., & Crick, D. (2020). Coopetition and COVID-19: Collaborative business-to-business marketing strategies in a pandemic crisis. *Industrial Marketing Management*, *88*(July), 206-213. doi.org/10.1016/j.indmarman.2020.05.016

Culkin, N., Murzacheva, E., & Davis, A. (2016). Critical innovations in the UK peer-to-peer (P2P) and equity alternative finance markets for small firm growth. *International Journal of Entrepreneurship and Innovation*, *17*(3), 194-202. doi.org/10.1177/1465750316655906

Dahlstrand, A. L., & Stevenson, L. (2010). Innovative entrepreneurship policy: linking innovation and entrepreneurship in a European context. *Annals of Innovation & Entrepreneurship*, *1*(1), 1-15. doi.org/10.3402/aie.v1i1.5845

Demirbas, D., Hussain, J. G., & Matlay, H. (2011). Owner-managers' perceptions of barriers to innovation: Empirical evidence from Turkish SMEs. *Journal of Small Business and Enterprise Development*, *18*(4), 764-780. doi.org/10.1108/14626001111179794

Doh, S., & Kim, B. (2014). Government support for SME innovations in the regional industries: The case of government financial support program in South Korea. *Research Policy*, *43*(9), 1557-1569. doi.org/10.1016/j.respol.2014.05.001

Eckhardt, J. T., & Shane, S. A. (2003). Opportunities and entrepreneurship. *Journal of Management*, *29*(3), 333-349. doi.org/https://doi.org/10.1177/014920630302900304

Efrata, T. C., & Herdinata, C. (2012). Penerapan metode bootstrap financing pada usaha kecil dan menengah di Surabaya. *Keuangan Dan Perbankan*, *16*(3), 399-406. doi.org/10.26905/jkdp.v16i3.1078

Eggert, A., Thiesbrummel, C., & Deutscher, C. (2014). Differential effects of product and service innovations on the financial performance of industrial firms. *Journal of Business Market Management*, *7*(3), 380-405.

Eldridge, D., Nisar, T. M., & Torchia, M. (2021). What impact does equity crowdfunding have on SME innovation and growth? An empirical study. *Small Business Economics*, *56*(1), 105-120. doi.org/10.1007/s11187-019-00210-4

Ferrando, A., & Ganoulis, I. (2020). Firms' expectations on access to finance at the early stages of the Covid-19 pandemic. *ECB Working Paper Series 2446*. doi.org/10.2866/057681

Freel, M. S. (2007). Are small innovators credit rationed? *Small Business Economics*, *28*(1), 23-35. doi.org/10.1007/s11187-005-6058-6

Gede, D. (2009). *Mengembangkan UKM melalui pemberdayaan peran pemerintah daerah*. Jakarta, ID: Bakrie School of Management.

Gergely, F. (2016). The effects of strategic orientations and perceived environment on firm performance. *Journal of Competitiveness*, *8*(1), 55-65. doi.org/10.7441/joc.2016.01.04

Goldhausen, J. (2017). *Access to finance and growth : Evidence from Dutch SMEs*. Paper presented at the 9th annual International Conference of Education, Research and Innovationth IBA Bachelor Thesis Conference.

Guo, H., Tang, J., Su, Z., & Katz, J. A. (2017). Opportunity recognition and SME performance: The mediating effect of business model innovation. *R&D Management*, *47*(3), 431-442. doi.org/10.1111/radm.12219

Gupta, P., Guha, S., & Krishnaswami, S. (2013). Firm growth and its determinants. *Journal of Innovation and Entrepreneurship*, *2*(1), 1-14. doi.org/10.1186/2192-5372-2-15

Herve, F., & Schwienbacher, A. (2018). Crowdfunding and innovation. *Journal of Economic Surveys*, *32*(5), 1514-1530. doi.org/10.1111/joes.12274

Ilić, M., Vujičić, M., & Mićić, V. (2006). SME's food processing industry and enterprises in function of rural areas development. *Economic Horizons*, *8*(1-2), 89-105.

Iyengar, K. P., Vaishya, R., Bahl, S., & Vaish, A. (2020). Impact of the coronavirus pandemic on the supply chain in healthcare. *Healthcare Management*, *26*(6), 1-4. doi.org/10.12968/bjhc.2020.0047

Jones, O., & Jayawarna, D. (2010). Resourcing new businesses: Social networks, bootstrapping and firm performance. *Venture Capital*, *12*(2), 127-152. doi.org/10.1080/13691061003658886

Kalil, K., & Aenurohman, E. A. (2020). Dampak kreativitas dan inovasi produk terhadap kinerja UKM di kota Semarang. *Jurnal Penelitian Humaniora*, *21*(1), 69-77. doi.org/10.23917/humaniora.v21i1.8581

Kristinae, V., Wardana, I. M., Giantari, I. G. A. K., & Rahyuda, A. G. (2020). The role of powerful business strategy on value innovation capabilities to improve marketing performance during the covid-19 pandemic. *Uncertain Supply Chain Management*, *8*(4), 675-684. doi.org/10.5267/j.uscm.2020.8.005

Lam, W. (2010). Funding gap, what funding gap? Financial bootstrapping: Supply, demand and creation of entrepreneurial finance. *International Journal of Entrepreneurial Behaviour & Research*, *16*(4), 268-295. doi.org/10.1108/13552551011054480

Latan, H., & Ghozali, I. (2016). *Partial Least Square Konsep, Metode dan Aplikasi Menggunakan WarpPLS 5.0*. Semarang: Badan Penerbit Universitas Diponegoro.

Löfqvist, L. (2017). Product innovation in small companies: Managing resource scarcity through financial bootstrapping. *International Journal of Innovation Management*, *21*(2), 1-27. doi.org/10.1142/S1363919617500207

Love, J. H., & Roper, S. (2015). SME innovation, exporting and growth: A review of existing evidence. *International Small Business Journal: Researching Entrepreneurship*, *33*(1), 24-48. doi.org/10.1177/0266242614550190

Mabonga, M. W. (2020). Financial bootstrapping strategy and sustainability of small and medium enterprises in Kanduyi Sub - County, Kenya. *American International Journal of Business Management*, *3*(8), 95-107.

Malinen, P., Puhakainen, J., & Paasio, A. (2009). From science to business: Case Turku innovation platform. *International Review of Business Research Papers*, *5*(2), 194-212.

Matusik, S. F., George, J. M., & Heeley, M. B. (2008). Values and judgment under uncertainty: Evidence from venture capitalist assessments of founders. *Strategic Entrepreneurship Journal*, *2*(2), 95-115. doi.org/10.1002/sej.45

Mitrasevic, M., & Bardarova, S. (2020). Measuring the risk of lending to small and medium-sized enterprises in The Republic of Serbia in light of modern banking regulations. *Economic Horizons*, *22*(3), 245-258. doi.org/10.5937/ekonhor2003263M

Mustikowati, R. I., & Tysari, I. (2015). Orientasi kewirausahaan, inovasi, dan strategi bisnis untuk meningkatkan kinerja perusahaan (studi pada UKM sentra Kabupaten Malang). *Jurnal Ekonomi MODERNISASI*, *10*(1), 23-37. doi.org/10.21067/jem.v10i1.771

Otero-Neira, C., Tapio Lindman, M., & Fernández, M. J. (2009). Innovation and performance in SME furniture industries. *Marketing Intelligence & Planning*, *27*(2), 216-232. doi.org/10.1108/02634500910944995

Pan, Y. (2019). Research on financing preference and performance of sci-tech finance for sci-tech SMEs. *Advances in Economics, Business and Management Research*, 380-384. doi.org/10.2991/icfied-19.2019.72

Park, S., Lee, I. H., & Kim, J. E. (2020). Government support and small - and medium-sized enterprise (SME) performance: The moderating effects of diagnostic and support services. *Asian Business and Management*, *19*, 213-238. doi.org/10.1057/s41291-019-00061-7

Paschen, J. (2017). Choose wisely: Crowdfunding through the stages of the startup life cycle. *Business Horizons*, *60*(2), 179-188. doi.org/10.1016/j.bushor.2016.11.003

Patanakul, P., & Pinto, J. K. (2014). Examining the roles of government policy on innovation. *Journal of High Technology Management Research*, *25*(2), 97-107. doi.org/10.1016/j.hitech.2014.07.003

Pramaishella, N. A. (2017). Pengaruh modal, dukungan pemerintah, dan kompetensi sumber daya manusia terhadap kinerja usaha mikro, kecil dan menengah. *Jurnal Akuntansi*, *1*(1), 1-27.

Ranatiwi, M., & Mulyana, M. (2018). Dampak jejaring kolaborasi dan kapabilitas inovasi terhadap kinerja. *Jurnal Ekonomi Dan Bisnis*, *19*(1), 49-58. doi.org/10.30659/ekobis.19.1.49-58

Ratnawati, A. T., & Hikmah. (2013). Faktor-faktor yang mempengaruhi kinerja UMKM. *Jurnal Serat Acitya*, *2*(1), 102-115.

Rita, M. R., & Thren, A. T. (2019). A three-dimensional model of MSME performance: An agenda for further research. *BISMA (Bisnis Dan Manajemen)*, *12*(1), 1-14. doi.org/10.26740/bisma.v12n1.p1-14

Rita, M. R., & Huruta, A. D. (2020). Financing access and SME performance: A case study from batik SME in Indonesia. *International Journal of Innovation, Creativity and Change*, *12*(12), 203-224.

Rosavina, M., & Rahadi, R. A. (2018). Peer-To-Peer (P2P) lending platform adoption for small medium enterprises (SMEs): A preliminary study. *International Journal of Accounting, Finance and Business (IJAFB)*, *3*(10), 260-279.

Ruslan, R.A.H.M., Gan, C., Hu, B., & Quang, N. T. T. (2020). Impact of microcredit on SMEs performance in Malaysia. *International Journal of Business and Economics*, *19*(1), 109-130.

Russell, S. N., & Millar, H. H. (2014). Exploring the relationships among sustainable manufacturing practices, business performance and competitive advantage: Perspectives from a developing economy. *Journal of Management and Sustainability*, *4*(3), 37-53. doi.org/10.5539/jms.v4n3p37

Salder, J., Gilman, M., Raby, S., & Gkikas, A. (2020). Beyond linearity and resource-based perspectives of SME growth. *Journal of Small Business Strategy*, *30*(1), 1-17.

Sangwan, V., Null, H., Prakash, P., & Singh, S. (2019). Financial technology: A review of extant literature. *Studies in Economics and Finance*, *37*(1), 71-8. doi.org/10.1108/SEF-07-2019-0270

Sari, R. P., & Asad, N. (2018). Barrier in design innovation of fashion business: Evidence from Indonesian moslem fashion SME. *Jurnal Dinamika Manajemen*, *9*(1), 69-79. doi.org/10.15294/jdm.v9i1.14653

Savović, S., Zlatanović, D., & Nikolić, J. (2021). Technology acquisitions as a supporting tool for improving companies' innovative potential. *Economic Horizons*, *23*(1), 3-17. doi.org/10.5937/ekonhor2101003s

Schoonjans, B., Van Cauwenberge, P., & Vander Bauwhede, H. (2013). Formal business networking and SME growth. *Small Business Economics*, *41*(1), 169-181. doi.org/10.1007/s11187-011-9408-6

Serrano, F., & Kazda, A. (2020). Business continuity during pandemics - Lessons learned about airport personnel. *Transportation Research Procedia*, *51*, 56-66. doi.org/10.1016/j.trpro.2020.11.008

Shane, S., Locke, E. A., & Collins, C. J. (2003). Entrepreneurial motivation. *Human Resource Management Review*, *13*(2), 257-279. doi.org/10.1016/S1053-4822(03)00017-2

Shinozaki, S. (2014). A new regime of SME finance in emerging asia: Enhancing access to growth capital and policy implications. *Journal of International Commerce, Economics and Policy*, 5(3), 1-27. doi.org/10.1142/s1793993314400109

Soegesty, N. B., Fahmi, I., & Novianti, T. (2020). Kajian faktor yang memengaruhi adopsi sistem pijaman peer to peer lending. *Jurnal Manajemen Teknologi*, *19*(1), 59-79. doi.org/10.12695/jmt.2020.19.1.4

Sok, P., O'Cass, A., & Sok, K. M. (2013). Achieving superior SME performance: Overarching role of marketing, innovation, and learning capabilities. *Australasian Marketing Journal*, *21*(3), 161-167. doi.org/10.1016/j.ausmj.2013.04.001

Stanko, M. A., & Henard, D. H. (2016). How crowdfunding influences innovation. *MIT Sloan Management Review, 57*(3), 1-8.

Thaha, A. F. (2020). Dampak Covid-19 terhadap UMKM di Indonesia. *Jurnal Brand*, *2*(1), 147-153.

Utaminingsih, A. (2016). Pengaruh orientasi pasar, inovasi, dan kreativitas strategi pemasaran terhadap kinerja pemasaran pada UKM kerajinan rotan di Desa Teluk Wetan, Welahan, Jepara. *Media Ekonomi Dan Manajemen*, *31*(2), 77-87. doi.org/10.24856/mem.v31i2.411

Vanacker, T., Manigart, S., Meuleman, M., & Sels, L. (2011). A longitudinal study on the relationship between financial bootstrapping and new venture growth. *Entrepreneurship and Regional Development*, *23*(9-10), 681-705. doi.org/10.1080/08985626.2010.502250

Verhees, F. J. H. M., & Meulenberg, M. T. G. (2004). Market orientation, innovativeness, product innovation, and performance in small firms. *Journal of Small Business Management*, *42*(2), 134-154. doi.org/10.1111/j.1540-627x.2004.00102.x

Wanhill, S. (2013). Government assistance for tourism SMEs: From theory to practice. *Small Firms In Tourism: International Perspectives*, 53-70.

Winborg, J., & Lanstrom, H. (2001). Financial bootstrapping in small businesses: Examining small business managers' resource acquisition behaviors. *Journal of Business Venturing*, *16*(3), 235-254. doi.org/10.1016/S0883-9026(99)00055-5

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TRADE FACILITATION PERFORMANCE INFLUENCES ON ASEAN TRADE FLOWS

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The Association of Southeast Asian Nations (ASEAN) considers trade facilitation as a driving force in forming a single market and a single production base. This paper constructs an ASEAN scorecard for measuring the performance of trade facilitation strategic plans by ASEAN member states. Next, a structural gravity model is used in the paper in order to estimate the trade facilitation performance influence on ASEAN trade flows. The fact that the indicator of easing Nontariff Barriers (NTBs) and institutional coordination, on the one hand, and the ASEAN member states' engagement indicator, on the other, had the highest enforcement scores in ASEAN in the period 2017-2019. Those two indicators also exert the biggest influence on ASEAN trade flows, especially ASEAN extra-regional trade.

Keywords: ASEAN, trade facilitation, trade flows

JEL Classification: F100, F140, F150

INTRODUCTION

Over the past decades, international trade has increased as a result of the trade barrier dismantling process, especially so tariff reduction and elimination. Recently, however, with relatively low tariff levels, the important and effective way to stimulate trade has been through trade facilitation initiatives, which includes the simplification of required paperwork, the modernization of procedures and the harmonization of customs requirements, among others.

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The Association of Southeast Asian Nations (ASEAN) considers trade facilitation as an important driving force in transforming ASEAN into a single market and a single production base. ASEAN Trade Facilitation Framework (ATFF) was adopted in 2016. After its adoption, it was transferred to multi-action plans and strategic measures on the AEC (ASEAN Economic Community) 2025 Trade Facilitation Strategic Action Plan (ATF-SAP). It is expected that ASEAN member countries will strictly follow this action plan and that trade facilitation will significantly contribute to increasing the ASEAN trade flows through minimizing trade costs, promoting participation in global value chains, and increasing the participation of the private sector.

Given the foregoing, there are two issues worth making a mention of and being dealt with in this paper. The first issue relates to the level of the trade facilitation performance of ASEAN and its member states, and the second issue relates to how the performance of ATF-SAP's trade facilitation measures affects the flow of ASEAN trade in goods inside the region and with other partners.

When the former issue is concerned, a scorecard adapted from the OECD trade facilitation indicators for measuring a trade facilitation strategic plan or actions cited in the ATF-SAP performed by ASEAN member states will be built. Speaking about the latter issue, a structural gravity model will be used to estimate the influence of trade facilitation performance on ASEAN trade flows, pointing out how ASEAN trade flows, especially intraregional trade flows, benefit when the ATF-SAP measures are implemented. The first hypothesis taken over from the literature reads that trade facilitation has a positive influence on trade flows through cutting unnecessary costs. The second hypothesis reads that the improvement of trade facilitation measures unevenly influences trade flows, both in intra-regional and in extra-regional trade. In the ASEAN case, the influence on extraregional trade is expected to be bigger since ASEAN are heavily dependent on the import of intermediate inputs from a country outside the region.

The rest of the paper is structured into a few sections. Section 2 presents a literature review and finds the research gap. In section 3, the background of trade in ASEAN and trade facilitation performance in ASEAN are provided, after which a scorecard for measuring that performance is formed. In Section 4, the data and methodology of the paper are described, and Section 5 is a presentation of the econometric specifications, and the empirical results of the estimation are discussed. Section 6 summarizes the results and provides conclusions.

LITERATURE REVIEW

One of the common findings of the literature is that trade facilitation has a positive influence on trade flows. Many studies show that trade facilitation reduces trade costs (World Bank, 2009; Hillberry & Zhang, 2015; Nizeyimana & De Wulf, 2016; Go, 2018), and increases trade flows (Iwanow & Kirkpatrick, 2009; Sá Porto, Canuto & Morini, 2015), which is particularly significant for developing countries (Moïsé & Sorescu, 2013). Trade facilitation has a positive influence on time-sensitive goods, such as agricultural products and value-added chains (Martinez-Zarzoso & Márquez-Ramos, 2008; Djankov, Freund & Pham, 2010; Shepherd, 2013; Hoekman & Shepherd, 2015; Volpe, Carballo & Graziano, 2015). Trade facilitation helps to increase the diversification of developing countries' import and export markets (Shepherd, 2010; Dennis & Shepherd, 2011; Persson, 2013), especially for small and medium-sized enterprises (Fontagné, Mitaritonna & Signoret, 2016; Go, 2018).

Prior studies also show that different trade facilitation measures can differently influence trade flows. E. Moïsé and S. Sorescu (2013) pointed out the fact that the most significant trade facilitation measures (i.e. those that had the biggest influence on trade volumes) were information availability, the harmonization and simplification of documents, automated processes, risk management, the streamlining of border procedures, and good governance and impartiality. One amongst the groups of the measures exerting the most significant influence on a reduction in trade costs are the measures intended to modernize border operations reducing the time a business needs at the border (World Bank, 2009; Moïsé & Sorescu, 2013; Hillberry & Zhang, 2015; Nizeyimana & De Wulf, 2016).

Some authors have developed their trade facilitation metrics, such as the infrastructure index (Limao & Venables, 2001; Portugal-Perez & Wilson, 2012; Francois & Manchin, 2013), or they have conducted surveys, collected data to develop a set of indicators for port performance, the customs environment, the regulatory environment, and the use of e-commerce in APEC and in other countries (Wilson, Mann, & Otsuki, 2003; 2005a; 2005b). B. Layton (2007) put forward a scorecard for measuring trade facilitation in ASEAN in terms of the customs, logistics

performance, Single Window implementation, whereas other authors used scorecards to assess AEC integration (Findlay, 2009; Intal, 2015). The advantage of this method reflects in it being proactive in terms of data coverage by country and by time, but the same is limited with respect to the coverage of trade facilitation measures and the difficulty to regularly collect data in developing countries (Go, 2018).

While the ATF-SAP is a comprehensive trade facilitation strategic action plan, there has not been any scorecard measuring the ASEAN trade facilitation strategic measures and actions mentioned in the ATF-SAP. This also leads to a lack of studies on the influences of the ATF-SAP-related trade facilitation performance on ASEAN trade flows. Besides, many papers show that the improvement of trade facilitation performance unevenly influences bilateral trade with different partners. In the case of ASEAN member countries, how their intra- and extraregional trade flows differently benefit from different trade facilitation measures is also an interesting question to give an answer to.

TRADE AND TRADE FACILITATION PERFORMANCE IN ASEAN

Trade facilitation in ASEAN

The ASEAN Trade Facilitation Framework (ATFF) consolidates all the existing ASEAN obligations, commitments and instruments relating to trade facilitation. According to the ATFF, the scope of the ASEAN trade facilitation includes the four common areas and a few specialized areas. The four common areas include:

- the customs,
- trade rules and procedures transparency,
- standards and compliance, and
- the private sector participation.

Some specialized areas include the ASEAN Single Window (ASW), the ASEAN Customs Transit System (ACTS), the ASEAN Trade Repository (ATR), the Self-Certification of the Origin in ASEAN, ASEAN Solutions to Investments, Services and Trade (ASSIST), and the Nontariff Barriers (NTBs) Reduction Initiatives. The contents of the ATFF were then concretized into the five strategic objectives and the 23 strategic actions and measures on trade facilitation in the ATF-SAP.

This paper builds a scorecard that combines the five ATF-SAP objectives and the OECD Trade Facilitation Indicators (OECD TFI) for measuring trade facilitation performance in ASEAN. The scorecard is constructed by the data extracted from the OECD TFI 2017 and 2019, which includes information on harmonization, the trade facilitation platform and modernization, easing NTBs, the private sector engagement, and institutional coordination and the engagement of the ASEAN member states (AMSs). The scorecard may be updated every two years.

To create a scorecard, the seven sub-category indicators properly aligned with the five strategic objectives of the ATF-SAP were chosen from the OECD TFI database. As ASEAN put no priorities on any strategic objectives, the scorecard treats them equally using the average calculation when measuring the aggregate indicators for a single ASEAN member state or for ASEAN as a whole.

The harmonization indicator compatible with the strategic objective number 1 (S.O.1) of the ATF-SAP is measured by the sub-category indicator F from the OECD TFI. F refers to the simplification and harmonization of the document-related formalities. The trade facilitation platform and modernization match the strategic objective number 2 (S.O.2) and equal the average of the sub-category indicators G and H in the OECD TFI. G refers to the automation and digitalization of the formalities, whereas H refers to the streamlining border procedures. The strategic objective number 3 (S.O.3) relates to easing NTBs and is covered by the average of the sub-category indicators A and C in the OECD TFI, which refer to the information availability and advance rulings, respectively. The strategic objective number 4 (S.O.4) which has to do with the private sector

engagement well fitted the sub-category indicator B in the OECD TFI, which implies the involvement of and consultation with the trade community. The strategic objective number 5 (S.O.5) of institutional coordination and AMSs engagement can be measured by the sub-category indicator J of border agency external cooperation in the OECD TFI.

As can be seen in Table 1, the ASEAN member states' trade facilitation performance in 2017 and 2019 shared the same picture. By country, Singapore, Thailand, Malaysia, Vietnam, and Brunei had higher average performance scores than ASEAN's average performance score, while Laos, Myanmar, and Cambodia lagged behind. Singapore had always been the country with the highest performance scores in ASEAN and throughout the world as well. The key driver behind the success of Singapore's trade facilitation performance was the miracle TradeNet - the World's first nationwide trade documentation system launched in 1989. Singapore continued its trade facilitation improvement by launching the National Trade Platform in 2017, which comprises various value-added services for trade, such as financing trade. On the other hand, Laos and Myanmar were the two ASEAN member states with

Table 1 The scorecard of ASEAN trade facilitation performance

			2017										
	TFI	ATF-SAP	ASEAN	BRN	KHM	IND	LAO	MYS	MMR	PHL	SGP	THA	VNM
Average			1.22	1.27	0.95	1.19	0.66	1.45	0.66	1.14	1.92	1.55	1.44
Harmonization	F	S.O.1	1.10	1.50	0.63	1.13	0.22	1.63	0.44	1.00	1.89	1.75	1.11
Trade Facilitation Platform and Modernization	G, H	S.O.2	1.14	1.42	0.88	0.98	0.57	1.17	0.46	0.99	1.90	1.60	1.42
Easing NTBs	A, C	S.O.3	1.41	1.58	1.50	1.42	0.60	1.63	0.99	1.13	1.96	1.51	1.81
Private Sector Engagement	B	S.O.4	1.09	0.63	1.00	0.88	0.67	1.25	0.43	1.25	1.88	1.57	1.29
Institutional Coordination and AMSs Engagement	J	S.O.5	1.36	1.22	0.75	1.56	1.25	1.56	1.00	1.33	2.00	1.33	1.56
			2019										
Average	TFI	ATF-SAP	1.37	1.34	1.05	1.45	0.76	1.50	0.95	1.26	1.97	1.65	1.56
Harmonization	F	S.O.1	1.24	1.13	0.75	1.38	0.44	1.38	0.67	1.25	1.88	1.88	1.63
Trade Facilitation Platform and Modernization	G, H	S.O.2	1.29	1.58	0.89	1.28	0.82	1.35	0.46	1.00	2.00	1.82	1.39
Easing NTBs	A, C	S.O.3	1.45	1.63	1.55	1.46	0.72	1.65	1.09	1.15	1.96	1.51	1.79
Private Sector Engagement	B	S.O.4	1.46	1.13	1.33	1.57	0.57	1.57	0.75	1.57	2.00	1.71	1.43
Institutional Coordination and AMSs Engagement	J	S.O.5	1.40	1.22	0.75	1.56	1.25	1.56	1.78	1.33	2.00	1.33	1.56

Note: BRN (Brunei); KHM (Cambodia); LAO (Laos); IND (Indonesia); MYS (Malaysia); MMR (Myanmar); PHL (Philippines); SGP (Singapore); THL (Thailand); VNM (Vietnam)

Source: Authors

the lowest trade facilitation scores. Both countries demonstrated the lowest harmonization score due to their poor compliance with international standards and the long time needed for preparing import and export documents.

In terms of the trade facilitation indicators, the NTB easing indicator and the indicators of institutional coordination and ASEAN member states' engagement show the highest enforcement scores both in 2017 and in 2019. The reason for that lies in ASEAN's establishment of the mechanisms and institutions to ensure the effective implementation of trade facilitation principles and ongoing reform commitments. The member states have their national legislative frameworks and/or institutional arrangements for cross-border trade regulator cooperation within the region, especially agreements to facilitate transit, including cooperation between the involved agencies as well. As a result, the member states have access to the necessary information and they also have the opportunities to discuss amendments to the laws and regulations of the other member countries as well. On the contrary, the indicators such as harmonization, the trade facilitation flatform, and modernization noticeably improved the scores from 2017 to 2019, with an increase of 0.14 and 0.15 points, respectively. ASEAN have modernized their border-crossing trade procedure system, which focuses on speeding up the customs procedures handling process, especially through the modern IT infrastructure and the ASW. ASEAN, however, is still experiencing a big gap in the performance capacity between its member states. The private sector engagement indicator had a remarkable increase by 0.35 points in the period from 2017 to 2019, as the ASEAN member states had developed the mechanism of public consultations between traders, other interested parties and the governments.

Trade in ASEAN

In the period from 2000 to 2019 (Figure 1), ASEAN trade in goods increased approximately 3.5 times. ASEAN's total trade volume in the year 2019 reached USD 2,802 billion, with a fairly balanced proportion of exports and imports. The export volume reached USD 1,418 billion, while the import volume was USD 1,384 billion. The ASEAN total trade volume significantly fluctuated from 2000 to 2019. It was experiencing strong growth in the period from 2000 to 2007, then

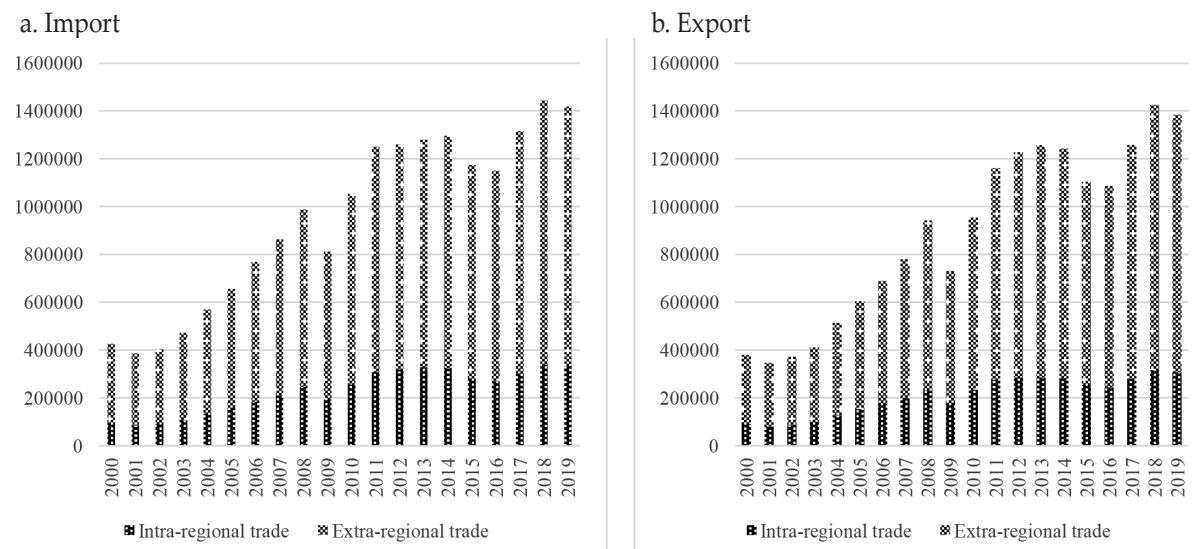


Figure 1 The ASEAN trade volume in the period from 2000 to 2019

Source: Authors

came a sharp decrease in the period from 2008 to 2010, due to the influence of the global financial crisis. After recovering and accelerating since 2011, ASEAN's total trade volume continued to decline in the period from 2014 to 2016, as a result of the cyclical recession in trade and the global economy. Trade flourished again in 2017, when the developed economies started to recover. In 2018, however, trade tensions exacerbated global uncertainties and hampered global economic growth, causing a decline in the trade volume in 2019.

Extraregional trade made up a dominant share in ASEAN total trade and became the main channel for transmitting the world economy's upheavals to the ASEAN economy. Conversely, ASEAN intraregional trade share witnessed no significant improvement during the period from 2010 to 2019, not even so after the milestone of the establishment of the AEC in the year 2015 (Figure 2). The share of ASEAN intraregional exports and imports in 2019 were merely 23.52% and 22.38%, respectively, namely significantly lower than those of the ASEAN+3 region (35.89% and 42.92%, respectively) and APEC (69.13% and 69%, respectively) in the same period.

According to the AEC Blueprint, ASEAN will strive for intraregional trade to double from 2017 through 2025. As the intra-ASEAN trade volume of 2017 reached more than USD 583 billion, according to the AEC's target, the annual growth rate of intraregional trade in the period from 2017 to 2025 will have to reach 7.8%. The average ASEAN trade growth rate in the period from 2017 to 2019 was only 6.6%. Therefore, ASEAN have to make more efforts to promote regional economic integration for further boosting intraregional trade. Implementing trade facilitation is not only meaningful for intraregional trade, but it is also meaningful for ensuring the imports of intermediate goods, which is significant for the production expansion in the ASEAN member countries. The influence of trade facilitation on ASEAN intraregional and extraregional trade is measured in the following section of the paper.

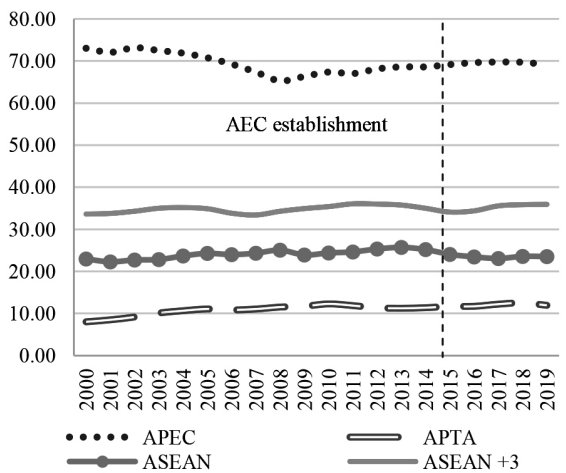
METHODOLOGY AND DATA

To begin with, the standard gravity model reads as follows:

$$\text{Trade} = X\beta + z\gamma + \varepsilon \quad (1)$$

In equation (1), X contains the traditional gravity variables, such as the GDP, the bilateral distance

a. The share of intraregional imports



b. The share of intraregional exports

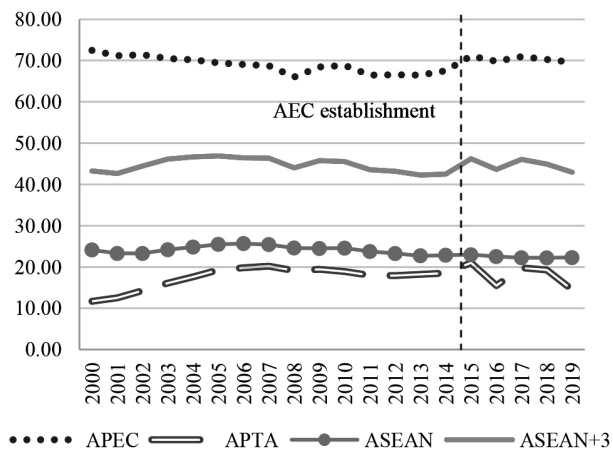


Figure 2 The share of intraregional imports and export in some regions in Asia-Pacific (%)

Source: Authors

between exporters and importers, while z refers to the numerous influencing factors, such as the common language, the common border, and trade facilitation. Then, the equation (1) is so customized as to quantify the influence of trade facilitation on ASEAN trade flows as follows:

$$Trade^{t}_{ij} = a_{ij} + a_1 lnDIST + a_2 contig + a_3 COMLANG_{ETHNO} + a_4 colony + a_5 comcol + a_6\ ln_GDPi + a_7\ ln_GDPj + a_8 ln_TFj + a_9 ln_REM_IMP + a_{10} ln_REM_EXP + e^{t}_{ij} \quad (2)$$

where i denotes ten AMSs and j denotes the 88 trading partners of the AMSs; t implies the years from 2017 to 2019; $e_{ij,\,t}$ is an error term, and $Trade_{ij,\,t}$ denotes the trade volume of the country (i) with the country (j) in the year (t); GDP^{t}_{i} and GDP^{t}_{j} describe the gross domestic product (GDP) of the country (i) and the country (j) in the year t, respectively. $COMLANG_{ETHNO}$ is the dummy variable that is set to 1 if two countries have a language spoken by at least 9% of the population in both countries. *Contig* and *comcol* are the dummy variables in the case when two countries are contiguous and in colonial relations, respectively. *DIST* refers to the bilateral distances between the biggest cities of those two countries. TF_i is the trade facilitation variable that measures the AMS's average trade facilitation performance in Table 1.

After estimating the equation (2) with the TFi variable, we continue with the component indicators Ham, Pla, Eas, Pri, and Ins, which are each AMS's Harmonization Indicator, the Trade Facilitation Platform and Modernization Indicator, the NTB Easing Indicator, the Private Sector Engagement Indicator, the Institutional Coordination Indicator, and the AMS Engagement Indicator in the five different gravity estimations. Except for the dummy variables, all the other variables used are a natural logarithmic scale.

The gravity model serves as a broadly used empirical piece of equipment for assessing the influences of the factors exerting an influence on the bilateral trade flows. Nevertheless, the gravity estimation faces challenges of the unobserved and nondiscrimination trade policy variables. The former comes from the fact that multilateral resistances are hardly observed by researchers or policymakers (Piermartini & Yotov, 2016). The solution proposed by J. E. Anderson and E. Van Wincoop (2003) for this challenge which implies using iterative custom programming is simplified to the reduced form of the custom treatment, in which multilateral resistance (MR) terms are measured by the remoteness indices (Baier & Berstrand, 2007) as in the following equations:

$$REM_EXP_{i,t} = \left(\sum\nolimits_j DIST_{ij} / \frac{Y_{j,t}}{Y_t} \right) \quad (3)$$

$$REM_IMP_{j,t} = \left(\sum\nolimits_j DIST_{ij} / \frac{Y_{i,t}}{Y_t} \right) \quad (4)$$

$REM_EXP_{i,t}$ and $REM_IMP_{j,t}$ are the new covariates on the exporter's side and on the importer's side, respectively. $REM_EXP_{i,t}$ equals the importer j's output-weighted averages of the bilateral distance, whereas $REM_IMP_{j,t}$ equals the exporter i's output-weighted averages of the bilateral distance. Although $REM_EXP_{i,t}$ and $REM_IMP_{j,t}$ have insignificant influences on gravity estimation results (Anderson & Van Wincoop, 2003), they are still used in empirical research (Rahman, 2003; Kepaptsoglou, Karlaftis, & Tsamboulas, 2010; Felipe & Kumar, 2012) because these variables help to identify the effects related to the nondiscriminatory trade facilitation policies on the importer's side (Piermartini & Yotov, 2016). Therefore, expanding the equation (2) by adding thje $REM_EXP_{i,t}$, and $REM_IMP_{j,t}$ variables will solve the two challenges of the unobserved and nondiscrimination trade policy variables.

Poisson Pseudo Maximum Likelihood (PPML) estimation is used in the paper to solve the challenges in estimating the influence of trade facilitation on the ASEAN trade flows related to a zero-trade flow, variance change (Silva & Tenreyro, 2006).

In terms of the data, the GDP and the trade volume were obtained from the UNCTADstat database. All the data are expressed in the US dollars. The data on the distance, the language, and the border employed within this research study are drawn from the website of the Centre d'Etudes Prospectives et d'Informations

Internationales (CEPII). The scorecards that track the AMS trade facilitation performance are extracted from the OECD Trade Facilitation Indicators (TFIs) from 2017 to 2019.

EMPIRICAL SPECIFICATIONS AND RESULTS

Table 2 shows the results of the estimates of the equation (2) using the PPML estimation in the AMS trade relations with 88 countries. Except for the comcol variables that are not statistically significant, the model's estimated results are consistent with the expectation. Column 1 shows the results of the estimated gravity model with the aggregated trade facilitation variable TFi (the average score of trade facilitation performance among the AMSs). The size of the trading partners' economies positively affects ASEAN trade flows, the ASEAN partners' GDP having a greater positive influence on the trade flows and being statistically significant as compared to the AMSs' GDP. Conversely, the relative distance is statistically significant, but has a small positive effect on ASEAN's trade flows.

The countries with the common border (contig) trade more than the countries that do not share the border. This reflects the nature of the ASEAN's regional value chains, where the intermediate inputs imported from East Asia - the countries with relatively close physical distances - account for a big proportion.

Aggregated trade facilitation performance (TFi) is the factor that exerts the biggest influence on ASEAN trade flows. When the AMSs reform their trade facilitation measures according to the ATF-SAP so as to increase trade facilitation performance by 1%, the ASEAN trade volume will grow by over USD 0.11 billion. When trade facilitation performance is disaggregated into the five indicators, different influences on the ASEAN trade flows are shown in columns 2, 3, 4, 5 and 6. The improvement of Easing NTBs (Eas) boosts the ASEAN trade flows most significantly among all the five indicators. A percentage increase in the Easing NTBs score will make the ASEAN trade flows increase by USD 0.17 billion. Institutional Coordination and AMSs Engagement (Ins) show the second biggest influence, with an increase of USD 0.12 billion in the trade flow. The one-percent-improvement gains of the trade flow achieved in the Harmonization, Trade Facilitation Platform and Modernization, and Private Sector Engagement indicators are approximately 0.077, 0.072, and 0.051 billion American dollars, respectively.

The elasticity of the ASEAN intraregional trade flows to the trade facilitation reforms is smaller than that of ASEAN trade with 88 global partners at both aggregated and disaggregated levels. Intraregional trade flows go up by USD 0.077 billion when the aggregated TFi scores increase by 1% (Table 3, Column 7). TFi is still the determinant with the strongest effect on ASEAN intraregional trade flows. At the disaggregated level, the results of the equation (II) PPML estimation significantly diversify in terms of the influences exerted by the trade facilitation reforms on intraregional trade flows. Intraregional trade increases by one billion American dollars in response to one additional percent gain in Easing NTBs performance. This finding is similar to the suggestion made by E. Moïsé and S. Sorescu (2013), according to whom the influence of the available information about the worldwide export of low- and middle-income countries is stronger than the influences exerted by many other TFI areas. Information availability and advance rulings affect the fixed cost component of trade, which becomes one of the trade facilitation areas that most consistently influence the small firms' export volume (Fontagné *et al*, 2016). Besides, Institutional Coordination and AMSs Engagement exert the second-biggest influence on the ASEAN intraregional trade flow when the improvement of this indicator by one percent brings an additional growth of 0.08 billion American dollars of ASEAN intraregional trade, strongly confirming the role of cooperation in the trade facilitation framework inside ASEAN. Although the Trade Facilitation Platform and Modernization, and Private Sector Engagement are the two areas with the smallest influence on ASEAN intraregional trade flows, their positive and significant coefficients properly fit in with the other authors' findings on the role of automation in trade

Table 2 The experimental results of the AMSs and 88 partners

	1 Trade	2 Trade	3 Trade	4 Trade	5 Trade	6 Trade
ln_DIST	-0.170*	-0.170*	-0.173*	-0.181*	-0.188*	-0.176*
	(-2.01)	(-2.01)	(-2.06)	(-2.17)	(-2.22)	(-2.05)
contig	0.521**	0.531**	0.534**	0.502**	0.502**	0.438*
	(2.91)	(2.88)	(3.07)	(2.95)	(2.89)	(2.31)
comlang_ethno	0.463**	0.471**	0.484***	0.559***	0.579***	0.414**
	(3.08)	(3.18)	(3.36)	(4.07)	(4.19)	(2.75)
comcol	0.202	0.210	0.229	0.192	0.290	0.173
	(0.93)	(0.97)	(1.07)	(0.89)	(1.38)	(0.82)
ln_GDPi	0.497***	0.507***	0.528***	0.451***	0.480***	0.622***
	(8.49)	(8.74)	(9.54)	(8.17)	(8.01)	(9.06)
ln_GDPj	0.767***	0.767***	0.769***	0.767***	0.774***	0.769***
	(25.02)	(25.00)	(25.28)	(25.78)	(25.18)	(25.56)
ln_TFi	1.118***					
	(5.26)					
ln_Ham		0.769***				
		(5.6)				
ln_Pla			0.752***			
			(5.4)			
ln_Eas				1.658***		
				(7.26)		
ln_Pri					0.511***	
					(3.38)	
ln_Ins						1.185***
						(6.88)
Ln_REM_EXP	-0000000235***	-0000000234***	-0000000232***	-0000000230***	-0000000228***	-0000000234***
	(-6.34)	(-6.32)	(-6.30)	(-6.36)	(-5.99)	(-6.24)
Ln_REM_IMP	0.0000000000547***	0.0000000000342***	0.0000000000441***	0.0000000000960***	0.0000000000765***	0.0000000000803***
	(2.03)	(1.20)	(1.62)	(3.84)	(2.95)	(3.05)
_cons	0.446	0.568	0.252	0.625	0.795	-1.205
	(0.46)	(0.59)	(0.27)	(0.67)	(0.83)	(-1.11)
N	1780	1780	1780	1780	1780	1780

t statistics in parentheses * p<0.05, ** p<0.01, *** p<0.001

Source: Authors

costs prediction (Hillberry & Zhang, 2015) and trade flows prediction (Moïsé & Sorescu, 2013), in which single windows strongly lead to an increase in trade flows (Sá Porto *et al*, 2015).

CONCLUSIONS

The scorecard that combines the ATF-SAP objectives and the TFI of the AMSs has given a general picture of ASEAN trade facilitation performance. There is significant differentiation in trade facilitation performance among the AMSs, in which Singapore, Thailand, Malaysia, Vietnam, and Brunei have higher performance scores, whereas Laos, Myanmar, and Cambodia still lag behind. Among the ATF-SAP's action lines, the NTB Easing and Institutional Coordination and the AMS Engagement indicators are always the groups with the highest enforcement scores. Nevertheless, those indicators did not see much improvement in the period from 2017 to 2019, whereas the Harmonization and Trade Facilitation

Table 3 The experimental results of ASEAN intraregional trade

	7 trade	8 trade	9 trade	10 trade	11 trade	12 trade
ln_DIST	-0.345* (-1.89)	-0.366* (-2.18)	-0.355* (-2.17)	-0.370* (-2.16)	-0.410* (-2.50)	-0.334* (-1.82)
contig	0.0834 (0.28)	0.0953 (0.33)	0.0447 (0.16)	0.0270 (0.09)	-0.0296 (-0.10)	0.0691 (0.22)
comlang_ethno	0.578** (2.03)	0.569** (2.68)	0.583** (2.69)	0.566** (2.63)	0.603** (2.83)	0.607** (2.81)
comcol	0.738* (2.03)	0.715 (1.92)	0.759* (2.09)	0.774* (2.17)	0.813* (2.35)	0.677 (1.90)
ln_GDPi	0.552*** (5.01)	0.557*** (5.01)	0.524*** (4.81)	0.578*** (5.42)	0.533*** (4.98)	0.6.21*** (5.17)
ln_GDPj	0.716*** (10.10)	0.712*** (10.04)	0.721*** (9.99)	0.721*** (10.17)	0.726*** (10.37)	0.6.97*** (9.92)
ln_TFi	0.765*** (3.49)					
ln_Ham		0.548*** (3.95)				
ln_Pla			0.492*** (3.55)			
ln_Eas				1.049*** (4.5)		
ln_Pri					0.432*** (2.97)	
ln_Ins						0.789*** (3.84)
REM_EXP	-0000000753*** (-3.49)	-0000000732*** (-3.40)	-0000000733*** (-3.26)	-0000000744*** (-3.42)	-0000000773*** (-3.40)	-0000000683*** (-3.18)
REM_IMP	0.0000000703* (2.30)	0.0000000684* (2.27)	0.0000000793** (2.77)	0.0000000715* (2.32)	0.0000000823** (2.86)	0.0000000749* (2.44)
_cons	2.799 (1.04)	3.075 (1.14)	2.903 (1.09)	2.739 (1.01)	3.494 (1.35)	1.949 (0.68)
N	180	180	180	180	180	180

t statistics in parentheses * p<0.05, ** p<0.01, *** p<0.001

Source: Authors

Platform and Modernization indicators experienced the strongest reforms. The scorecard created from this research study can be updated and utilized further in other research studies dealing with ASEAN trade facilitation.

The gravity model's results confirm all the hypotheses of this paper. Firstly, aggregated trade facilitation performance apparently has positive influences on ASEAN trade flows. Secondly, different trade facilitation indicators have uneven influences on ASEAN trade flows. The NTB Easing and Institutional Coordination and AMS Engagement indicators are also the most influential factors when their influence on ASEAN trade flows, especially ASEAN extraregional trade, is concerned. The Trade Facilitation Platform and Modernization, and the Private Sector Engagement indicators demonstrate modest influences. Thirdly, the influence of trade facilitation reforms on intraregional trade flows is smaller than that of ASEAN extraregional trade at both aggregated and disaggregated levels.

These findings may put forward some recommendations for ASEAN in the trade facilitation reform priority setting process. The first priority

should be to continue further easing of NTBs that regulate the cross-border trade, high commitment to international institutional coordination. If a country chooses to invest in modernizing its cross-border trade management infrastructure and procedures instead of improving the other ATF-SAP's trade facilitation measures, its trade volume will benefit less. In addition, modernizing cross-border trade management procedures has not been fully implemented in many ASEAN countries, especially the measures intended to exchange electronic import and export documents and electronic applications, too. The SPS registration and certification come along with remarkable challenges, significant financial costs, and donors' technical assistance for implementation. Therefore, ASEAN member states have to carefully take into account both costs and benefits when making any decision on reforming these trade facilitation measures.

In order to be able to ensure a deep analysis of and good alignment with the content of the ATF-SAP, the research scope of the paper does not include the infrastructure, transportation, and logistics contents, thus simultaneously not including their influences on ASEAN trade flows, either. This could be extended in a future study of ours, since the performance of the infrastructure, transportation and logistics also playa a very important role in achieving the common goal of establishing a single ASEAN market and a single ASEAN production base. The one fact that should be taken into account is the Covid-19 pandemic, which has led to an abrupt break in international trade. Trade facilitation has strongly been affected by the pandemic, but it may also be an important factor boosting trade recovery from the pandemic. The priority of trade facilitation measures in the times of the pandemic can be different from the abovementioned suggestions since modernizing cross-border trade management procedures, especially electronic and digital applications, are expected to be proper solutions in the pandemic times. Therefore, a further study of digital trade facilitation is needed in the pandemic times.

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REFERENCES

Anderson, J. E., & Van Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. *American economic review*, *93*(1), 170-192. doi:10.1257/000282803321455214

Baier, S. L., & Bergstrand, J. H. (2007). Do free trade agreements increase members' international trade? *Journal of International Economics*, *71*(1), 72-95. doi.org/10.1016/j.jinteco.2006.02.005

Dennis, A., & Shepherd, B. (2011). Trade facilitation and export diversification. *The World Economy*, *34*(1), 101-122. doi.org/10.1111/j.1467-9701.2010.01303.x

Djankov, S., Freund, C., & Pham, C. S. (2010). Trading on time. *The Review of Economics and Statistics*, *92*(1), 166-173. doi/pdf/10.1162/rest.2009.11498

Felipe, J., & Kumar, U. (2012). The role of trade facilitation in Central Asia: A gravity model. *Eastern European economics*, *50*(4), 5-20. doi.org/10.2753/EEE0012-8775500401

Findlay, C. (2009). Trade Facilitation in the ASEAN Economic Community. *Working Papers PB-2009-06*, Economic Research Institute for ASEAN and East Asia.

Fontagné, L., Mitaritonna, C., & Signoret, J. (2016). Estimated tariff equivalents of services NTMs. *Working Papers No 2016-20*. CEPII research center.

Francois, J., & Manchin, M. (2013). Institutions, infrastructure, and trade. *World Development*, *46*(C), 165-175. doi:10.1016/j.worlddev.2013.02.009

Go, E. (2018). Contribution and Effectiveness of Trade Facilitation Measure: *A Structured Literature Review*, World Bank Group, Washington, DC.

Hillberry, R., & Zhang, X. (2015). Policy and performance in customs. *Policy Research Working Paper 7211*, World Bank Group, Washington, DC.

Hoekman, B., & Shepherd, B. (2015). Who profits from trade facilitation initiatives? Implications for African countries. *Journal of African Trade*, *2*(1-2), 51-70. doi.org/10.1016/j.joat.2015.08.001

Intal, P. (2015). AEC blueprint implementation performance and challenges: Trade facilitation. *Working Papers DP-2015-41*, Economic Research Institute for ASEAN and East Asia (ERIA).

Iwanow, T., & Kirkpatrick, C. (2009). Trade facilitation and manufactured exports: Is Africa different? *World Development*, *37*(6), 1039-1050. doi.org/10.1016/j.worlddev.2008.09.014

Kepaptsoglou, K., Karlaftis, M. G., & Tsamboulas, D. (2010). The gravity model specification for modeling international trade flows and free trade agreement effects: a 10-year review of empirical studies. *The open economics journal*, *3*(1), 1-13. doi.org/10.2174/1874919401003010001

Layton, B. (2007). Trade Facilitation: A study in the context of the ASEAN Economic Community Blueprint. In H. Soesastro, (Ed.). *Deepening Economic Integration - The ASEAN Economic Community and Beyond* (pp. 76-100). ERIA Research Project Report 2007, 1-2.

Limao, N., & Venables, A. J. (2001). Infrastructure, geographical disadvantage, transport costs, and trade. *The world bank economic review*, *15*(3), 451-479. doi:10.1093/wber/15.3.451

Martinez-Zarzoso, I., & Márquez-Ramos, L., (2008). The effect of trade facilitation on sectoral trade. *Journal of Economic Analysis & Policy*, *8*(1), 1-46. doi:10.2202/1935-1682.1927

Moïsé, E., & Sorescu, S. (2013). Trade facilitation indicators: The potential impact of trade facilitation on developing countries' trade. *OECD Trade Policy Working Papers No. 144*. doi.org/10.1787/5k4bw6kg6ws2-en

Nizeyimana, C., & De Wulf, L. (2015). Rwanda electronic single window supports trade facilitation. *World Customs Journal*, *9*(2), 73-84.

Persson, M. (2013). Trade facilitation and the extensive margin. *The Journal of International Trade & Economic Development*, *22*(5), 658-693. doi:10.1080/09638199.2011.587019

Piermartini, R., & Yotov, Y. (2016). Estimating trade policy effects with structural gravity. *WTO Staff Working Paper, No. ERSD-2016-10*, World Trade Organization, Geneva.

Portugal-Perez, A., & Wilson, J. S. (2012). Export performance and trade facilitation reform: Hard and soft infrastructure. *World Development*, *40*(7), 1295-1307. doi:10.1016/j.worlddev.2011.12.002

Rahman, M. M. (2003, September). *A panel data analysis of Bangladesh's trade: the gravity model approach*. Paper presented an the 5th Annual Conference of the European Trade Study Group (ETSG2003), Madrid, ES.

Sá Porto, P. C. D., Canuto, O., & Morini, C. (2015). The impacts of trade facilitation measures on international trade flows. *Policy Research Working Paper; No. 7367*. World Bank, Washington, DC.

Shepherd, B. (2010). Trade Costs and Facilitation in APEC and ASEAN: Delivering the Goods? *MPRA Paper No. 21531*, University Library of Munich, Germany.

Shepherd, B. (2013). Trade times, importing and exporting: firm-level evidence. *Applied Economics Letters*, *20*(9), 879-883. doi.org/10.1080/13504851.2012.756574

Silva, J. S., & Tenreyro, S. (2006). The log of gravity. *The Review of Economics and Statistics*, *88*(4), 641-658. doi.org/10.1162/rest.88.4.641

Tinbergen, J. (1963). Shaping the world economy. *The International Executive*, *5*(1), 27-30. doi.org/10.1002/tie.5060050113

Volpe, M. C., Carballo, J., & Graziano, A. (2015). Customs. *Journal of International Economics*, *96*(1), 119-137. doi.org/10.1016/j.jinteco.2015.01.011

Wilson, J. S., Mann, C. L., & Otsuki, T. (2003). Trade facilitation and economic development: A new approach to quantifying the impact. *The World Bank Economic Review*, *17*(3), 367-389. doi.org/10.1093/wber/lhg027

Wilson, J. S., Mann, C. L., & Otsuki, T. (2005a). Assessing the benefits of trade facilitation: A global perspective. *World Economy*, *28*(6), 841-871. doi.org/10.1111/j.1467-9701.2005.00709.x

Wilson, J. S., Mann, C. L., & Otsuki, T. (2005b). Assessing the potential benefit of trade facilitation: A global perspective. In P. Dee & M. Ferrantino (Eds.). *Quantitative methods for assessing the effects of non-tariff measures and trade facilitation* (pp. 121-160). World Scientific Publishing Co. Pte. Ltd.

World Bank. (2009). *Doing Business 2010: Reforming through Difficult Times*. Washington, DC: The World Bank.

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THE RELATIONSHIP BETWEEN THE CORPORATE SOCIAL RESPONSIBILITY AND THE COST OF THE CAPITAL OF THE COMPANIES LISTED ON THE NIGERIAN STOCK EXCHANGE

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This study is aimed at analyzing the influence of Corporate Social Responsibility (CSR) on the Cost of the Capital (CoC) of the companies quoted on the Nigerian Stock Exchange (NSE). The annual panel data of the 32 companies quoted on the NSE pertaining to the period from 2005 to 2019, were judgmentally selected. The Thomson Reuthers Index was used as the measure for CSR, whereas the Cost of Equity (CoE) and the Cost of Debt (CoD) were used as the measure for CoC. The findings revealed the existence of a positive/negative nonsignificant relationship, on the one hand, and a positive/negative significant relationship as well, on the other, between CSR and CoC. The results obtained are supportive of the findings found in scholars' works, especially those in the developed countries in which this aspect has extensively been explored. To conclude, the companies that spend on CSR have a better chance of accessing capital at a better and low cost. Based absolutely on the findings, the researcher advocates that investment should incessantly be made in the issues concerning CSR, given the fact that, if consistently made, such investment may ease access to funds at a reduced cost.

Keywords: corporate social responsibility, cost of capital, Thomson Reuters Index, cost of equity, cost of debt

JEL Classification: M1, M4

INTRODUCTION

Corporate Social Responsibility (CSR) has globally turned out to be exceptionally essential. The same has been supported by an increasing number of the academic papers that highlight practical reasons for firms to integrate CSR in their practices (Joëla, 2017; Youngkyung & Jungmu, 2019; Chin-Chen, Fengyi, Teng-Shih, & Chia-Ming, 2020). In their paper, S. M. Barbara and F. I. Maria (2017) stipulated the fact that a growing range of companies had been paying attention to corporate responsibility issues. CSR depicts companies' capacity to be socially responsible

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for social growth and development. It demonstrates the activities that communicate business obligations to all constituent stakeholders (Votaw, 1973). The interesting question is, why, of their own accord, do some firms spend their scarce resources on social goals while others do not?

There are several factors that motivate companies to report on CSR. As reported by Ernst & Young (2013), companies see improved reputation as the most valuable contribution made to them by CSR. A. Ansong, S. K. Agyei and E. Marfo-Yiadom (2017); M. Moskowitz, 1972; and O. Hawn, A. Chatterji and W. Mitchell (2011), accordingly opined the factors including gaining social legitimacy and goodwill, attracting and maintaining high-quality employees, and allowing for the healthier marketing of products and services. A. Goss and G. S. Roberts (2011); K. M. Menz (2010) and B. Cheng, I. Ioannou and G. Serafeim (2014), however, advocate that investing in corporate social initiatives increase access to external financing, such as bank loans, a debt and equity issues.

To some extent, CSR is connected with CoC alongside the investor's decision on funds allocation. As opined by P. M. Healy and K. G. Palepu (2001), more disclosure findings might provide additional facts and consequently decrease the information irregularity dilemma, knowing fully well that without an adequate piece of information, investors will find it tough to differentiate between good and bad investments. Introducing CSR disclosure would align the interest of the parties' concern and create incentives for CSR disclosure.

The Cost of Capital (CoC) is the cost of the company's funds, both the debt and the equity. CoC is the company financing costs when borrowing money, using equity financing or selling bonds in order to fund projects or investments. In particular, companies' cost of capital can reflect CSR risks and benefits (Weber, 2008). For example, firms might benefit from lower interest rates (Goss & Roberts, 2011) and higher access to debt capital through CSR (Cheng, Ioannou & Serafeim, 2014).

There is a well-established fact that investors in the public debt are more sensitive to and more concerned about agency costs and the asymmetric information problem than private debt investors, such as banks (Leland & Pyle, 1977; Krishnaswami, Spindt & Subramaniam, 1999; Denis & Mihov, 2003). The presence of these two frictions could thus essentially limit a firm's access to the public debt market. Consequently, firms may have to rely on relatively more costly bank debt financing.

This study primarily investigates the effect of CSR performance on CoC by obtaining evidence from a cross-section of the companies quoted on the Nigerian Stock Exchange.

Bearing in mind the goal of the study, the study itself ascertains whether performing CSR has in any way led to easy access to capital at a reduced cost among the companies quoted on the NSE. The study is empirically oriented and employs quantitative methods, such as the descriptive method, correlation, the unit root test, the random effect model and diagnostic tests.

Beside the introduction, the rest of the paper is structured as follows: in the next section, the problem statement is presented and testable hypotheses are developed; this is followed by a related literature review pertaining to the subject matter of the study and the method applied in the study as well. Finally, the analysis, discussion, the conclusions, and the recommendations are presented.

Problem statement

In the past years, CSR has turned out to be the most crucial subject issue in doing business. The argument over the intrinsic value of CSR revolves around if such investments are value-enhancing or if they are the value-destroying manifestation of agency conflicts (Allen & Gordon, 2011). The quest for social responsibility helps organizations to create values, be accountable to stakeholders at large and gain performance.

Accordingly, society tends to be in an advantaged position in relation to the firms that act in a socially responsible manner in comparison with their

counterparts. It is therefore imperative for firms to channel their societal performance, which may usually be done through the disclosure of the CSR information which will ultimately be beneficial to all (Dhaliwal, Li, Tsang & Yang, 2011). The information disclosed must be useful, timely, and not too costly to collect (Dubbink, Graafland & Van Liedekerke, 2008). Regrettably, CSR implementation is more complicated to perform than to explain. The reason for that lies in the fact that a company's interests and culture differ (that is, humanistic vs profit maximization), and a probable difference in interest between managers and shareholders varies, too (Banerjee, 2008).

Humanistic corporations generally tend to behave in a socially responsible manner (Smith, 2003; Lee, 2008; Walker & Wan, 2012), while profit-maximizing firms seek their interest not minding whether it is at the expense of anyone else or not (Dugger, 1989; Basu & Palazzo, 2008; Menz, 2010).

Despite the growing body of the extant studies on CSR among companies in Nigeria, a good number of the studies were dedicated to the relationship between CSR and the Financial Performance (FP) of the corporations listed on the NSE (Agbiogwu, Ihendinihu & Okafor, 2016; Wekesa, 2017; Abdulaziz, 2018; Odunayo & Ibidolapo, 2018; Stephen & Rebecca, 2018; Ehioghiren & Eneh, 2019). This study refers to a well-known debate from an innovative point of view: CSR and CoC. The relationship between CSR and CoC has not yet been investigated a lot in Nigeria. In addition to that, the largest number of the studies on the concept of CSR that have sprouted in Nigeria's companies are focused on CSR and its effect on FP. These studies test the correlation between CSR and FP, simultaneously neglecting the point of view concerning CSR and CoC.

Besides, the biggest number of the studies used the amount disclosed in a financial statement, in questionnaires and a few in the KLD index as the measure for CSR (Ajide & Aderemi, 2014; Joseph & Michah, 2016, Odunayo & Ibidolapo, 2018). This study investigates the relationship between CSR and the CoC of the companies listed on the NSE using the Thomson Reuther Index. It specifically examines the correlation between CSR and CoE, CoD. There is a dearth of papers in the literature on this aspect. This is the reason why the focal point here is to explore the effect CSR has on the cost of capital (CoC) and the costs of debt (CoD) amongst Nigerian companies. This is necessary because the result of the research, if positive, may motivate other companies not in compliance with CSR to adopt CSR as a part of their business operations.

In light of the above-mentioned, the study:

- examines whether CSR performance by the companies listed on the NSE included in the sample has in any way led to easy access to the cost of equity at a reduced cost, and
- ascertains whether CSR performance by the companies listed on the NSE and included in this sample has led to easy access to the cost of debt at a reduced cost.

Bearing in mind the foregoing, the following is hypothesized.

H1: Corporate social responsibility correlates with the cost of equity of the companies quoted on the Nigerian Stock Exchange.

H2: Corporate social responsibility correlates with the cost of debt of the companies quoted on the Nigerian Stock Exchange.

LITERATURE REVIEW

Corporate social responsibility and the cost of equity

The empirical findings revealed the fact that the companies that had disclosed CSR had better and quicker access to new capital, and also faced fewer costs. Companies showed their probable shareholders that they were competitive and lowered the menace of investment by reporting on CSR (Cheng, Ioannou & Serafeim, 2014). They argued that the extent to which CSR is present could lessen CoE capital

for companies. This is also owing to their better commitment to and their engagement with the stakeholders based on mutual trust and cooperation (Jones, 1995). CSR adoption makes stakeholders feel stronger self-assurance and trust in companies. It makes them see the companies as the subject sharing the same common belief with them, and agency costs are reduced. In another study, W. Dhaliwal *et al* (2011) revealed that investors were most likely to invest in a more transparent company. With reliance on increased trust in suchlike companies, investors were more prone to lessen CoE capital.

Corporate social responsibility and cost of debt

More to the point, increased CSR decreases CoD. Studies conducted in the past also revealed the fact that, in the long run, performing CSR could result in a reduction in CoD. An example is a survey carried out by A. Goss and G. S. Robert (2011). Their study suggests that CSR statistically significantly lowers 7 to 18 basis points on bank loans.

In yet another study, S. Drucker and M. Puri (2009) established the fact that loans had an additional and preventive debt agreement, mainly when agency costs and information asymmetry were stricter. In prior studies, CSR has been seen to lower information asymmetry and trust (Dhaliwal *et al*, 2011; Cheng *et al*, 2014). Debt holders are exposed to a smaller threat when lending in the case when businesses undertake CSR, and they will be more liable to lend and ask for lower interest. Therefore, CSR is deemed to be able to decrease CoD. C. Demiroglu and C. M. James (2010) stipulate that the borrowers who take more risk are more prone to obtain loans with a tight agreement. S. Chava (2014) discovered that lenders charged smaller interest on bank loans to the organizations that derived significant revenue from environmentally beneficial products.

N. Attig, S. El Ghoul, O. Guedhami and J. Suh (2013) revealed the fact that CSR had a significant positive impact on a firm's credit rating. Companies proven to be highly socially performing are rewarded with high credit ratings by rating agencies. Accordingly, CSR communicates the vital nonfinancial information which credit rating agencies use in evaluating companies. A. Goss and G. S. Roberts (2011) stipulate that with healthier credit ratings, companies can make a debt at a lower cost owing to the trust these agencies have in their operations. By implication, companies tend to engage themselves in the projects that will provide a social benefit to those concerned. Accordingly, when companies operate in a way which is perceived as socially desirable by the stakeholders, they will be able to receive high credit ratings, which may result in a lowered CoD in the long run.

Yet another study, namely K. M. Menz (2010), established the fact that CSR lowered CoD. It was, however, revealed that socially responsible companies received lower risk premiums. The one reason for this could be the fact that credit ratings mattered more to bond investors than CSR ratings did. His results revealed a non-positive correlation between CSR and CoD. Nevertheless, the result demonstrates that high credit ratings add value to companies' CoD to some extents.

Theoretical Framework

M. Friedman (1962) upholds that shareholder theory emphasizes a firm's top priority as maximizing the firm's value. Therefore, expenditures relating to CSR are conceived as a poor way to use shareholders' money, which practice digresses from shareholder value maximization theory. The theory upholds that performing CSR activities will consume the resources that otherwise might have facilitated the generation of a bigger profit for shareholders. From the point of view of shareholders, a higher performance of CSR could affect shareholders' interest. When interest is reduced, the capacity to pay or the interest in paying is also reduced, which may result in an enhanced distress risk, and both may relate to the higher costs of debt financing.

E. Freeman (1984) propounded stakeholder theory. His theory opposed shareholder theory, holding that businesses had to consider stakeholders in all facets of their operations. The theory proposed that corporations should go beyond the benefits shareholders stand to generate in order to consider

the welfare of a broader stakeholder group in society (Freeman, 1984). T. M. Jones (1995) broadens the theory by indicating that CSR is an indispensable part for corporations to obtain the essential resources and stakeholder support. Considering the standpoint of the theory, performing CSR may result in a discount cost of acquiring capital for two reasons. The first reason is that CSR-associated facts capture the organizational environmental peril and lead to a decline in the information asymmetry. This, in return, might have an effect on CoE (Jones, 1995; Heinkel, Kraus & Zechner, 2001; Orlitzky, Schmidt & Rynes, 2003). According to M. Jensen and W. Meckling (1976), any information that eases information asymmetries among contracting parties and as such reduces unfavorable selection and ethical hazard problems would be value relevant.

In developed countries, the largest number of empirical papers in the literature have recorded that disclosures of financial information make available the relevant pieces of information that are of value to stakeholders, and as such shrink CoC (Diamond & Verrecchia, 1991; Botosan, 1997; Leuz & Verrecchia, 2000; Graham, Harvey & Rajgopal 2005). In conformity with this argument, M. Orlitzky *et al* (2003) proposed that the information that related to the CSR recital was value relevant.

Performing CSR may lead to boosting the size of the investor base. Socially mindful investors choose to eliminate the firms with low CSR performance from their investment portfolios (Heinkel *et al*, 2001). By implication, corporations with healthy CSR performance are in advantage when increasing the comparative length in their investor bases is concerned. The healthier the size of the investor base, the lower CoC and the healthier the marketplace valuation (Merton, 1987).

METHODOLOGY

The sample included in the study comprises the 159 companies quoted on the NSE as of 2020. Using the nonprobability sampling technique, a sample of 32 companies with minimum one company from each of the following sectors: the Industrial Sector, the Consumer Goods Sector, the Financial Service Sector, the Health Care Sector, the Technology Sector, the Basic Material Sector, the Oil and Gas Sector, and the Consumer Services Sector was made judgmentally. The selection was based on the complete, published annual reports for the period covered. To achieve the purpose of the study, content analysis was used to collect the panel data for the variables. The study adopted the panel least square method of the random effect model to analyze the influence of CSR on the cost of capital in Nigeria.

Dependent variable

The dependent variable is the CoC measured using CoE and CoD. Regarding CoE, the dividend capitalization model (DCM) was used to estimate the CoE. This model is mainly applied to the companies that pay out a dividend.

The formula to compute the DCM is as follows:

$$R_e = (D_1 / P_0) + g$$

where:

R_e = the cost of equity

D_1 = dividends per share next year

P_0 = the current share price

g = the dividend growth rate.

According to Corporate Finance Institute (2021), dividend growth for each year can be achieved by applying the following equation:

$$Dividend\ growth = (D_1 / D_{t-1}) - 1$$

where:

D_1 = the dividend payment of the year t,

D_{t-1} = the dividend payment of the year t-1 (one year before the year t)

Cost of debt

CoD is the effective interest rate a company pays to debt holders on its current liabilities. In general, it refers to the after-tax CoD. The difference between the before-tax cost of debt and the after-tax cost of debt depends on the interest expenses deducted. As regards CoD, it is one minus the tax rate into interest expenses. Thus, the formula for calculating CoD reads as follows:

CoD = Interest Expenses (1 - Tax Rate).

Independent variable

Prior studies in Nigeria have used diverse CSR measurements. For example, A. U. Asian and T. A. Uche (2018) used dummy variables, A. T. Abideen, O. A. Abayomi and S. A. Nureni (2017) used donations made by companies to the community during the period, O. D. Adeyanju (2012) and U. O. Godwin (2012) used questionnaires, F. M. Ajide and A. A. Aderemi (2014) used the Morgan Stanley Capital International Environment Social and Governance Index (the MSCI ESG Index) - formerly the Kinder, Lydenberg, Domini Index (the KLD Index), and While, O. F. Olaoye and O. E. Oluwadare (2018) used the CSR disclosure Index. In this present study, however, the Thomson Reuther Index used by N. S. Ofogbe, C. N. Ezuwore-Obodoekwe, A. P. Ozoji, C. Namani, C. A. Anisiuba, I. P. Oliakor and R. Okafor (2021) was adopted. The index measures CRS via the three dimensions, namely corporate social performance (CSP), environmental performance (ENP), and corporate governance performance (CGP). Table 1 shows the scores for the different categories of the ESG scores.

CONTROL VARIABLES (CVs)

Control variables - CoE

To recognize the effect CSR disclosure had on CoE, some variables were used as control variables to that effect. Considering the study carried out by C. Reverte (2012), the market-to-book value (MB), Beta (BETA), and the size of the firm (SIZE) were found to be connected with CoE. Alternatively, CoE ought to be positively correlated with the beta variable. In addition, L. Hail and C. Leuz (2006) opined that many proxies had represented the magnitude of the firm in different ways. That included the total assets, the market value of equity, the total sales, the number of the employees, and market capitalization. D. S. Dhaliwal *et al* (2011) conversely used the total assets logarithm to represent the size of the firm.

Regarding data availability, this study used the total assets logarithm to signify the size of the firm and the

Table 1 The Thomson Reuters indices for social, environmental, and CG performance

Pillar	Category	Scoring	Weight
Environmental performance	Resources use	19	11%
	Emission	22	12%
	Innovation	20	11%
Social performance	Workforce	29	16%
	Human rights	8	4.50%
	Community	14	8%
	Product Responsibility	12	7%
Governance performance	Management	34	19%
	Shareholders	12	7%
	CSR Strategy	8	4.50%
Total		178	100%

Source: Thomson Reuters

market-to-book value (MBV) as CVs for CoE. The data were retrieved from the published annual reports of the companies included in the sample. The market-to-book value was calculated using the following formula:

MBV = share price divided by net book value per share,

where:

net book value = total assets - total liabilities.

Control variables - CoD

M. F. Izzo and B. S. Magnanelli (2012) stipulate that profitability is negatively connected with CoD. For this reason, return on assets (ROA) is used as a proxy for profitability. Additionally, they argue that financial leverage (LEV) and Beta (BETA) are positively correlated with CoD. In that regard, and based on data availability, ROA and leverage are used as CVs for CoD. Leverage is derived by means of dividing the total debt by the market value of equity, whereas return on assets is computed using the formula stated below:

ROA = net income/average total asset.

To calculate a company's ROA, it is more accurate to use the average total assets. This is necessary as a company's total assets can change over a period, which may be due to the purchase or sale of fixed assets, such as vehicles, land, and equipment. Consequently, the calculation of the average total assets is more accurate than the total assets for one particular period (Claire Boyte-White, 2021).

Model specification

The functional relationship between CSR and COC; COE, and COD can be identified as follows:

$$y_{i-t} = \beta_0 + \beta_1 X_{i-t} + \beta_2 X_{i-t} + \beta_3 X_{i-t} + \beta_4 X_{i-t} + \beta_5 X_{i-t} + \mu_{i-t} \quad (1)$$

Hypothesis 1

$$COE = \beta_0 + \beta_1 CSP_{i-t} + \beta_2 EP_{i-t} + \beta_3 CGP_{i-t} + \beta_4 LOGFSIZ_{i-t} + \beta_5 MBV_{i-t} + \mu_{i-t} \quad (2)$$

Hypothesis 2

$$COD = \beta_0 + \beta_1 CSP_{i-t} + \beta_2 EP_{i-t} + \beta_3 CGP_{i-t} + \beta_4 ROA_{i-t} + \beta_5 LEV_{i-t} + \mu_{i-t} \quad (3)$$

where:

y_{i-t} = the dependent variable

β_0 = the intercept of the equation

β_1 - β_5 = the coefficients of the Xi-t variable

X_{i-t} = the independent variable

I = the cross-section variables of the companies included in the sample

T = the study period

μ = the error term

The estimation procedure: The estimation process follows a collection of the pre-estimation tests, diagnostics tests and panel estimation tests. A choice of the fixed effect and random effect regression model depends on the Haussmann test carried out on the panel data.

Data Analysis and Results

Considering the data obtained from the companies' published financial statements from 2005 to 2019, covering a period of 15 years of observation, a total of 480 observation data were collected.

Pre-test Descriptive Statistics (DS)

Table 2 shows the results of the DS for all the variables from 2005 to 2019.

Table 2 shows the result of the descriptive statistics of the individual variables respectively. Regarding the CoC, CoE and CoD, the arithmetic mean is 12.624 and 5.834, respectively. By implication, the cost of financing the debt is moderately expensive. For CSP, ENP and CGP, the mean scores are 33.875, 23.952, and 32.844, respectively. By implication, the analysis

Table 2 The descriptive statistics

	COE	LCOD	CSP	ENP	CGP	LFIRMSIZ	MBV	ROA	LEV
Mean	5.834	12.624	33.875	23.952	32.842	16.798	3.785	0.168	5.880
Median	1.342	12.455	35.000	24.000	34.000	17.008	2.995	0.077	1.750
Maximum	283.000	20.442	47.000	43.000	54.000	23.039	9.970	4.652	680.144
Std. Dev.	19.569	2.759	9.198	8.050	10.238	2.340	2.414	0.316	35.727
Skewness	9.404	0.064	-1.675	0.012	-1.577	-0.152	0.756	8.317	16.033
Kurtosis	113.039	2.638	6.779	2.482	6.444	2.799	2.469	101.816	282.879
Jarque-Bera	2492447	2.944	510.11	5.384	436.01	2.649	51.297	2008259	1583903
Observations	480	479	480	480	480	478	480	480	479

Source: Authors

shows a healthier performance of CSR. The standard deviation values are small compared to the mean. This means the values in the statistical set are close to the mean of the data set. All the variables demonstrate a positive value for the kurtosis with the values smaller or greater than three. These reveal the fact that the degree of the tailedness of all the variables except LCOD, ENP and LFIRMSIZ has a heavier tail, which is called a leptokurtic distribution. LCOD, ENP, MBV and LFIRMSIZ have a lighter tail, which is called platykurtosis.

Table 3 demonstrates the results of the Pearson correlation among the proxies of CoC, CSR, and the control variables. CSP is negative and does not significantly correlate with CoE but does significantly correlate with LCoD (-0.014 and 0.004). CSP is also found to be positive and not to significantly correlate with ENP. ENP is both negative/positive and does not substantially correlate with CoE, LCoD and CSP. CGP is positive and significantly correlates with CSP and ENP but does not substantially correlate with CoE and LCoD. CGP negatively and significantly correlates with CoE and LCoD but does not significantly correlate with CSP and ENP. Several control variables correlate with the cost of capital variables. No high correlation was found among the explanatory variables, which suggests that multicollinearity is not a serious concern in this study.

The panel unit root test summary methods were applied. Table 4 shows the results of the unit root test. All the variables are stationary at the levels and at the first difference. This prompts the study to proceed to do the Haussmann test. The Haussmann test is meant to select the best model for each of the hypotheses.

Panel Regression Analysis

Hypothesis 1: CSR correlates with the CoE of the companies listed on the NSE.

To make a decision on the appropriate model for this hypothesis, the random and fixed effect variants of the panel data were considered side by side using the Haussmann test. The Haussmann test hypothesis reads as follows:

H0: The random effect model is appropriate.

H1: The fixed effect model is suitable.

If the p-value < 5%, reject the null hypothesis; otherwise, accept the alternative hypothesis.

Table 5 shows the result of the Haussmann test hypothesis. The 5-degree-freedom cross-section chi-square statistics are 4.86 and p = 0.433. Since p > 5%, the null hypothesis is accepted for the Hypothesis 2. In conclusion, the random effect model is a better option than the fixed effect model (Ofogbe *et al*, 2021).

The panel random effect regression outcomes are as shown in Table 6. R^2 of 2.3% shows that the panel regression fits in well. The exogenous variables mutually account for a 2.3% variation in the

Table 3 The Pearson correlation matrix among the variables

	COE	LCOD	CSP	ENP	CGP	LFIRMSIZ	MBV	ROA	LEV
COE	1.00000								
LCOD	0.039*	1.000000							
	(0.387)								
CSP	-0.014*	0.004**	1.00000						
	(0.757)	(0.0715)							
ENP	-0.072*	0.001*	0.029*	1.0000					
	(0.114)	(0.9818)	(0.5271)						
CGP	0.041*	0.932*	0.586**	0.105*	1.0000				
	(0.367)	(0.9818)	(0.0000)	(0.0217)					
LFIRMSIZ	0.089**	0.752***	-0.049*	0.049*	-0.047*	1.00000			
	(0.053)	(0.0000)	(0.2788)	(0.2862)	(0.3089)				
MBV	0.069*	-0.053*	0.022*	0.048*	0.047*	0.002*	1.00000		
	(0.132)	(0.2484)	(0.6313)	(0.2994)	(0.3088)	(0.9729)			
ROA	-0.040*	-0.007*	-0.001*	-0.069*	-0.099**	-0.086**	0.013*	1.00000	
	(0.3817)	(0.8709)	(0.9795)	(0.1297)	(0.0302)	(0.0607)	(0.7775)		
LEV	0.094**	0.181***	-0.150***	-0.098**	-0.195***	0.158***	-0.012*	-0.003*	1.0000
	(0.0407)	(0.0001)	(0.0010)	(0.0319)	(0.0000)	(0.0005)	(0.7937)	(0.9504)	

(i) Variable Construe: the cost of equity (CoE), the log of CoD (LCoD), corporate social performance (CSP), environmental performance (ENP), corporate governance performance (CGP), the log of the firm size (LFIRMSIZ), the market-to-book value (MBV), return on assets (ROA) and leverage (LEV).
(ii) P-values in parenthesis; *p < 0.10, **p < 0.05, ***p < 0.01

Source: Authors

Table 4 The summary of the panel unit root test

Variables	Levin, Lin & Chu t	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Status
COE	-26.1006***	-9.09385***	154.784***	246.747***	
	(0.0000)	(0.0000)	(0.0011)	(0.0000)	1(0)
LCOD	-11.0390**	-8.13000***	188.976***	410.870***	
	(0.0322)	(0.0000)	((0.0066)	(0.0000)	1(0)
CPS	-1.29763**	-3.25021***	98.3057***	214.417***	
	(0.0972)	(0.0006)	(0.0038)	(0.0000)	1(0)
ENP	-6.51652***	-9.16233***	203.642***	203.642***	
	(0.0000)	(0.0017)	(0.0005)	(0.0000)	1(1)
CGP	-7.67429***	-8.43960***	189.210***	489.592***	
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	1(1)
LFIRMSIZ	-27.7669***	-5.93797***	92.5118**	102.638***	
	(0.0000)	(0.0032)	(0.0114)	(0.0016)	1(1)
MBV	-16.9331***	-12.1742***	239.945***	421.513***	
	(0.0000)	(0.0052)	(0.0017)	(0.0000)	1(1)
ROA	-19.7947***	-5.51149***	110.923***	219.401***	
	(0.0000)	(0.0000)	(0.0003)	(0.0000)	1(1)
LEV	-582.245***	-92.8617***	177.392***	383.509***	
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	1(1)

P-values is in parenthesis: the result is at 1%, 5% and 10% significance levels

Source: Authors

Table 5 The Haussmann test for Model One

Model One			
Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.858	5	0.4334

Source: Authors

Table 6 CSR correlates with the CoE of the companies listed on the NSE

Variables	Coefficient	Std Error	t-statistics	Pro.
CSP	-0.134891	0.120928	-1.115459	0.2652
ENP	-0.198236	0.111648	-1.775541	0.0765
CGP	0.178409	0.109324	1.631922	0.1034
LFIRMSIZ	0.789618	0.382438	2.064697	0.0395
MBV	-0.527425	0.371752	-1.418754	0.1566
C	-1.953468	7.890879	-0.247560	0.8046
R^2	2.3%			
Adjusted R-square	1.3%			
F- stat	2.24%			
P-value	0.049318			
D.W stat	1 1.83			

Source: Authors

endogenous variable with an unexplained variation of 97.7%. This implies that the other variables are responsible for the variation in the endogenous variable not accounted for. CSP and ENP are negative and are not significantly associated with CoE. By implication, CSP and ENP have not led to better access to capital at a reduced cost. The findings support shareholder theory which emphasizes the fact that the higher performance of CSR could affect shareholders' interest. The company's main interest is to maximize the value of the firm. This study is also in line with the findings by K. M. Menz (2010), whose study fails to establish the fact that CSR lowers CoD. CGP has a positive non-significant effect on CoD. For the CVs, LFIRMSIZ is positive and significantly correlates with CoD, whereas the MBV is negative and fails to correlate with CoE.

Although R^2 is small, it cannot discredit the result because, on the whole, the result of the panel regression is significant. This is shown by the F-stat 2.24, the p-value 0.049318, and the Durbin Watson Statistics 1.8, which is approximately 2. This outcome rules out the likelihood of the suspicion of the first-order positive autocorrelation. These figures are the pointers indicating that the obtained result is reliable for a meaningful analysis.

Hypothesis 3: CSR correlates with the CoD of the companies quoted on the NSE.

Table 7 shows the result of the Haussmann test. Based on the result, the random effect model is a better option than the fixed effect model.

Table 7 The Haussmann test for Model Two

Model One			
Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.161020	5	0.2909

Source: Authors

The regression results for the hypothesis two are as shown in Table 8. R^2 4.4% shows how the panel regression fitted in well. The exogenous variables are jointly responsible for a 4.4% variation in the endogenous variable with an unexplained variation of 95.6%. CSP is negatively and significantly correlated with CoD, which implies that an increase in the CSP scores will lead to a decrease in CoD. ENP has a positive non-significant correlation with CoD.

This means ENP has not led to a reduction in the cost of obtaining capital. CGP has a significant positive association with CoD. This implies that, regarding CSR, the policies in place lead to better debt options and also reduce CoD. This result supports A. Goss and G. S. Robert (2011) and S. Chava (2014). Their studies revealed that CSR significantly lowered bank loans.

Table 8 CSR correlates with the COD of listed companies in NSE

Variables	Coefficient	Std Error	t-statistics	Pro.
CSP	-0.036982	0.016969	-2.179379	0.0298
ENP	0.003537	0.015591	0.226881	0.8206
CGP	0.030548	0.015455	1.976622	0.0487
ROA	0.033327	0.396932	0.083962	0.9331
LEV	0.014297	0.003562	4.013464	0.0001
C	12.70244	0.637232	19.93377	0.0000
R^2	4.4%			
Adjusted R-square	3.4%			
F- stat	4.36%			
P-value	0.000682			
D.W stat	1 1.53			

Source: Authors

For the CVs, ROA is positive and non-significantly correlated with CoD while LEV is positive and significantly correlated with CoD.

Although R^2 is small, it cannot discredit the result because, on the whole, the result is significant. This is shown by the F-stat 4.36, p = 0.000682, and the Durbin Watson Statistics 1.5, which is approximately 2. This outcome rules out the likelihood of the suspicion of the first-order positive autocorrelation. These figures are the pointers that indicate the fact that this result is reliable for a meaningful analysis.

To further support the consistency of the data set, a normality (diagnostic) test was conducted. This was done in order to confirm that there were no violations of the assumption of the regression model. Such a violation would cause doubts regarding the validity and reliability of the regression model. The result is proven in Figure 1.

Diagnostic test

The above result is presented by the histogram and DS of the data set, including the Jarque-Bera statistics for testing normality. The rule is that, if data sets are normally distributed, the histogram should be bell-shaped, and the Jarque-Bera statistics must not be significant at 5% levels.

Figure 1 reveals the fact that the non-normality hypothesis is accepted since the p-value of the Jarque-Berra statistics > 0.05; (0.795967) and the histogram is bell-shaped. It is therefore concluded that the data set is normally distributed and can be used to carry out a meaningful analysis.

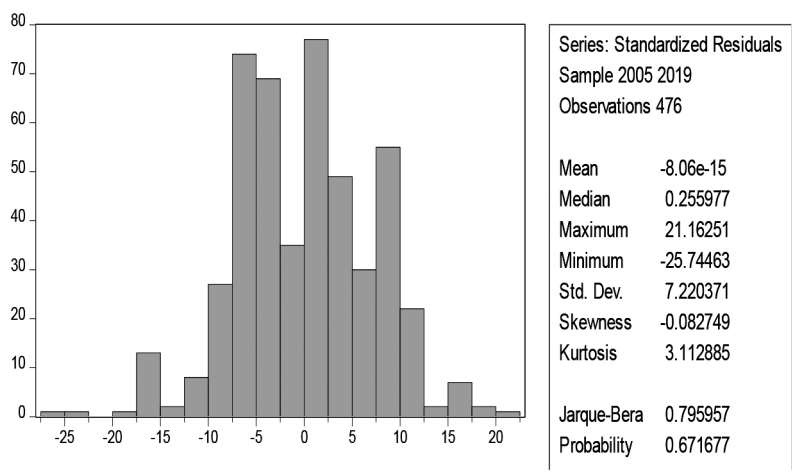

Figure 1 The normality assumption test

Source: Authors

CONCLUSION

This study explored the effect of CSR on the CoC of the selected companies quoted on the NSE for a period of 15 years, namely from 2005 to 2019. Yearly panel data were used. The data were analyzed using descriptive statistics, the correlation matrix, the unit root test and the random effect model. To make a decision on an appropriate model for this hypothesis, the random and fixed effect variants of the panel data were considered side by side using the Haussmann test. The general result of the study revealed that CSR had an influence on the CoC of the selected companies in Nigeria. In conformity with the studies carried out in the developed world, namely K. M. Menz (2010); A. Goss and G. S. Robert (2011) and S. Chava (2014), mixed results were obtained.

For the first hypothesis, the general result shows a significant correlation between CSR and the cost of equity, This shows to a great extent that performing CSR has led to the better options for obtaining capital at a reduced cost.

For the second hypothesis, although the individual effect of the different dimensions of CSR differs, there is strong evidence that performing CSR in the course of doing business has noticeably led to a better option for accessing capital at a reduced interest rate. These findings support the findings of the largest number of international empirical studies, among which some may be mentioned O. Youngkyung and K. Jungmu (2019).

The significant impact of the CSR dimension on CoC implies that the companies included in the study sample for the studied period engaged themselves in CSR practice and, as a result, accessed capital with ease and at a reduced cost. In other words, CSR initiatives can attract funding whether these activities are routed through stakeholders or not.

The findings have a practical inference. The result will spur those companies that are not CSRcompliant to adopt CSR as a part of their day-to-day operations and motivate CSR-compliant companies to dedicate more attention to CSR issues. That is, its outcome is helpful to the organizations practicing CSR, those yet to adopt CSR, and stakeholders as well.

To conclude, the companies that invest in CSR have a better chance of accessing funds at a better and low cost.

Based on the findings, the study advocates continuous investment on the issues that concern CSR as these will, if consistent, lead to easy access to capital and at a reduced cost.

Notwithstanding the effort this study has made, the same is limited by the number of the companies included in the sample. For instance, out of the 159 companies quoted on the NSE, only 32 have complete reports for the studied period of 15 years.

To extend the discourse, it is suggested that further studies should adopt other measures for CSR, such as the amount of data and information disclosed in the annual report and the KLD Index in future research. Also, the relationship between social responsibility disclosure and the stock price can also be considered. Therefore, future studies should consider this matter.

REFERENCES

Abdulaziz, A. (2018). Corporate social responsibility: Concepts, perspectives, and link with corporate performance: Literature review. *International Journal of Business and Management Review*, 6(2), 1-14.

Abideen, A. T., Abayomi, O. A., & Nureni, S. A. (2017). Effects of corporate social responsibility on banks FP in Nigeria: A study of United bank of Africa. *International Journal of Business, Economics and Management* 4(6), 136-147. doi:10.18488/journal.62.2017.46.136.147

Adeyanju, O. D. (2012). An assessment of the impact of corporate social responsibility on Nigerian society: The examples of banking and communication industries. *Universal Journal of Marketing and Business Research, 1*(1), 17-43.

Agbiogwu, A. A., Ihendinihu, J. U., & Okafor, M. C. (2016). Impact of environmental and social costs on performance of Nigerian manufacturing companies, *International Journal of Economics and Finance*, *8*(9), 173-180. doi:10.5539/ijef.v8n9p173

Ajide, F. M., & Aderemi, A. A. (2014). The effects of corporate social responsibility activity disclosure on corporate profitability: Empirical evidence from Nigerian commercial banks. *IOSR Journal of Economics and Finance*, *2*(6), 17-25. doi:10.9790/5933-0261725

Allen, G., & Gordon, S. R. (2011). The impact of corporate social responsibility on the cost of bank loans. *Journal of Banking & Finance*, *35*(7), 1794-1810. doi:10.1016/j.jbankfin.2010.12.002

Ansong, A., Agyei, S. K., & Marfo-Yiadom, E. (2017). Do lenders value firm reputation? Evidence from SMEs in Ghana. *EuroMed Journal of Management*, *2*(2), 152-163. doi.org/10.1504/EMJM.2017.085874

Asian A. U., & Uche, T. A. (2018). Financial performance and corporate social responsibility of quoted firms in Nigeria. *International Journal of Innovative Social Sciences & Humanities Research*, *6*(1), *14-30*.

Attig, N., El Ghoul, S., Guedhami, O., & Suh, J. (2013). Corporate social responsibility and credit ratings. *Journal of business ethics*, *117*(4), 679-694. doi:10.1007/s10551-013-1714-2

Banerjee, S. B. (2008). Corporate social responsibility: The good, the bad, and the ugly. *Critical Sociology*, *34*(1), 51-79. doi.org/10.1177/0896920507084623

Barbara, S. M., & Maria, F. I. (2017). Corporate social performance and cost of debt: The relationship. *Social Responsibility Journal*, *13*(2), 250-265. doi:10.1108/SRJ-06-2016-0103

Basu, K., & Palazzo, G. (2008). Corporate social responsibility: A process model of sensemaking. *Academy of Management Review*, *33*(1), 122-136. doi.org/10.2307/20159379

Botosan, C. A. (1997). Disclosure level and the cost of equity capital. *The Accounting Review*, *72*(3), 323-349.

Chava, S. (2014). Environmental externalities and cost of capital. *Management Science*, *60*(9), 2223-2247. doi.org/10.1287/mnsc.2013.1863

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, 35(1), 1-23. doi.org/10.1002/smj.2131

Chin-Chen Y., Fengyi, L., Teng-Shih, W., & Chia-Ming, W. (2020). Does corporate social responsibility affect cost of capital in China? *Asia Pacific Management Review*, *25*(1), 1-12. doi:10.1016/j.apmrv.2019.04.001

Claire Boyte-White. (2021). *Guide to financial Ratio*, *Investopedia*. Retrieved April 18, 2021, from https://www.investopedia.com/ask/answers/031215/what-formula-calculating-return-assets-roa.asp

Corporate Finance Insitute. (2021). *Cost of Equity Formula*. Retrieved January 15, 2021, from https://corporatefinanceinstitute.com/resources/knowledge/finance/cost-of-equity-guide/

Demiroglu, C., & James, C. M. (2010). The information content of bank loan covenants. *Review of financial Studies*, *23*(10), 3700-3737.

Denis, D. J., & Mihov, V. T. (2003). The choice among bank debt, non-bank private debt, and public debt: Evidence from new corporate borrowings. *Journal of Financial Economics*, *70*(1), 3-28. doi.org/10.1016/S0304-405X(03)00140-5

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review*, *86*(1), 59-100. doi.org/10.2308/accr.00000005

Diamond, D., & Verrecchia, R. (1991). Disclosure, liquidity, and the cost of capital. *Journal of Finance*, *46*(4), 1325-1359. doi.org/10.1111/j.1540-6261.1991.tb04620.x

Drucker, S., & Puri, M. (2009). On loan sales, loan contracting, and lending relationships. *Review of Financial Studies*, *22*(7), 2835-2872. doi.org/10.1093/rfs/hhn067

Dubbink, W., Graafland, J., & Van Liedekerke, L. (2008). Corporate social responsibility, transparency and the role of intermediate organisations. *Journal of Business Ethics*, *82*(2), 391-406. doi:10.1007/s10551-008-9893-y

Dugger, W. M. (1989). *Corporate Hegemony*. Santa Barbara, CA: Greenwood Publishing Group.

Ehioghiren, E. E., & Eneh, O. (2019). Corporate social responsibility accounting and financial performance of insurance companies in Nigeria. *International Journal of Academic Accounting, Finance & Management Research*, *3*(5), 16-25.

Ernst & Young (2013). *The Value of Sustainability Reporting*. Retrieved January 5, 2015, from http://www.ey.com/US/en/Services/SpecialtyServices/Climate-Change-and-ustainability-Services/ Value-of-sustainability-reporting.

Freeman, E. (1984). *Strategic Management: A Stakeholder Approach*. Cambridge, MA: Cambridge University Press.

Friedman, M. (1962). *Capitalism and Freedom*. Chicago, IL: University of Chicago Press.

Godwin, U. O. (2012). Community perception and oil companies corporate social responsibility initiative in the Niger Delta. *Studies in Sociology of Science*, *3*(4), 11-21, doi:10.3968/j.sss.1923018420120304.600

Goss, A., & Roberts, G. S. (2011). The impact of corporate social responsibility on the cost of bank loans. *Journal of Banking & Finance*, *35*(7), 1794-1810. doi.org/10.1016/j.jbankfin.2010.12.002

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, *40*(1-3), 3-73. doi:10.1016/j.jacceco.2005.01.002

Hail, L., & Leuz, C. (2006). International differences in the cost of equity capital: do legal institutions and securities regulation matter? International cost of equity capital. *Journal of Accounting Research*, *44*(3), 485-531. doi.org/10.1111/j.1475-679X.2006.00209.x

Hawn, O., Chatterji, A., & Mitchell, W. (2011). How operational legitimacy conditions the impact of changes in social legitimacy on firm's economic value: The Dow Jones sustainability index addition and deletion. *Working paper 11/2011*. Duke University.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, *31*(1-3), 405-440. doi.org/10.1016/S0165-4101(01)00018-0

Heinkel, R., Kraus, A., & Zechner, J. (2001). The effect of green investment on corporate behaviour. *The Journal of Financial and Quantitative Analysis*, *36*(4), 431-449. doi.org/10.2307/2676219

Izzo, M. F., & Magnanelli, B. S. (2012). Does it pay or does the firm pay? The relation between CSR performance and the cost of debt. Retrieved April 12, 2021, from https://papers.ssrn.com/soL3/papers.cfm?abstract_id=1986131

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360. doi.org/10.1016/0304-405X(76)90026-X

Joëla, M. A. J. (2017). *The effect of corporate social responsibility on the cost of equity from a legal origin and cultural perspective*. University of Groningen and Uppsala University.

Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of management review*, *20*(2), 404-437. doi.org/10.2307/258852

Joseph, U. M., & Michah, C. O. (2016). Impact of corporate social responsibility on financial performance: Evidence from listed banks in Nigeria. *Expert Journal of Finance*, *4*, 1-9.

Krishnaswami, S., Spindt, P. A., & Subramaniam, V. (1999). Information asymmetry, monitoring, and the placement structure of corporate debt. *Journal of Financial Economics*, *51*(3), 407-434.

Lee, M. -D. P. (2008). A review of the theories of corporate social responsibility: Its evolutionary path and the road ahead. *International Journal of Management Reviews*, *10*(1), 53-73. doi.org/10.1111/j.1468-2370.2007.00226.x

Leland, H. E., & Pyle, D. H. (1977). Informational asymmetries, financial structure, and financial intermediation. *Journal of Finance*, *32*(2), 371-387. doi.org/10.2307/2326770

Leuz, C., & Verrecchia, R. (2000). The economic consequences of increased disclosure. *Journal of Accounting Research*, 38, 91-124. doi.org/10.2307/2672910

Menz, K. M. (2010). Corporate social responsibility: Is it rewarded by the corporate bond market? A critical note. *Journal of Business Ethics*, *96*(1), 117-134. doi:10.1007/s10551-010-0452-y

Merton, R., (1987). A simple model of capital market equilibrium with incomplete information. *Journal of Financial Economics*, *42*(3), 483-510. doi.org/10.1111/j.1540-6261.1987.tb04565.x

Moskowitz, M. (1972). Choosing socially responsible stocks. *Business and Society*, *1*(1), 71-75.

Odunayo, F. O., & Ibidolapo, E. A. (2018). Corporate social responsibility on the performance of private telecommunication in Nigeria. *Canadian Social Science*, *14*(8), 45-54. doi:10.3968/10511

Ofogbe, N. S., Ezuwore-Obodoekwe, C. N., Ozoji, A. P., Namani, C., Anisiuba, C. A., Oliakor, I. P., & Okafor, R. (2021). Impact of environmental, social, and governance dimension of corporate social responsibility on firm performance: Evidence from Nigeria. *Humanities and Social Sciences Letters*, *9*(2), 220-236, doi:10.18488/journal.73.2021.92.220.236

Olaoye, O. F., & Oluwadare, O. E. (2018). Corporate social responsibility and stock price market of selected listed companies in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, *8*(7), 872-886. doi:10.6007/IJARBSS/v8-i7/4425

Orlitzky, M., Schmidt, F., & Rynes, S. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, *24*(3), 403-441. doi:10.1177/0170840603024003910

Reverte, C. (2012). The impact of better corporate social responsibility disclosure on the cost of equity capital. *Corporate Social Responsibility and Environmental Management*, *19*(5), 253-272. doi.org/10.1002/csr.273

Smith, N. C. (2003). Corporate social responsibility: Whether or how? *California Management Review*, *45*(4), 52-76. doi:10.2307/41166188

Stephen, E., & Rebecca, O. D. (2018). Corporate social responsibility and Bank Performance in Nigeria. *Sriwijaya International Journal of Dynamic Economics and Business*, *2*(4), 317-330, doi.org/10.9259/sijdeb.v2i4.317-330.

Thomson Reuters. (2017). *Thomson Reuters ESG Score. Data fact sheet*. Retrieved January 24, 2021, from https://financial.thomsonreuters.com/content/dam/openweb/documents/pdf/financial/esg-scores-factsheet.pdf

Votaw, D. (1973). Genius becomes rare. In D. Votaw, & S. P. Sethi (Eds.). *The Corporate Dilemma: Traditional values versus contemporary problems* (pp. 11-45). New Jersey, NJ: Prentice Hall.

Walker, K., & Wan, F. (2012). The harm of symbolic actions and green-washing: Corporate actions and communications on environmental performance and their financial implications. *Journal of Business Ethics*, *109*(2), 227-242. doi:10.1007/s10551-011-1122-4

Weber, M. (2008). The business case for corporate social responsibility: A company level measurement approach for CSR. *European Management Journal*, *26*(4), 247-261. doi.org/10.1016/j.emj.2008.01.006

Wekesa, R. N. (2017). Corporate social responsibility and financial performance: The case of Safaricom Ltd. *International Journal of Finance and Accounting*, *6*(6), 167-171. doi.10.5923/j.ijfa.20170606.02

Youngkyung, O., & Jungmu, K. (2019). Which corporate social responsibility performance affects the cost of equity? Evidence from Korea. *Sustainability*, *11*(10), 1-14. doi:10.3390/su11102947

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Baber, H., & Rao, D. T. (2021). The price of the lockdown - The effects of social distancing on the Indian economy and business during the COVID-19 pandemic. *Economic Horizons*, *23*(1), 85-99. Published online 23 April 2021. doi:10.5937/ekonhor2101085B

Borkakati, S., & Singh, K. G. (2021). Fiscal responsibility law and subnational finance in India - An analysis of Assam's fiscal scenario. *Economic Horizons*, *23*(1), 71-84. Published online 23 April 2021. doi:10.5937/ekonhor2101071B

Boskovic, A. (2021). Employee autonomy and engagement in the digital age: The moderating role of remote working. *Economic Horizons*, *23*(3), 241-257. Published online 6 December 2021. doi:10.5937/ekonhor2103241B

Djordjevic, B., Milanovic, S., & Stankovic J. (2021). The influence of communication satisfaction on job satisfaction - the case of employees in the Republic of Serbia. *Economic Horizons*, *23*(2), 173-187. Published online 2 August 2021. doi:10.5937/ekonhor2102173D

Emudainohwo, O. B. (2021). Determinants of earnings management: The study of Nigerian nonfinancial companies. *Economic Horizons*, *23*(2), 139-155. Published online 2 August 2021. doi:10.5937/ekonhor2102139E

Hoang, L. K., Cao, B. T., Le, K. M., & Nguyen, D. T. T. (2021). Taxation and economic growth: A regression analysis based on a new classification. *Economic Horizons*, *23*(3), 225-240. Published online 6 December 2021. doi:10.5937/ekonhor2103225H

Kovacevic, R. (2021). Serbia's foreign exchange reserve adequacy and the factors influencing their accumulation. *Economic Horizons*, *23*(1), 33-53. Published online 23 April 2021. doi:10.5937/ekonhor2101033K

Lekovic, V. (2021). Editorial. *Economic Horizons*, *23*(1), 1-2. Published online 23 April 2021.

Leković, V. (2021). Editorial. *Economic Horizons*, *23*(2), 105-106. Published online 2 August 2021.

Leković, V. (2021). Acknowledgements to reviewers. *Economic Horizons*, *23*(2), 203-204. Published online 2 August 2021.

Leković, V. (2021). Editorial. *Economic Horizons*, *23*(3), 205-206. Published online 6 December 2021.

Leković, V. (2021). The list of authors and titles. *Economic Horizons*, *23*(3), 295-296. Published online 6 December 2021.

Longe, A. E., Soyemi, C. O., Agbanuji, D. A., Omitogun, O., & Adekomi, I. J. (2021). Oil price asymmetry, energy use and economic growth transition in Nigeria. *Economic Horizons*, *23*(2), 189-202. Published online 2 August 2021. doi:10.5937/ekonhor2102189L

Nguyen, A. T., & Thanh, T. T. M. (2021). Impacts of trade facilitation performance on trade flows of ASEAN. *Economic Horizons*, *23*(3), 275-288. Published online 6 December 2021. doi:10.5937/ekonhor2103275N

Obradovic, V., Milasinovic, M., & Bogicevic, J. (2021). Segment disclosures in the financial statements of stock companies in the Republic of Serbia and the Republic of Croatia. *Economic Horizons*, *23*(1), 55-70. Published online 23 April 2021. doi:10.5937/ekonhor2101055O

Osazevbaru, H. O. (2021). Interest rate and exchange rate volatility and the performance of the Nigerian informal sector: Evidence from small and medium-sized enterprises. *Economic Horizons*, *23*(1), 19-32. Published online 23 April 2021. doi:10.5937/ekonhor2101019O

Ofogbe, N. S., Nnamani, C., Anisiuba, C. A., & Ezuwore-Obodoekwe, C. N. (2021). Corporate social responsibility and cost of capital of listed companies in Nigeria stock exchange: The relationship. *Economic Horizons*, *23*(3), 289-305. Published online 6 December 2021. doi:10.5937/ekonhor2103289O

Pavón Cuéllar, L. I. (2021). Financial inclusion as a pillar of sustainable growth: International experience. *Ekonomski horizonti*, *23*(2), 107-121. Published online 2 August 2021. doi:10.5937/ekonhor2102107P

Pietruszka-Ortyl, A. (2021). Culture of cooperation among knowledge workers: A study of the IT sector in Poland. *Economic Horizons*, *23*(2), 123-137. Published online 2 August 2021. doi:10.5937/ekonhor2102123P

Randjelovic, S., & Vukanovic, S. (2021) Fiscal decentralization and local public investment policy in the Republic of Serbia. *Economic Horizons*, *23*(3), 207-224. Published online 6 December 2021. doi:10.5937/ekonhor2103207R

Rita, M. R., Nugrahanti, Y. W., & Kristanto, A. B. (2021). Peer-to-peer lending, financial Bootstrapping, and government support: The role of innovation mediation on MSME performance. *Economic Horizons*, *23*(3), 259-274. Published online 6 December 2021. doi:10.5937/ekonhor2103259R

Savovic, S., Zlatanovic, D., & Nikolic, J. (2021). Technology acquisitions as a supporting tool for improving companies' innovative potential. *Economic Horizons*, *23*(1), 3-18. Published online 23 April 2021. doi:10.5937/ekonhor2101003S

Spasic, D., Abouagla, M. A., & Sekerez, V. (2021). Are IFRS adoptable for a developing country with a specific business culture? Attitudes of Sudanese accountants. *Economic Horizons*, *23*(2), 157-172. Published online 2 August 2021. doi:10.5937/ekonhor2102157S

Stanisic, N., & Marinkovic, V. (2021). The subject index. *Economic Horizons*, *23*(3), 293-294. Published online 6 December 2021.

Zlatanovic, D. (2021). VI International Scientific Conference: Contemporary Issues in Economics, Business and Management - EBM 2020. December 14, 2020, Kragujevac, The Republic of Serbia. *Economic Horizons*, *23*(1), 101-104. Published online 23 April 2021.

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