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Aye, Goodness C.; Odhiambo, Nicholas M.

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*Corresponding author: Goodness C. Aye, Department of Economics, University of South Africa, Pretoria, 0002 South Africa E-mail: goodness.aye@gmail.com

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DEVELOPMENT ECONOMICS | RESEARCH ARTICLE

Dynamic effect of fiscal policy on wealth inequality: Evidence from middle-income countries

Goodness C. Aye¹* and Nicholas M. Odhiambo¹

Abstract: The study examined the dynamic effect of fiscal policy on wealth inequality in middle-income countries using panel data from 2010 to 2018 and the system Generalized Method of Moments (GMM) method. Two measures of fiscal policy were considered, namely government expenses and taxes on income, profits and capital gains. GDP per capita and adult population were used as control variables. The findings of this study show that while taxes on income, profits and capital gains have a significant negative effect on wealth inequality, government expenses have no effect whatsoever on wealth inequality.

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1. Introduction

Fiscal policy is a pertinent tool in regulating a nation's economy over varying stages of the business cycle. The policy is achieved by government using revenue generated from tax and government expenditure to stabilize the economy. It is closely related but not similar to monetary policy which is used to influence a nation's money supply. Kramer (2019), concluded that variations in the level and nature of taxation and government expenditures can influence, among other macroeconomic variables, the aggregate demand and the level of economic activity, saving and investment, income distribution and allocation of resources.

The need for fiscal policy is hinged on government's goals and objectives and its effects may vary along diverse strata of individuals in the economy depending on the direction of its use. For instance, when the authorities decide to lower taxes in the economy, the middle class will benefit more than any other class of individuals, since they constitute the largest economic group in any society. Similarly, if taxes are raised by the government during declining economic activities, then this group (middle class) will equally have to pay more taxes than the rest of the groups.

Whereas income and wealth are correlated, with similar qualitatively distributions, wealth, however, tends to be more concentrated than income (Benhabib et al., 2011; Wolff, 2006). Wealth is defined as the difference in value between the assets and liabilities of a person or nation; in other words, it is the net worth of the individuals of a nation. The term wealth is usually confused with riches; however, there exists an obvious distinction between the two. While wealth consists of those items of economic value that an individual owns, riches is an inflow of items of economic value. A study by the World Institute for Development Economics Research at United Nations University reports that the richest 1% of adults alone owned 40% of global assets in





the year 2000, and that the richest 10% of adults accounted for 85% of the world total. The bottom half of the world adult population owned 1% of global wealth (Davies et al., 2008). Further, Wolff (2006) and Benhabib et al. (2011) revealed that about 33% of the total of individual households in the United States is owed by just the top 1% of the richest households and the top end of the wealth distribution obeys a Pareto law, the standard statistical model for heavy upper tails.

Since March 1987, Forbes magazine has annually documented the ranking of the net worth of the world's wealthiest billionaires, also known as the ultra-high-net worth individuals. The total net worth (wealth) of each person is estimated based on their documented assets less debt. The net worth of the world's billionaires has been increasing over the years, perhaps with the exception of the 2019 figure (\$8.7 trillion) reported to be the worst fall since 2009 at the height of the global financial crisis (Forbes, 2019). It increased from less than \$1 trillion in 2000 to over \$7 trillion in 2015. By 2018, the figure increased to \$9.1 trillion relative to \$7.67 trillion in 2017 with an average net worth of \$4.1 billion (Dolan & Kroll, 2015; Kroll, 2017, 2018). This represents about 18.64% increase within a one-year span. In 2017, 500 of the richest people in the world became richer by \$1 trillion (Erickson, 2017; Metcalf & Witzig, 2017) and the top eight billionaires own as much combined wealth as "the poorest half of the human race" (Mullany, 2017; Ratcliff, 2017). This implies that the rich are getting richer while the poor are getting poorer, thus raising concerns about the distribution of wealth and hence wealth inequality.

Fiscal policies have both direct and indirect effects on wealth inequality amongst members of an economy. According to Odusola (2006) such direct effects are felt through the incessant taxations, well-targeted transfers and the quality of public expenditure, and indirectly, by impacting other factors that influence income and wealth inequality. The theoretical basis for this research is anchored on the theory of redistribution. This theory is aimed at increasing economic stability and opportunity for the less wealthy members of society and increasing government spending on public services. It involves change of ownership of wealth from a set of targeted individuals to others in the society by virtue of social processes such as taxation, charity, welfare, public services, land reform, monetary policies, confiscation, etc. Redistribution encompasses the entirety of the economy rather than individual targets. Theoretically, fiscal policy may impact income and/or wealth distribution through the channels of taxes, public expenditure, and transfers (Salotti & Trecroci, 2018). Fiscal policy improves equity plan in two ways (Malla & Pathranarakul, 2022): first, direct taxes are considered progressive because they boost income and wealth distribution and reduce income inequality (De Freitas, 2012). Therefore, taxes levied on incomes, capital, wealth, inheritance, and private properties distribute resources from the rich and super-rich to the poor and marginalized segments of the society (Odusola, 2017). Those in the high income group would have to pay large substantial proportion of their income as tax. However, taxes levied on the consumption of goods and services which are indirect taxes are regressive as both the rich and the poor pay the same amount on goods and services as tax. Second, the impact on redistributive outcomes tends to be far-reaching if the revenues raised from taxes are used to finance social spending to support the poor, vulnerable, and marginalized groups in the society.

The World Bank defines middle-income countries (MICs) as lower-middle-income economies with a GNI (Gross National Income) per capita between \$1,006 and \$3,955 and upper-middle-income economies with a GNI per capita between \$3,956 and \$12,235 (Investopedia, 2018). Middle-income countries (MICs) are essential for continued global economic growth and stability. According to the World Bank, sustainable growth and development in MICs have positive effects to the entire world's economy. Examples are poverty reduction, international financial stability and global cross-border issues including climate change, sustainable energy development, food and water security, and international trade. MICs have a combined population of 5 billion, or over 70% of the world's 7 billion people, and include 73% of the world's poor. Representing about one-third of global GDP, MICs are a major engine of global economic growth (Investopedia, 2018; World Bank, 2019).

Several authors (example Astarita et al., 2018; Aye et al., 2019; Barreix et al., 2007; Benhabib et al., 2011; Berisha & Meszaros, 2020; Claus et al., 2012; Enami et al., 2019; Furman & Holtz-Eakin, 2020; Hanna, 2019; Peñalosa & Orgiazzi, 2013; Thompson & Smeeding, 2013; Wolff & Zacharias, 2007) have worked on fiscal policy and various dimensions of inequality, as indicated in the literature review section. However, none of the studies showed examined the effect of fiscal policy on wealth inequality in middle-income countries despite the enormous significance of middle-income countries in the global economy. Further, middle-income countries, and especially those in Africa, are mainly emerging economies characterized by unique policy inconsistencies considered to be impacting on the wealth distribution of their economies. Therefore, this study, unlike others, seeks to bring into the limelight the effects of fiscal policy on wealth inequality in middle-income countries.

The remainder of the paper is organized as follows: the literature review is presented in section 2. Data and empirical methods are discussed in sections 3 and 4, respectively. The results are presented in section 5, while section 6 concludes.

2. Literature review

This section presents empirical studies connecting policy and inequality. Studies on income inequality are presented first followed by those on wealth inequality. Regarding income inequality, Barreix et al. (2007) assessed the impact of fiscal policies on equity in the Andean countries. The study examined the effect of the main taxes and social public expenditures on income distribution from early 1990 to early 2000 using a homogeneous methodology. Findings from the study revealed that the total effects of taxes are slightly regressive as a result of weak personal income tax collection. The accumulated public social expenditure has a much higher redistributive impact; it improves the Gini coefficient by 5 percentage points (Organization for Economic Cooperation and Development—OECD). Considering taxes and social spending on a joint basis, the fiscal policy had a positive but insufficient redistributive effect.

Aye et al. (2019) examined the effect of both monetary and fiscal policy on inequality conditions on the basis of low and high uncertainty. The study used U.S. quarterly time-series data on various measures of income, labour earnings, consumption and total expenditure inequality as well as economic uncertainty. The data were analyzed using impulse responses from the local projection methods that helped recover a smoothed average of the underlying impulse response functions. The results showed that both contractionary monetary and fiscal policies increase inequality, and in the presence of relatively higher levels of uncertainty, the effectiveness of both policies is weakened.

Claus et al. (2012) assessed the influence of fiscal policies on income disparity in Asia. Using panel data for 150 countries from 1970 to 2009, the results showed that social protection and government spending on housing increase income inequality.

Wolff and Zacharias (2007) assessed impacts of U.S. government spending and taxes on citizens for the period 1989 and 2000. The study integrated the net values of government expenditures into a wealth-adjusted measure of income. The study showed a significant decrease in the total income inequality proportionate to net government expenditures. This shows that government expenditures reduce wealth inequality more significantly than taxations.

Thompson and Smeeding (2013) investigated patterns in inequality and poverty with the aid of both market and after-tax and transfer income during and after the Great Recession. Using market income (or wages), inequality and poverty rose sharply between 2008 and 2010. The primary exception is the measure for the top of the distribution, where tax and transfer policies decreased inequality and poverty, however such policies varied in proportions across the whole population. Poverty reduced significantly amongst the elderly, decreased slightly among children, and rose sharply among the working-age. Though inequality was noticed to have declined across the total population, however, the working-age population of households experienced no changes in their inequality status. This again suggests that government expenditure is more effective than taxes in reducing inequality.

Odedokun and Round (2001) investigated in the context of African countries, the factors influencing income distribution and inequality, the effect of inequality on economic growth, and the mechanisms with which inequality impacts growth. Thirty-five economies were sampled in this research at various intervals in recent decades. Factors identified as having affected income distribution include the level of economic development attained, regional factors, size of the government budget and the amount devoted to subsidies and transfers, phase of economic cycle, share of agricultural sector in the total labour force, as well as human and land resources endowment. Some evidence that high inequality reduces growth is also found. The study found factors like reduction in secondary and tertiary education investment, reduction in political stability, and increase in fertility rate as means through which inequality affect growth. There is, however, no evidence that it affects private saving and investment or the size of government expenditure and taxation.

Cubero and Hollar (2010) worked on equity and fiscal policy: the income distribution effects of taxation and social spending in Central America. Their study combined data from previous tax and public expenditure studies for the countries in Central America and findings showed that the distributional effects of taxes are regressive but small. In contrast, the redistributive impact of social spending is large and progressive, leading to a progressive net redistributive effect in all countries of the region. The study also showed that raising tax revenues and devoting the proceeds to social spending would unambiguously improve the income of the poorest households.

Peñalosa and Orgiazzi (2013) used data from the Luxembourg Income Study and examined factors influencing variations amongst household income in the final decades of the twentieth century. A total of six developed economies were sampled in study and the result showed that the distribution of household earnings is the most influential factor as recently observed. In most instances, the effect on aggregate household income inequality is reduced significantly with higher disparity in household earnings. The recommendation from a study conducted by Silva et al. (2013) to determine extent of large fiscal multipliers in Europe from 1998 to 2008 suggests that, in times of recession there is a positive public spending multiplier, while in high inflation periods, the multiplier becomes smaller, and eventually negative. During recessions, tax multiplier exhibit greater effect, while multipliers tend to be negatively impacted in size at consolidation phases.

Astarita et al. (2018) analyzed the effect of fiscal policies on the allocation of income among economies in the EU. The study focused holistically on the direct impact of taxation and benefits on disposable income as well as sum total impact of fiscal policies on income disparities through the feedback mechanism derived from behavioural and macroeconomic data. The summary of the major findings of this study showed that the redistribution policy of government through the instruments of taxation and benefit system directly impacts income inequality among member economies in the EU by one-third. The study emphasized caution on the deployment of fiscal policy tools to avert indirect adverse impacts on income inequality arising from the use of unequal, unstable as well as deficient policies in EU.

Muinelo-Gallo and Roca-Sagalés (2011) examined the influence of various fiscal policy tools on economic growth and income inequality. Their sample includes both upper-middle and high-income economies for a time span of 1972–2006. The study showed that increased public investment can lead to a decline in inequality but without a resultant adverse effect on output, whereas huge current expenditures and direct taxes can decrease both economic growth and inequality. Again, Muinelo-Gallo and Roca-Sagalés (2010) presented a closely related view for high-income OECD nations under the 1972–2006 time spans. They showed that the GDP growth is negatively affected by distributive expenditures and direct taxes, just as net income inequality is equally

affected adversely by the two. Therefore, reducing non-distributive expenditures is deemed the most relevant and concurrent tool of fiscal policy that enhances the GDP growth reduction in income inequality.

Enami et al. (2019) assessed the impact and effectiveness of taxes and transfers on inequality in Iran and found that the fiscal system reduces the poverty-head-count-ratio by 10.5 percentage points and inequality by 0.0854 Gini points. They also showed that transfers are generally more effective in reducing inequality than taxes while taxes are especially effective in raising revenue without causing poverty to rise.

Regarding wealth inequality, Hanna (2019) examined the connection between financial sector liberalization and wealth inequality, focusing on the role of this sector on social disparities in the US. The study opined that issues of financial deregulation, innovation, and broader liberalization measures in the US economy are largely responsible for wealth inequality amongst households in the US economy right from the 1980s. The author believes that this position has triggered disproportionate returns through deliberate financial policies that allotted unequal treatment to certain categories of citizens on their basis of gender and other demographic features like population and age brackets.

Berisha and Meszaros (2020) analysed the macroeconomic determinants of wealth inequality in the United States focusing on the effects of income growth, inflation, and interest rates over the periods 1929–2009 and 1962–2009. The results from GVAR show that increases in inflation and income growth contribute positively to net wealth shares of adults in the bottom 50% and middle 40% of the wealth distribution, leading to decreases in overall wealth inequality. In addition, increases in interest rates reduce wealth inequality, although this result is not robust to all the inequality measures considered. A simulation study by Benhabib et al. (2011) examined the distribution of wealth in an overlapping generation economy with finitely lived agents. The study also analyzed the dependence of the distribution of wealth, of wealth inequality in particular, on various U.S. fiscal policy instruments like capital income taxes and estate taxes and found that these instruments significantly reduce wealth inequality.

The aforementioned and several other studies found in the literature have addressed issues of economic inequality as it relates to impacts of fiscal policies around the globe. Many of such studies, however, dwelt mostly on the effects of such policies (fiscal policies) on income inequality. Some combine effects of both monetary and fiscal policies on income inequality generally, with few instances on wealth distribution. Others focus rather on the relationship between wealth inequality and monetary policies, all covering diverse regions and countries of the world. None of these studies, however, could point specifically to the impacts of fiscal policies on wealth inequality with specific evidence from middle-income countries. Considering the vital roles played by middle-income countries in the global economy as well as their vulnerability to wealth inequality triggered by fiscal policy inconsistencies culminating into the seemingly widening wealth gaps particularly in Africa, there is, therefore, a great need for a study that focuses on the effects of fiscal policies on wealth inequality with specific evidence for global efforts aimed at promoting economic equity amongst global citizens, this therefore forms the basis of this study.

3. Data

The study used panel data on 64 middle-income countries from 2010 to 2018. The beginning of the sample period is determined by the availability of data on wealth inequality while the ending period is determined by the availability of the fiscal policy variables. The middle-income countries included are those that have the relevant data for this study. Data on wealth Gini, which is the measure of inequality in this study were sourced from Shorrocks et al. (2014). Shorrocks et al. (2014) estimated the wealth gini for each country using data from household balance sheet (HBS), regression estimates, and/or Forbes' rich lists. Their raw data consist of the distribution of

Table 1. Summary statistics of the variables used										
Variables	Obs	Mean	Std. dev.	Skewness	Kurtosis	Jarque- Bera	Prob.			
Wealth Gini	564	73.530	8.621	-0.005	3.903	19.145	0.000			
Taxes on income, profits and capital gains	527	33.597	15.600	0.574	4.035	52.472	0.000			
Government expenses	523	23.539	8.033	0.077	2.364	9.338	0.009			
GDP per capita	576	5402.753	3711.230	0.870	3.098	72.885	0.000			
Adult population (thousands)	567	33,258.11	103,236.5	6.653	49.711	55,731.380	0.000			

individual net worth, that is, the marketable value of financial and non-financial assets (mainly housing and land mainly) less debts. The data are updated and published annually by the Credit Suisse Research Institute.¹ Data on fiscal policy (government expenses as a percentage of GDP and taxes on income, profits and capital gains as a percentage of total taxes) were obtained from the World Bank's World Development Indicators. Table 1 presents the summary statistics for the variables used. On the average, the middle-income countries have a wealth Gini of 73.53, which is high given the standard scale of 0 to 100 with zero implying perfect equality and 100 implying perfect inequality. In terms of the fiscal policy, on average, about 23.5% of GDP goes to government expenses while it realizes 33.6% of its total taxes from taxes on income, profits and capital gains. The Gross Domestic Product per capita in constant 2010 US\$ (real GDP) and adult population (number of population 20 years and above) were included as control variables and sourced from World Bank and United Nations Population Division: World Population Prospects, respectively. All the variables with the exception of wealth gini are positively skewed while all the variables except government expenses are leptokurtic while government expenses is platykurtic. The Jarque-Bera test rejects the null of normality for all the variables. However, given the panel model in this study, system GMM, involving large sample size, the Central Limit Theorem can be invoked for the asymptotic normality of coefficients even if the residuals are non-normal. Hence, for GMM dynamic panel estimators, this pretest may not be necessary (see, Matousek et al., 2017).

4. Empirical methods

The system GMM model is used to test the effect of fiscal policy on wealth inequality in middleincome countries. We use the system GMM in this study as it has the advantage of sweeping out the unobservable country heterogeneities that may affect wealth inequality. Moreover, the system GMM approach like other GMM methods accounts for the potential sources of endogeneity between the explanatory variables by controlling (i) the unobserved heterogeneity with timeinvariant omitted variables and (ii) simultaneity in all regressors by employing instrumented explanatory variables (Boateng et al., 2018).

Following Blundell and Bond (1998), the regression equation is specified as:

$$Gini_{i,t} = \alpha_0 + \alpha_1 Gini_{i,t-1} + \alpha_2 FPOL_{i,t} + \alpha_3 \mathbf{X}_{i,t} + \eta_i + u_{i,t}$$
(1)

where *i* and *t* index country and time period (*i* = 1,...,I and *t* = 1,...,T), respectively; Gini measures inequality; *FPOL* represents fiscal policy instruments which are government expenses and taxes from income, profits and capital gains; **X** is a vector of control variables-GDP per capita and adult population; η is country fixed effect; *u* is an error term; and $\alpha_j (j = 0, ..., 3)$ are the coefficients to be estimated.

The lagged wealth inequality is included in the regression equation. Controlling for the lagged wealth inequality is important since aggregate variables like inequality are usually time persistent and hence serially correlated over time. This necessitates the estimation of a linear dynamic panel data model. The fact that the unobserved country heterogeneities (η) may be correlated with the

other independent variables in the right-hand side (RHS) of Eq. (1), creates an omitted variable bias problem and as such OLS estimates will be biased. Contrary to the static model, the fixed effects method is not able to remove the inconsistency induced by the country heterogeneities in the dynamic model of Eq. (1), because $u_{i,t}$ will be correlated with the future value of the regressors as a result of the presence of the lagged dependent variable in the RHS of the equation. That is:

$$\mathsf{E}\Big[\Big(\mathsf{Gini}_{i,t-1} - \overline{\mathsf{Gini}_{i,t-1}}\Big)\big((u_{i,t} - \overline{u_{i,t}})\Big] \neq 0$$

where $\overline{Gini_{i,t-1}}$ and $\overline{u_{i,t}}$ are the within group mean values of $Gini_{i,t-1}$ and $u_{i,t}$, respectively. To deal with this sort of country heterogeneities, Arellano and Bond (1991), developed a difference GMM which can be illustrated by taking the first difference of Eq. (1):

$$\Delta Gini_{i,t} = \alpha_1 \Delta Gini_{i,t-1} + \alpha_2 \Delta FPOL_{i,t} + \alpha_3 \Delta \mathbf{X}_{i,t} + \Delta \mathbf{U}_{i,t}$$
⁽²⁾

where Δ is the first difference operator. Δ Ineqi,t – 1 is endogenous because

$$E\big(\Delta Gini_{i,t-1}, \Delta u_{i,t}\big) = E\big[\big(Gini_{i,t-1} - Gini_{i,t-2}\big)\big(u_{i,t} - u_{i,t-1}\big)\big] = -E\big(Gini_{i,t-1}u_{i,t-1}\big) \neq 0$$

Assume that (1) error terms $(u_{i,t})$ are serially uncorrelated, i.e., $Cov(u_{i,t}, u_{i,t-s}) = 0$ if $s \neq 0$; (2) initial condition, $E(Gini_{i,1}, u_{i,t}) = 0$ for $t \geq 2$; and (3) $E(\eta_i u_{i,t}) = 0$ (Arellano and Bond, 1991; Ha et al., 2016). Under these three assumptions, it is possible to derive the moment conditions for the difference GMM method as follows:

$$E(Gini_{i,t-s}, \Delta u_{i,t}) = 0, \text{ when } t = 3, \dots, T \text{ and } s \ge 2.$$
(3)

Therefore, all $Gini_{i,t-s}$ for $s \ge 2$ are valid instruments for $\Delta Gini_{i,t-1}$ in Eq. (2). Hence, the difference GMM exploits the moment condition in Eq. (3) to estimate Eq. (2).

When the time period is short (that is, T is small) or the dependent variable is highly time persisting (that is, $|\alpha_1|$ is close to 1), Blundell and Bond (1998) demonstrated that the standard difference GMM suffers from the problem of weak instrumental variables. They label the moment conditions, such as Eq. (3), as moment conditions in differences. Therefore, they exploited another set of moment conditions in addition to these moment conditions in differences, called moment conditions in levels. By adding additional moment restrictions, the system GMM tends to restrict the lagged first differences that are used as instruments in the levels equations. This helps to correct any potential bias that would emerge using the standard GMM estimator (Arellano & Bover, 1995; Blundell & Bond, 1998).

Under the same assumptions stated above, Blundell and Bond (1998) derive the following moment conditions for Eq. (1) as:

$$E[\Delta Gini_{i,t-1}(\eta_i + u_{i,t})] = 0$$
, for t = 2, 3, ..., T (4)

That is, $\Delta Gini_{i,t-1}$ is used to instrument $Gini_{i,t-1}$ in Eq. (1) for $t \ge 2$.

This method is called the system GMM by Blundell and Bond (1998). It estimates Equations (1)-(2) simultaneously by exploiting the moment conditions (3)-(4). Blundell and Bond (1998) demonstrate that the system GMM estimators are very robust, even in a finite sample.

5. Results

Table 2 represents System GMM estimates of the effects of fiscal policy on wealth inequality in middle-income countries from four different models. The results are in general robust across the

Table 2. System GMM estimates of the effects of fiscal policy on wealth inequality							
	One-step system GMM	One-step system GMM	Two-step system GMM	Two-step system GMM			
Variables	(Model 1)	(Model 2)	(Model 3)	(Model 4)			
Lagged Wealth Gini	0.517***	0.510***	0.507***	0.506***			
	(0.000)	(0.000)	(0.000)	(0.000)			
Taxes on income, profits and capital gains	-0.029*	-0.030*	-0.032***	-0.032***			
	(0.070)	(0.070)	(0.005)	(0.005)			
Government expenses		0.010		0.004			
		(0.533)		(0.817)			
GDP per capita	0.022**	0.020**	0.020**	0.019*			
	(0.024)	(0.050)	(0.017)	(0.058)			
Adult population	0.010**	0.010**	0.011***	0.011**			
	(0.014)	(0.013)	(0.008)	(0.011)			
Country FE	yes	yes	yes	yes			
Year FE	yes	yes	yes	yes			
F	123,985	138,941	138,230	34.85			
F (P value)	0	0	0	0			
Arellano–Bond test for first-order serial autocorrelation (p-value)	0.000	0.000	0.000	0.000			
Arellano–Bond test for second-order serial autocorrelation	0.235	0.224	0.237	0.229			
Hansen over- identification test	0.419	0.323	0.419	0.323			
Difference-in- Hansen tests of exogeneity of instrument	0.561	0.687	0.561	0.687			

Note: Robust p-values in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Adult population is number of population 20 years and above.

models both in terms of the size and direction of the effect of the included variables on wealth inequality. Each of the models satisfied all the diagnostic tests. For instance, the Arellano-Bond test for the first-order serial correlation confirms the need to use the system GMM model as the null hypothesis of no first-order serial correlation is statistically rejected at a 1%. Further, the result of the Arellano-Bond test for the second-order serial correlation is insignificant as expected. P-value of the Hansen over-identification restrictions test suggests the validity of the instruments. Moreover, the difference-in-Hansen test of exogeneity of the instruments could not be rejected as evidenced in the p-values being greater than 0.1. The lagged wealth Gini coefficients (previous wealth inequality situations) are statistically significant in all models, further justifying the use of the system GMM model as it shows that the dependent variable, Wealth Gini coefficient is persistent and serially correlated. Therefore, omitting the lagged dependent variable from the model will result in biased fixed effects estimates.

Two fiscal policy instruments were considered in the analysis. These are government expenses and taxes on income, profits and capital gains. Taxes on income, profits and capital gains have

a significant negative effect on wealth inequality, implying that with increased taxes on income, profits and capital gains, wealth inequality will consequently reduce amongst citizens of the middle-income countries. Usually, taxes on income, profits and capital gains are deducted on the basis of one's financial capacity (pay as you earn), wealthier people have higher incomes, profits and capital gains relative to the less privileged in the society. If the government places high taxes on the incomes and assets of the rich, it will serve as a constant check on the amount of wealth acquired by individuals in the society thereby curbing wealth disparity amongst citizens of the countries. Income tax implies redistribution of income, and income redistribution financed through taxes on income also reduces the incentive to accumulate wealth (Rebelo, 1991). Also, higher returns to capital represent greater wealth inequality. Therefore, taxes on capital returns will reduce incentive for wealth accumulation thereby reduce wealth inequality (Garcia-penalosa & Turnovsky, 2007). While government expenses are consistently positive, the effect is insignificant.

The table shows that GDP per capita is positive and significantly related to wealth inequality; this implies that increment in GDP per capita leads to increases in wealth inequality. This is consistent with The Guardian (2009), who noted that the higher the GDP per capita of a country, the higher the wealth inequality situation of the society; since a country with high GDP per capita can have in reality a wide disparity in the income and wealth status amongst individual members of the society. This is because GDP per capita does not measure personal income upon which wealth creation is based; it, therefore, allows wealth inequality to perpetuate unnoticed by relevant regulatory authorities.

Similarly, adult population has a significantly positive effect on wealth inequality; this indicates that increases in adult population will increase wealth inequality. Time is a very essential factor in wealth accumulation; usually, it takes a long time for capital investments to start yielding returns and another long period of time to accumulate both gains from capital and income streams into wealth. This certainly explains why most rich/wealthy people are concentrated within the adult population of the society. Therefore, with high adult population, there is an increased tendency for wealth disparity between the adult population and the young population of the economy since age plays a dominant role in wealth accumulation. Ihle and Siebert-Meyerhoff (2017) provided tentative evidence that ageing of the German population is associated with a growing dispersion of wealth at the upper tail of the distribution.

6. Conclusion

Wealth inequality amongst residents of all societies dates back to time immemorial. Governments all over the world have introduced diverse fiscal policies aimed at reducing this disparity, with the most prominent of such policies being taxation and government expenditures. With the enormous significance of middle-income countries in the global economy, this study was conducted based on facts to ascertain influences of fiscal policies on wealth inequality in these countries. Using four different system GMM specifications, the study found GDP per capita, adult population and taxes on income, profits and capital gains significantly affect wealth inequality with the exception of government expenses. The study concludes based on findings that in order to reduce wealth inequality amongst middle-income countries using fiscal policy, governments in such countries should concentrate maximally on income taxation, profits as well as capital gains. This suggests that caution should be taken in proposing fiscal policies, most especially the abolishment of capital taxation or its reduction, since such would benefit mainly wealthy households and individuals. Further, the effects of any tax increases would benefit the less wealthy if the tax revenues are redistributed to this class of persons. Based on the foregoing, the importance of fiscal policy in regulating wealth inequality cannot be relegated to the background.

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Author details Goodness C. Aye¹ E-mail: goodness.aye@gmail.com ORCID ID: http://orcid.org/0000-0001-8696-7826 Nicholas M. Odhiambo¹

¹ Department of Economics, University of South Africa, Pretoria, South Africa.

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Note

1. More details about the wealth data can be obtained from www.credit-suisse.com.

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