

# *Will the decline of democracy exacerbate income inequality?*

*A panel data research about the role of democracy, corruption, political power, and national culture on the relationship between Public Sector Size and income inequality.*

*Master Thesis*

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## Abstract

Since 2014 the global score of democracy has been in a rapid decline. Although democracy is mostly praised for its equalizing effect on income a scientific consensus has not yet been reached. This paper maps the relationship between democracy and income inequality in detail to explain this controversy and to answer what possible effect a decline in democracy has on income inequality. The paper of Lee (2005) has been used to further develop two implicitly mentioned theoretical mechanisms that could explain the indirect equalizing effect of democracy via government size. A democracy might have an indirect equalizing effect because of (i) a low level of corruption or because of (ii) the shift of political power to the majority of people who have redistribution demands. These demands can subsequently only be effectively executed by experienced democracies. However, there is only weak evidence for both theoretical mechanisms. After correcting for an inaccurate assumption in theoretical mechanism two, the cultural variable Individualism has been added to the analysis. Concluding that a shift of political power, due to democracy, can only cause an indirect equaling effect if a country is willing to conduct additional distribution, which is captured by a low score of Individualism.

## **Acknowledgements**

After five months of hard work, I am grateful that I can write this thank note to end my master thesis. Just like life itself, the process of writing a master thesis comes with ups and downs. A theoretical mechanism might work out in theory but if the data tells a different story you should have the curiosity and perseverance to try and find out why this is the case. I would especially like to thank Frank Bohn, my supervisor, for all his advice and especially his trust in me by giving me the space and confidence to develop my own academic story. He was always available to give his opinion which resulted in new ideas and insights. It truly was a pleasure to work with him. In addition, I would like to thank my parents for all their love and support. They gave me the opportunity to study and have always believed in me.

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## 1. Introduction

Recent events in Hungary, Hong Kong and Myanmar serve as leading examples for the rapid decline in democracy since 2014 (EIU, 2019). The global score of democracy, annually reported by the Economist Intelligence Unit, has hit an all-time low in 2020 (EIU, 2020). Hence, democracy is in retreat at a global level as depicted in figure 1A of the appendix. Beyond the moral implications, there could also be relevant social-economic consequences caused by this global decline in democracy. The democratic principle of “one man, one vote” is egalitarian by itself but democracy is also praised by its equalizing effect on income (Weede, 1989; Reuveny & Li, 2003). Democracy gives a voice to everybody and thereby shifting the political power from the wealthy and influential elites towards the majority of people. The majority of people include the lower and middle classes who subsequently want more income via redistribution policies, which is now possible due to the shift of political power (Lenski, 1966). Following this line of reasoning a decline of democracy should exacerbate income inequality, hence the political power shifts back to influential elites, which reduce redistribution policies.

However, the relationship between democracy and income inequality is not that clear-cut. Contrary to the findings of Weede (1989) and Reuveny & Li (2003), multiple studies found an insignificant *direct* effect of democracy on income inequality (e.g. Bollen & Jackman, 1985; Deininger & Squire, 1996). It is important to know the exact relationship between democracy and income inequality to determine the possible effect of a decline in democracy on income inequality. Lee (2005) tried to find an answer to these contradictory results by (implicitly) discussing multiple theoretical mechanisms why democracy should have an equalizing effect. In addition, the possible equalizing effect of democracy should be an *indirect* equalizing effect via government size according to Lee (2005). Hence, democracy cannot change distributional outcomes without being mediated by a government’s role in resource allocation and extraction. The theoretical mechanisms that Lee offers are a great starting point to analyze the relationship between democracy and income inequality. Despite implicitly mentioning multiple mechanisms that could explain the indirect equalizing effect of democracy, Lee does not explicitly test these mechanisms, thereby causing a lack of depth.

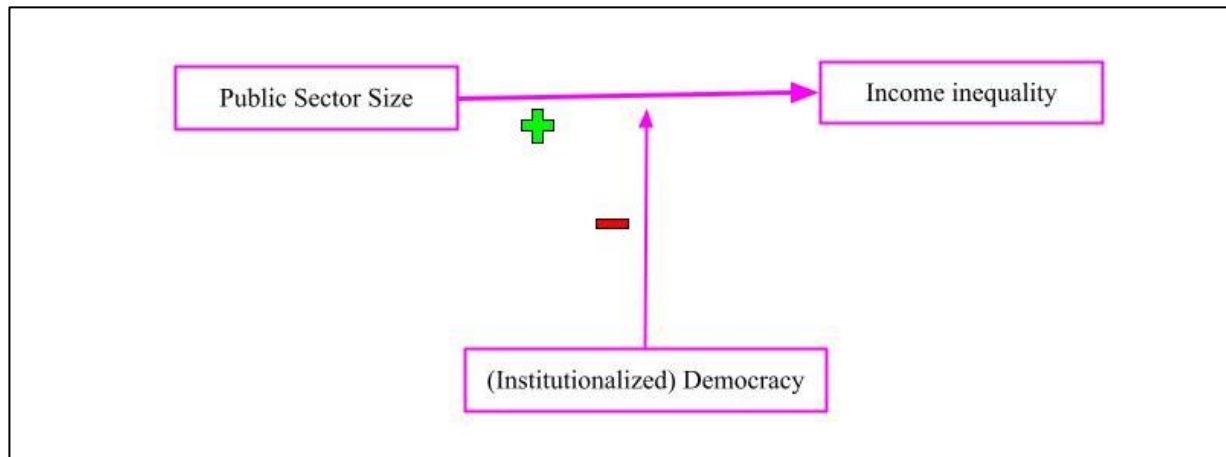
This paper digs deeper into the theoretical explanations that Lee (2005) gives for the indirect equalizing effect for being a democracy and subsequently testing it. This has been done for two reasons. First, if the mechanisms are tested it will possibly strengthen the results of Lee (2005) and insights will be gained about the exact working mechanism regarding democracy and

income inequality. This insight would be needed to answer whether a decline in democracy might exacerbate income inequality. Second, by analyzing the theoretical mechanisms I could examine implicit assumptions that might be inaccurate. In the interest of structure, I will already claim that there is a problematic implicit assumption in Lee's theoretical reasoning. Because of this, a new relevant variable comes into play that influences the relationship between democracy and income inequality. In addition, this new variable also determines if the decline of democracy may have a negative effect on income equality in a country. The whole analysis in this thesis has been split into three levels to make it more manageable and to create a coherent story. The main goal is to map the relationship between democracy and income inequality to determine the consequences of a decline in democracy on income inequality. This is especially important to know due to the trend of rising income inequality in most developed and middle-income countries since 1990. Over two-thirds of the world's population currently lives in areas where inequality has grown (United Nations, 2020). Is the decline of democracy a possible cause for this trend, might it exacerbate income inequality or does it play a lesser role in this story?

To answer these questions I first examine and replicate the main analysis of Lee (2005), which is indicated as "*level 0*" and displayed in figure 1a. According to Lee (2005), democracy does not have a direct effect on income inequality but an indirect effect via government size. A larger government has more means to distribute money but its effect on income inequality is determined by the policy angle of the government. Growth-oriented policies could exacerbate income inequality, while there are also specific equity-enhancing policies with the obvious equalizing effect (Lee, 2005). Autocratic and limited democratic regimes tend to execute relatively more growth-oriented policies, while democratic regimes are more equity-oriented. As an explanation Lee argues that democratic regimes offer alternative political parties that play a key role in channeling the demands of the lower and middle classes via equity-oriented policies, while these alternative political parties are not (or little) present in limited democratic or autocratic regimes. In addition, the equity-oriented policies are also less effective in limited democratic and autocratic regimes making the growth-oriented policy angle relatively more attractive.

Lee's dataset contains more limited democratic and autocratic regimes as democratic regimes, he therefore hypothesizes that Public Sector Size has a positive effect on income inequality and subsequently that democracy weakens this positive effect of Public Sector Size on income inequality. These hypotheses are not rejected in his analysis and this leads to the following figure:

Figure 1a: [Level 0] Main analysis of Lee (2005)

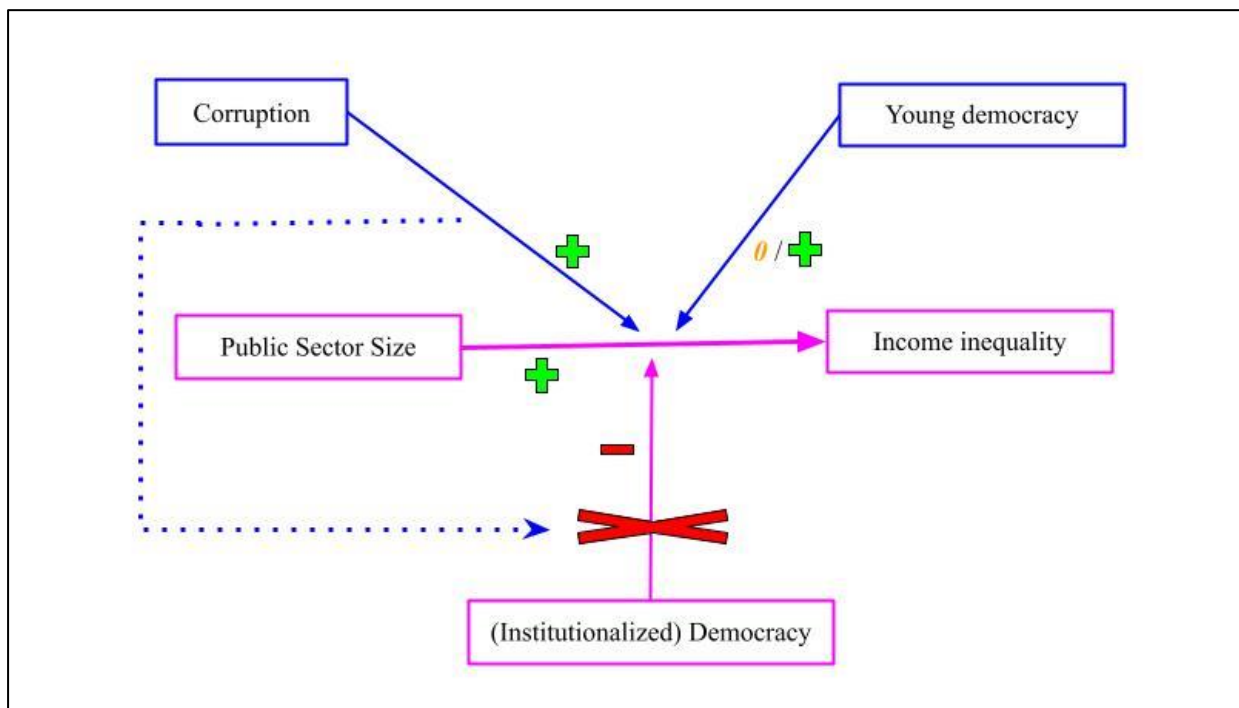


As can be seen in figure 1a, institutionalized democracies have an indirect equalizing effect on income. I continue where Lee (2005) has stopped and now look into more detail why this indirect equalizing effect emerges. The starting point is the distinction that Lee makes between “institutionalized democracies” and “democracies”. He defines democracy as a country with (i) free, fair and competitive elections of executives, (ii) universal and equal suffrage, and (iii) freedom of speech, association and group opposition. The main difference with an institutionalized democracy is that this also includes so-called “accountability groups” who check if executive authorities do not misuse their power and control for corruption.

Quite contradictory, Lee (2005) uses a fully institutionalized democracy variable for institutionalized democracies and an institutionalized democracy variable for democracies. The main difference between fully institutionalized democracies and institutionalized democracies is the degree and effectiveness of accountability groups who control for corruption. Lee finds a significant negative interaction effect for fully institutionalized democracies with Public Sector Size on income inequality but not for institutionalized democracies. Contrary to Lee, I go one step further and try to capture the mechanism why this indirect equalizing effect occurs for fully institutionalized democracies but not for ordinary institutionalized democracies. This step is called “*level 1*” and displayed in figure 1b. There are two possible mechanisms that could explain the equalizing effect of fully institutionalized democracies via Public Sector Size. The first mechanism is based on corruption. Fully institutionalized democracies have well-functioning accountability groups who control for corruption while this has not to be the case in institutionalized democracies. The indirect equalizing effect of fully institutionalized

democracies might emerge because of their low level of corruption<sup>1</sup> and this effect should subsequently disappear after controlling for the level of corruption. The second possible mechanism is all about the shift of political power. Democratization shifts the power from the rich and influential elites to the majority of people. The lower and middle classes are a part of the majority of people and they will demand more distribution policies. These distributional demands will be translated to more distributional policies, which will lower income inequality. However, according to Lee (2005), this translation will only be effectively executed by experienced democracies<sup>2</sup>. Some institutionalized democracies lack the experience to translate distributional demands into concrete policy actions, while fully institutionalized democracies do have this experience. Hence, it takes some time to build a sound institutional structure to become a fully institutionalized democracy. The mechanism of the shift of political power with its conditionality of experience could also explain why Lee finds a significant negative interaction effect for fully institutionalized democracies with Public Sector Size on income inequality but not for institutionalized democracies. Both theoretical mechanisms are displayed in figure 1b, highlighted in blue, combined with the main results of Lee (2005), highlighted in pink.

Figure 1b: [Level 1] Factors causing relationship of Lee (2005)



<sup>1</sup> Corruption leads to more income inequality via a more regressive tax system and by using public money for private gains, which are mostly going to the influential rich elites (Gupta et al., 2002). Ordinary institutionalized democracies could still have high levels of corruption due to less efficient and less present accountability groups, which could also explain their insignificant interaction effect in Lee's analysis.

<sup>2</sup> Either labor movements with their new democratic parties are too inexperienced to translate their distributional wishes into concrete policy actions or the institutional framework of a new democracy is not yet capable to effectively execute redistribution policies.



Lastly, the implicit assumptions of the theoretical models have been checked to see if there are any problematic assumptions. This breakdown goes beyond the initial analysis about the exact mechanisms that could explain the indirect equalizing effect of fully institutionalized democracies and is therefore called “*level 2*” and displayed in figure 1c. Lee (2005) implicitly assumes that the shift of political to the majority of people leads to more effective redistribution policies, which have an equaling effect, if a democracy is experienced enough. An implicit assumption that Lee makes is that the lower and middle classes in every country prefer to have more distributional policies, which is quite peculiar. Not *every* country would want to have more redistribution because wanting more distribution is a preference and preferences differ among citizens, ethnic groups and even countries.

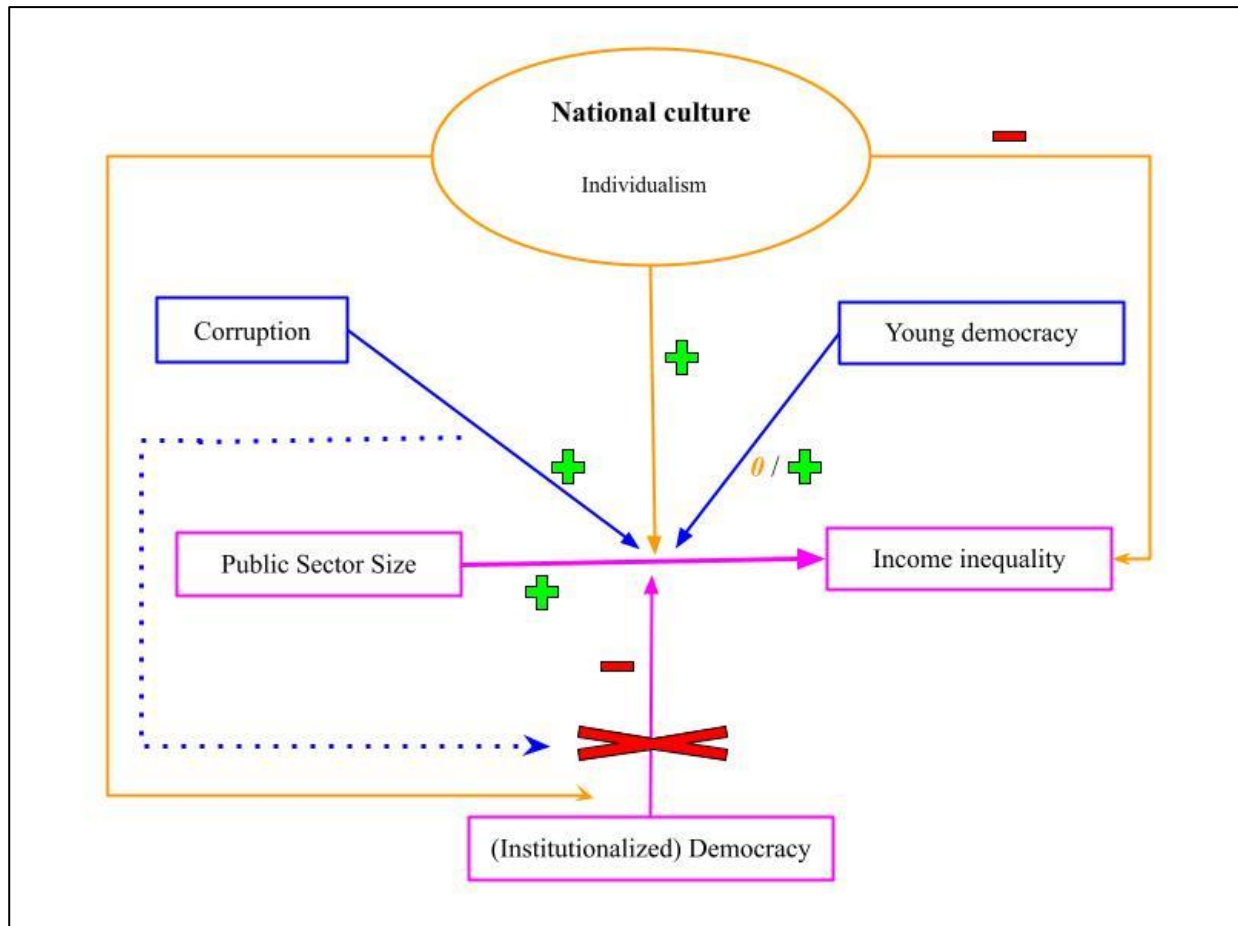
Preferences and values are measured by national culture (North, 1990). The attitude towards redistribution is largely captured by the cultural dimension of Individualism by Hofstede (2011). Because of that, the variable Individualism will be highlighted throughout this paper. All other cultural dimensions of Hofstede play a lesser role in the analysis and are mainly reported in the appendix. Individualism measures the degree to which people are integrated into groups and has a direct negative effect on income inequality, which will be discussed later in more detail (Elahee et al., 2016). Its indirect effect is far more important for this analysis. Countries with a high degree of Individualism also have a high degree of self-determination. This is the belief in one’s ability to control outcomes in life and it reveals the preferences for redistribution. Hence, if a person thinks that being poor is caused by a lack of effort, they are less willing to distribute money than if being poor is caused by bad luck<sup>3</sup> (Alesina & Angeletos, 2003). Individualism’s indirect effect via government size is thus likely to be positive because of its high self-determination level and consequently its lower willingness to redistribute money. Coming back to the theoretical mechanism of political power, both the *political power* (provided by democracy) and the *willingness* (dependent on culture) are needed to conduct redistributive policies. If a society is able to redistribute money due to democratization, but does not prefer to do so because of cultural beliefs, democratization will still not lead to more equality within a country. The equalizing effect of a democracy thus can only enter into force if the majority of its population also has a relatively positive attitude towards redistributive policies. This relative positive attitude is present in collectivistic countries, i.e. countries with a low individualism

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<sup>3</sup> If a society believes that effort determines income, indicated by a high level of self-determination, it prefers low taxes and redistribution. Hence, people should have the right to enjoy the fruits of their effort. Contrary, if society thinks that luck, connections and or corruption largely determines income it prefers to tax this income a lot.

score. The inclusion of the cultural variable Individualism due to a problematic implicit assumption at level 1 is indicated by the orange marking in figure 1c.

Figure 1c: [Level 2] Correcting for a problematic implicit assumption of Lee (2005)



As will be shown later by the results, the equalizing effect of democracy via Public Sector Size is only activated in the right cultural environment, which is present in a collectivistic country. Other factors like the age of a democracy and corruption become less relevant after controlling for national culture. Concluding that national culture is vital to be able to possibly predict the effects of a decline in democracy on income inequality in a country.

The structure of the paper will now be clarified. The next section will contain the literature review where this three-level analysis is further explained and will be compared to other relevant literature. This will lead to hypotheses and section 3, the data and methodology section, will provide a research design to be able to answer these hypotheses. Subsequently, the hypotheses are tested and discussed in section 4, which is the empirical results section. Lastly, the conclusion, section 5, will answer the question what the consequences are for a decline in democracy on income inequality and suggests possible future research directions.

## 2. Literature review

Rising inequality is a widespread concern and hence it is important to know its causes and consequences. High levels of income inequality damage social cohesion, trust in institutions and will hamper poverty reduction (Dambala-Norris et al., 2005). National governments can directly influence income inequality by implementing redistributive policies or a more progressive tax system. Investments in education and national healthcare are also tools for a government to lower income inequality by increasing the productivity of all citizens, leading to lower income disparities (Dabla-Norris et al., 2015). A larger government has more means to redistribute income and subsequently has a larger impact on income inequality. However, the effect of a government on income inequality is mainly dependent on the policy angle of this government. According to Lee (2005), democracy plays an important role in the relationship between government size and income inequality. Hence, democracy is hypothesized to have an *indirect* equalizing effect, which is channeled via the government. To be able to answer the question of whether a decrease in democracy will worsen income inequality, the role of democracy in the relationship between government size and income inequality will be examined in detail. This chapter will build further upon the introduction by combining the implicit theoretical mechanisms of Lee (2005) with the findings of other relevant literature.

First, the main analysis of Lee (2005) is being discussed, called *level 0* and displayed in figure 1a. Lee (2005) makes a distinction between growth-oriented policies and equity-oriented policies to find the direct effect of Public Sector Size on income inequality. When focusing on growth-oriented policies the government especially invests in growing industries to maximize economic growth. This policy angle of the government increases the gap between growing industries and the rest of the economy. The government thus heavily invests in so-called winners and this leads to more income inequality. Contrary, governments that chose a more equity-oriented approach negatively affect income inequality, i.e. have an equalizing effect. In this situation, the government focuses on equality and tries to accomplish this by implementing more redistributive policies or a more progressive tax system. Decreasing the tax rate on low-income earners or increasing the tax rate on high-income earners leads to a more equal post-tax income distribution. The assumption that more redistributive policies, resulting from an equity-oriented approach of the government, will indeed reduce income inequality has been largely supported by the related literature (e.g. Doerrenberg & Peichl, 2014; Guzi & Kahenec, 2018)

More means for the government, caused by an increase in government size, thus have an ambiguous effect on income inequality at first hand. Its effect on income inequality depends on

*how* the government means are being spent and not on the quantity of government means. According to Lee (2005), autocratic and limited democratic regimes are more likely to have a growth-oriented policy, while democratic regimes are more equity-oriented. In this dataset there seem to be more countries with growth-oriented policies than countries that are able to activate effective equity-enhancing policies. Hence, a sound translation of equity-oriented policies into more social policy programs and progressive tax would only occur at a fairly high level<sup>4</sup> of democracy according to Lee (2005). Implementing growth-oriented policies is thus relatively more attractive for limited democracies and autocratic regimes due to the ineffectiveness of equity-enhancing policies. As can be seen in appendix Table 1A, there are more autocratic and limited democratic regimes than fully democratic regimes. However, this difference is not large and this might lead to an ambiguous result. However, it should be the case that the net effect of an increase in government size leads to more income inequality. Taken all the aforementioned factors into account the first hypothesis is:

***H1: Public Sector Size has a positive effect on income inequality.***

As already mentioned, the effect of a larger government on income inequality is determined by the fact *how* the government means are being spent. The distribution of government means is affected by the level of democracy within a country and democracy, therefore, affects the relationship between Public Sector Size and income inequality (Reuveny & Li, 2003). The main theoretical idea about democracy is that this will lower income inequality levels but the empirical evidence is inconclusive. Democracy increases the opportunity for (political) participation, allowing the lower and middle classes to have more political power. These groups will theoretically demand more retributive policies and the newly chosen democratic leaders have an obligation to fulfill these. The new democratic leaders are more inclined to adopt welfare spending, increasing minimum wage, implementing progressive taxation, etcetera (Reuveny & Li, 2003). It all boils down to the fact that democracy redistributes political power in favor of the majority, instead of the influential rich minority, which in the end leads to less income inequality (Lenski, 1966).

However, multiple papers find a statistically insignificant (direct) effect of democracy on income inequality (e.g. Bollen & Jackman, 1985). This statistically insignificant effect of institutionalized democracy on income inequality has also been found by Lee (2005). As already

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<sup>4</sup> These are countries that have the highest score (+10) or close to that (+9) in the institutionalized democracy variable of Polity IV.

mentioned, Lee makes a distinction between fully institutionalized democracies and institutionalized democracies. Quite contradictory, Lee constructs his democracy variable with data of the institutionalized democracy variable of Polity IV<sup>5</sup>. This is a democracy indicator that ranges from 0 to 10 and a higher score implies a more institutionalized democracy. He calls this constructed democracy variable “Democracy index (continuum)”, which is a misleading expression. Hence, this variable captures the existence of accountability groups within its definition and should therefore be considered as an institutionalized democracy variable. For that reason, the term democracy index by Lee (2005) has been changed to “*Institutionalized Democracy index*”. Next, Lee creates a dummy variable of this Institutional Democracy index. Countries that have a value of 9 or higher are coded as a 1 and all lower values are coded as a 0. This dummy variable is the ‘real’ institutionalized democracy variable according to Lee. As already mentioned, the initial institutionalized democracy variable of Polity IV already captures the existence of (well-functioning) accountability groups. By making a dummy variable the author makes a distinction between countries with well-functioning accountability groups (9-10) and countries with limited or poor accountability groups (0-8). Institutionalized democracies with well-functioning accountability groups are defined as “*Fully Institutionalized Democracies*” instead of merely being an institutionalized democracy as Lee (2005) argues. Institutionalized democracies with poor or limited accountability groups are subsequently defined as “*Limited Institutionalized Democracies*”, which also deviates from Lee’s “Limited Democracy” terminology. The definition of all democracy variables, and its deviation from Lee’s initial terminology, are further explained in appendix figure 2A. From now on, the adjusted definitions of democracy will be used.

When the variable fully institutionalized democracy interacts with Public Sector Size, which is measured as the current tax revenues as a percentage of GDP, the fully institutionalized democracy variable negatively affects income inequality at the 1% level (Lee, 2005). Hence, tax revenues can be used for redistribution policy measures, which lower income inequality. However, this interaction effect is insignificant for the institutionalized democracy variable. Without yet going into much detail, a possible reason for this difference in outcome is that fully institutionalized democracies are more experienced as institutionalized democracies in Lee’s dataset. Hence, it takes some time to implement sound bureaucracy and accountability groups,

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<sup>5</sup> The institutionalized democracy variable of Polity5 will be used as an institutionalized democracy index instead of a democracy index. To be clear, the Polity5 dataset of Marshall & Gurr (2020) is the follow-up version of Polity IV with more recent data. This new dataset provides data from 2000 to 2018, while this data was not yet available in the Polity IV version.

which are required for being a fully institutionalized democracy. This age difference is important for the possible equalizing effect of a democracy as will soon be discussed in both upcoming theoretical mechanisms. However, Lee's analysis dates from 1970 to 1994, while the dataset used in this paper dates from 2000 to 2019. In that time a lot has changed including the average age of a democracy. In 2015, the average age of a democracy stood over 42 years (Boix et al., 2013) and because of that reason, I also expect that the indirect equaling effect via Public Sector Size is also found for the democracy variable in addition to the fully institutionalized democracy variable. Hence, the average age of a democracy has increased significantly over the last couple of decades<sup>6</sup> and an average democracy is now far more experienced, which enables these democracies to also experience an equalizing effect. This leads to the following hypothesis:

***H2: Being a (fully institutionalized) democracy weakens the positive relationship of Public Sector Size and income inequality.***

Now I will dig deeper to try to capture the mechanism why this indirect equalizing effect occurs for fully institutionalized democracies but not for ordinary institutionalized democracies. This step has been shown in figure 1b and is called *level 1*. There are two possible mechanisms that could explain the equalizing effect of fully institutionalized democracies via Public Sector Size. The first mechanism is based on corruption.

One of the main differences between fully institutionalized democracies and institutionalized democracies is the inclusion of well-functioning accountability groups in the former. This means that public officials are being checked and have little opportunity to cheat. Hence, the main difference in the results of Lee (2005) could be caused by the fact that there is little to no public corruption in fully institutionalized democracies, while this is not the case in ordinary institutionalized democracies. The level of public corruption, equivalent to fully institutionalized democracies, also influences income inequality. Higher corruption leads to a more regressive tax system to favor well-connected and wealthy societal groups. Funds that are used for social programs will be siphoned or diminished and reallocated to well-connected individuals. The burden of paying bribes will especially fall on the shoulders of the poor. Hence, more corruption leads to higher levels of income inequality (Gupta et al., 2002). Corrupt governmental officials will abuse their public power for private gains, leading to the concentration of corruption gains in the hand of elites who belong to high-income groups (Wong,

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<sup>6</sup> A possible reason for this is the third wave of democratization in the late twentieth century (see Huntington, 1993; Shin, 1994)

2017). This process of using public power for private gain is called “looting” and will increase income inequality (Nyblade & Reed, 2008). A larger government combined with corruption will thus exacerbate income inequality because more governmental means are being converted to private gains, leading to an even greater post-tax income gap between the rich elite and the poorer ordinary taxpayer. This leads to the third hypothesis:

***H3a:** Corruption positively affects the relationship between Public Sector Size and income inequality.*

As already mentioned, democracy plays a role in the level of corruption in a country. Higher levels of democracy and especially longer periods of democracy lead to lower levels of corruption (Bäck & Hadenius, 2008). According to Kotera et al. (2012), being a democracy negatively affects the positive relationship between Public Sector Size and corruption. An increase in government size reduces corruption within high democratic countries, but leads to the opposite effect in low democratic countries. Fully institutionalized democracies thus experience a decrease in corruption if the Public Sector Size increases, which might explain the equalizing effect of a fully institutionalized democracy. According to Stephenson (2015), the most intuitive channel of democracy to affect corruption is the ability to remove corrupt leaders from future elections because voters dislike corrupt politicians. Taken these findings into account it might not be fully institutionalized democracies that cause the negative indirect effect on income inequality via Public Sector Size but instead the simultaneous change in the level of corruption.

Bäck & Hadenius (2008) provide a more detailed explanation of why longer periods of democracy lead to a lower level of corruption. They conclude that the transition from autocracy to democracy could erode administrative capacity, which also includes the ability to control corruption. A J-shaped relationship between the democracy index and administrative capacity has been found. When a country moves from an autocracy to a democracy the administrative capacity first declines but when democratization continues the administrative capacity, including its ability to control corruption, sharply rises. Hence, it takes some time for democracies to develop bottom-up controls. This might also explain the results of Muller (1988) and Grastein & Milanovic (2000) that the egalitarian influence of a democracy is a long-term incremental effect. In addition, according to both authors, young democracies do not have an equalizing effect on income. If democracy is maintained for a relatively long period of time, the level of corruption will decrease, which in the end lowers income inequality. When a democracy is still very young it did not have the chance to lower corruption and this could explain the insignificant finding of Muller (1988) for young democracies and income inequality. Contrary to institutionalized

democracies, fully institutionalized democracies have accountability groups, who control for corruption leading to a lower level of corruption (Lee, 2005). Institutionalized democracies might still have a relatively high level of corruption, which might explain the insignificant result of this institutionalized democracy variable on income inequality, while the fully institutionalized variable did have a significant negative interaction effect with government size on income inequality (Lee, 2005).

Not only the ability to control corruption is lower in young democracies but also the ‘real’ level of corruption is higher compared to established democracies (Mohtadi & Roe, 2003; Kubbe & Engelbert, 2018). This further strengthens the theoretical framework that it takes some time for a democracy to be able to control corruption. In line with Mohtadi & Roe (2003) and Kubbe & Engelbert (2018), the dataset shows that younger democracies indeed have a higher perceived level of corruption and less ability to control corruption as compared to older democracies, see appendix table 2A. In short, corruption is hypothesized to positively affects the relationship between Public Sector Size and income inequality. Maintaining a democracy leads to a lower level of corruption. Contrary to institutionalized democracies, fully institutionalized democracies did have an indirect equalizing effect and have a lower level of corruption. Taken these findings into account I hypothesize that the equalizing effect of fully institutionalized democracies on income inequality is largely due to the simultaneous change in the level of corruption. Being a fully institutionalized democracy led to a decrease in corruption, which is the main cause of the indirect equalizing effect via government size. When controlling for corruption the initial fully institutionalized democracy variable interaction effect should become insignificant. In addition, the average age of a democracy has significantly increased in the last few decades. For that reason, I expect that the democracy variable should also have an indirect equalizing effect via government size, see hypothesis 2. This effect could also be caused by the simultaneous (negative) change in the level of corruption and should therefore also disappear when controlling for corruption. Subsequently, the last subsection of the third hypothesis is:

***H3b: After correcting for corruption, the (fully institutionalized) democracy variable’s effect of weakening the positive relationship of Public Sector Size and income inequality becomes insignificant.***

Next to the theoretical mechanism of corruption, there is also a second theoretical mechanism that could also explain both the negative significant interaction effect of fully institutionalized democracies and the insignificant interaction effect of institutionalized



democracy in Lee (2005). This is the shift of political power to the majority of people combined with a conditionality.

As already briefly discussed in the introduction, democracy shifts the political power from the rich and influential elites to the majority of people. The majority of people include the lower and middle classes, which will theoretically demand more redistributive policies. The new democratic leaders have an obligation to fulfill these and are more inclined to adopt welfare spending, increasing minimum wage, implementing progressive taxation, etcetera (Reuveny & Li, 2003). There is a general consensus that these redistributive policies subsequently have an equalizing effect on income (e.g. Lenski, 1966; Doerrenberg & Peichl, 2014; Guzi & Kahenec, 2018). However, Lee (2005) still finds that ordinary institutionalized democracies have a statistically insignificant indirect effect on income inequality. He comes up with various arguments why this insignificance emerges. First, immature labor movements and reformist parties might be unable to translate distributional demands into concrete policy actions (Huber, 2002). Second, even if these reformist parties have acquired incumbency, they still might be financially constrained to execute redistributive policies. Third and most important, a sound bureaucracy capable of administrating and implementing redistribution policies is required, otherwise, a democracy cannot lead to better distributional outcomes. The second argument about being financially constrained to execute redistributive policies is quite tenuous. New democratic parties might indeed experience severe financial constraints and pressure from international markets to keep a government's (redistributive) spending to a minimum (O'Donnell, 1993). However, they are still able to increase the tax rate for high-earners, thereby reducing income inequality.

The first and third argument of Lee (2005) can be summarized as the inability of young democracies to reduce income inequality. Either labor movements with their new democratic parties are too inexperienced to translate their distributional wishes into concrete policy actions or the institutional framework of a new democracy is not yet capable to effectively execute redistribution policies. More experienced democracies do not have these problems and due to the political power of the majority, acquired by democratization, the demand for more redistribution by the majority will be executed by the government. The equalizing effect of a democracy via government size, caused by a shift of political power to the majority, can thus only be utilized if a democracy has enough democratic experience. This theoretical mechanism can also explain the results of Muller (1988) and Gradstein & Milanovic (2000). The egalitarian influence of democracy is a long-term incremental effect because young democracies are not able to utilize

the equalizing effect of being a democracy via the shift in political power. Subsequently, the statistically insignificant effect of institutionalized democracies in Lee (2005) can be explained by the inclusion of young democracies. These young democracies are present in the institutionalized democracy variable<sup>7</sup> and could therefore cause the insignificant effect of the institutionalized democracy variable. Contrary, the fully institutionalized democracy variable does not include these young democracies that cannot activate the equalizing effect of democracy, via the shift of political power, because it takes some time for a democracy to become a fully institutionalized democracy.

Although the term “young democracy” has been extensively used in the literature there is no clear-cut definition. According to Muller (1988), a young democracy is a country with less than a generation – 20 years – of democratic experience. However, there is no consensus about the exact age limit of a young democracy. Brender & Drazen (2005), for example, define the first four competitive elections of a country as a young democracy. Their results do not change if they use the first 10 or 15 years after becoming democratic. The definition of Muller (1988) has been adopted but there will be multiple robustness checks to see if the results change for different age limits of a young democracy. In line with theoretical mechanism 2, young democracies should have an insignificant interaction effect with government size on income inequality. Although these countries have acquired the political power to coerce more redistribution policies, the new democratic political parties with their institutional framework are not yet experienced enough to translate the distributional demands of the majority of people to concrete and effective redistribution policies. In addition, the beginning of democratization could even worsen the control of corruption in a country as discussed by the J-curve of Bäck & Hadenius (2008). Although this is not my main focus, this would have a positive effect on income inequality, see hypothesis 3a. Taken all the aforementioned factors into account and expecting that the second theoretical mechanism also holds the fourth hypothesis is:

***H4: Young democracies have no or a positive effect on the positive relationship between Public Sector Size and income inequality***

To summarize, there are two possible mechanisms why (fully institutionalized) democracy should weaken the positive relationship of Public Sector Size and income inequality.

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<sup>7</sup> Lee (2005) uses much older data (≈30 years older) compared to my analysis. This means that there are relatively far more young democracies in his institutionalized democracy variable as in mine. Hence, the average age of democracy has significantly risen in the last couple of decades. For that reason, I have hypothesized that (institutionalized) democracies could also have an indirect equalizing effect via government size when looking at my dataset.

First, democratization leads to a lower level of corruption (e.g Bäck & Hadenius, 2008; Kotera et al., 2012; Stephenson, 2015). A lower level of corruption leads to a more progressive tax system where well-connected and wealthy groups are no longer favored by the tax system. A reduction in public corruption will also lower looting, using public power for private gain, which initially exacerbates income inequality (Nyblade & Reed, 2008; Wong, 2017). Democratization leads to a lower level of corruption and this drop in corruption should be mainly responsible for the negative interaction effect of democracy and Public Sector Size on income inequality. This mechanism is called “theoretical mechanism 1” and can be seen in figure 1b. Second, democratization shifts the political power of the few elite to the majority of people. The majority of people, including the low- and middle-classes demand redistribution policies. However, these redistribution policies can only be effectively<sup>8</sup> implemented under two conditions. The new democratic parties with their labor movement should have enough experience to translate distributional wishes into concrete policy plans and the institutional framework should be developed enough to execute these redistribution policies. Hence, only experienced democracies have an equalizing effect, because all younger democracies have the political power to coerce redistribution policies, but are yet unable to effectively execute them. This mechanism is called “theoretical mechanism 2” and can also be seen in figure 1b.

Both theoretical mechanisms have been discussed in detail and now a problematic implicit assumption will be highlighted in the second theoretical mechanism. To correct for this assumption a variable will be added to the analysis, which in the end is vital to understand the relationship between government size, democracy and income inequality. Again, it is important to map this relationship to be able to know what the consequences are for a decline in democracy on income inequality. This section is called *level 2* and is highlighted in orange in figure 1c.

The main asset of democratic countries is that the political power is being determined by the majority and not by an elite group of people (Lenski, 1966). When a country becomes democratic the political power of the elite diminishes and now falls into the hands of the majority of people within a country. According to Reuveny & Li (2003), this lowers income inequality. They rely on Leski’s (1966) power theory of economic inequality, which states that the concentration of (political) power determines the concentration of income inequality. When a country becomes democratic, the government is subject to pressure from various interest groups that represent the interests of the lower and middle classes. These classes gain more political

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<sup>8</sup> This means that the redistribution policies of the government are not only executed but also have a real negative effect on income inequality, i.e. lead to a more post-tax equal distribution of income.

influence when their political interest groups are more organized. This political influence results in public policies that redistribute income to the lower and middle classes. However, there is an implicit assumption in Leski's (1966) theory about a worldwide consensus on the acceptance of income inequality which might not hold. Dahrendorf (1966) reviewed the article of Leski (1966) and criticized the way Leski had incorporated cultural variability. Leski assumes that there is a global consensus on the acceptance of income inequality, thereby neglecting heterogeneity between national cultures. There might be countries where the lower and middle classes will not demand more redistribution as will be argued in the upcoming paragraphs.

Cultural heterogeneity is important because the policy angle of the government, which determines the effect of government size on income equality, is largely determined by preferences and values. Countries have to make a trade-off between economic growth and income equality according to Lee (2005). This decision largely depends on how much a country values growth and income equality. In other words, it depends on national culture. Hence, culture is the transmission of knowledge, values and other factors that influence behavior via teaching or imitation from one generation to the next (North, 1990). However, Lee (2005) neglected the influence of any cultural variable, which is not that surprising considering the time of writing. Since the marginalist revolution, the role of culture has been downplayed by mainstream economics. Economics should be a 'hard' science and this could be achieved by neoclassical economics with its complex mathematical models. The fact that economic activities are embedded in culture and are context-dependent did not comply with the desire of economists to be perceived as a hard science. However, due to the disappointing results of mainstream economics the door opened for other approaches which incorporated culture and institutions. This was a recent shift in economics and thus most economists ignored culture as a determinant until recently, thereby creating a large gap in the economic literature (Guiso et al., 2006).

Culture influences institutions, including national governments, by constraining its behavior with norms, values and routines (Alesina & Giuliano, 2015). For example, a very individualistic might restrain a government from large redistribution policies by voting for politicians or legislators who are against large redistributions. There might be laws that impede the size of redistributions that a government could spend, thereby constraining the government. Hofstede G., Hofstede G. J. and Minkov (2011) were able to measure 6 dimensions of national culture. These dimensions are an aspect of a culture that can be measured relative to other cultures. The six dimensions are labeled as: (i) Power Distance, (ii) Individualism versus Collectivism, (iii) Uncertainty Avoidance, (iv) Masculinity, (v) Long-Term versus Short-Term

Orientation and (vi) Indulgence versus Restraint. The question remains which cultural dimensions play a role in the relationship between government size and income inequality. Unfortunately, the relationship between culture and income inequality is still relatively underdeveloped in the economic literature. The main reason for this is the historical view that culture could not be a determinant for economic occurrences (Guiso et al., 2006). More recently Malinoski (2012) tried to map the relationship between national culture and income inequality by also using the Hofstede's cultural dimensions. The cultural dimensions Long-Term Orientation and Individualism both exhibited a negative relation with income inequality. The cultural dimension of Individualism measures the degree to which people are integrated into groups, while the Long-Term Orientation dimension displays a society's preference for short-term social obligations or long-term values. Especially the negative relationship between income inequality and Individualism might come as a surprise and this was indeed contrary to the author's hypothesis. Hence, if a citizen of a country pursues self-interest rather than the interest of a group, the aggregate resources of individuals will not be shared for the benefit of the group, leading to a greater variation in incomes. However, Malinoski (2012) finds a negative relationship between Individualism and income inequality and alternatively argues that citizens in more individualistic countries are more inclined to work hard to ensure a sufficient standard of living which fosters income equality.

Elahee et al. (2016) came up with a more extensive theoretical framework answering why the relationship between Individualism and income equality might be positive. First, citizens in collectivist countries have a support network from their extended family members while this is not the case in individualistic countries. For that reason, governments of individualistic countries have created a safety net, like unemployment insurance and pensions on retirement, which is less present in collectivistic countries. These safety nets have a positive effect on income equality. Second, collectivist countries face relatively more ingroup versus outgroup orientation. An ingroup refers to a group of people with which an individual identifies himself, while all other people are considered to be part of the outgroup. In-group orientation, which is the degree of loyalty to an ingroup, results in blocking outsiders to one's group. In-group orientation is higher in collectivist countries and this hampers social mobility. People with lower economic status have a harder time joining a network of successful people, which restricts upper mobility. Hence, members of the affluent class perceive these people with a lower economic status as outgroup members. Third, individualistic countries have relatively higher inheritance taxes leading to greater income distribution as compared to collectivistic countries. The authors subsequently

theorize that there is a *direct* negative relationship between income inequality and Individualism. Aside from this direct relationship, there might also be an indirect effect of culture or Individualism on income inequality which has not been discussed in detail by Elahee (2016). Culture could affect government policies on taxation and spending which could be captured by an interaction effect of government size and a culture variable on income inequality.

According to Pitlik & Rode (2016), individualistic values can be grouped into self-direction and self-determination. The first measure captures the ideal of self-directed, autonomous decision-making to make important decisions in life. Self-determination measures a person's belief in one's ability to complete tasks or reach goals. If a person has a high degree of self-determination he or she believes in their own ability to control life and that personal choices are the main cause of success or failure. These two values, self-determination and self-direction seize essential aspects of Individualism. An individualistic country is expected to score high on both values. Pitlik & Rode (2016) measure the effect of these individualistic values on governmental intervention attitudes. Should people take more responsibility to provide for themselves or should the government take more responsibility to ensure that everyone is provided for? Both individualistic values are negatively associated with government intervention preferences. However, the negative effect of self-determination is 6 times larger than self-direction and thus the belief in one's ability to control outcomes in life is highly relevant for government intervention attitudes.

This is not only relevant for government intervention attitude but also for the real redistributive policy chosen by a country (Alesina & Angeletos, 2003). If a society believes that effort determines income, indicated by a high level of self-determination, it will choose low taxes and redistribution. Hence, people should have the right to enjoy the fruits of their effort. Contrary, if society thinks that luck, connection and or corruption largely determines income it will tax this income a lot. The United States scores high (91) on Hofstede's Individualism dimension and subsequently also scores high on the individualistic value on self-determination. Over 71% of Americans believe that the poor could become rich if they put much effort and this social belief explains the relatively low social spending of the United States (Alesina & Angeletos, 2003). Benabou & Tirole (2006) also find a strong and positive correlation between social spending and the social belief that luck determines income. Taken all together, the cultural dimension of Individualism by Hofstede (2011) should have a direct negative effect on income inequality due to safety nets, lower in-group orientation and stricter inheritance laws. However, its indirect

effect via government size is likely to be positive on income inequality because of its high self-determination and its effect on social spending. This leads to the following hypotheses:

***H5a: Individualism has a negative effect on income inequality.***

***H5b: Individualism strengthens the positive relationship of Public Sector Size and income inequality.***

Being an individualist or collectivist country plays an important role in the attitude towards government intervention and redistribution (Alesina & Angeletos, 2005). Hence, it also influences the effect of being a democracy on income inequality. Being a collectivistic or individualistic country matters for the conception of being poor and consequently how to deal with it. Individualistic countries have a high degree of self-determination, leading to a relatively negative attitude towards government intervention and distribution. Success created by hard work should be rewarded while failure should not be compensated by the government because it is the result of too little effort (Pitlik & Rode, 2016). This attitude also matters for the effects of being a democracy on income inequality. When an individualistic country becomes democratic the lower and middle classes gain more political influence. However, if these middle and lower classes have a negative attitude towards government intervention and truly believe that success is determined by only themselves they most certainly do not want more redistribution policies. Contrary, democratization in collectivist countries should lead to more redistributive policies because these societies are more positive about government interventions and redistributive policies. This relative positive view about government intervention is explained by the relatively lower degree of self-determination (Feldman, 1988; Benabou & Tirole, 2006). In addition, collectivist societies discourage individuals to stand out and a larger government in a collectivist country will probably distribute more money from the rich to the poor to prevent people to stand out (Gorodnichenko & Roland, 2012). Hence, the cultural dimension of Individualism says something about the *willingness* (of the medium and low-income groups) to redistribute money. Being a democracy might enable a government to redistribute more money due to the increased political power of the majority, but a government needs both to reduce income inequality. Hence, both the *political power* (provided by democracy) and the *willingness* (dependent on culture) are needed to conduct redistributive policies. If a society is able to redistribute money due to democratization, but does not prefer to do so, because of cultural beliefs, democratization will still not lead to more equality within a country. The equalizing effect of a democracy can only enter into force if the majority of its population also has a positive attitude towards redistributive policies. As mentioned earlier, this attitude is partly measured by the cultural dimension of

Individualism by Hofstede (2011). Democracy can only lower income inequality in the right cultural environment, i.e. the majority of people should have a positive attitude towards redistribution policies. This leads to the final sub-hypothesis:

***H5c:** The indirect equalizing effect of (fully institutionalized) democracy only applies to countries with a low<sup>9</sup> individualism score.*

To be clear, countries with a low level of Individualism have a more positive attitude towards redistribution policies. Democratization will lead to a more equal post-tax income distribution in these countries. However, countries with a high level of Individualism have a more negative attitude towards redistribution policies. Shifting the political power to the majority, due to democratization, will not lead to a more equal post-tax income distribution because of a more negative attitude towards redistribution

Individualism is only one out of the six cultural dimensions of Hofstede (2011). Long-Term Orientation also had a negative relationship with income inequality according to Malinoski (2012). Individuals in long-term oriented countries are relatively more concerned with long-term planning and this leads to more personal savings and strategic investment decisions. This results in a smaller income gap among poorer and wealthier citizens according to Malinoski (2012). Taking classes can also be seen as a strategic investment decision and parents from long-term oriented cultures are more likely to secure educational opportunities for their children (Figlio et al., 2016). This further enhances income equality considering the equalizing effect of education, hence it lowers the income share of the rich and increases the income share of the poor (Addullah et al., 2015). Taken these factors into account the cultural variable Long-term orientation should have a direct negative effect on income inequality. Contrary to Individualism, Long-Term Orientation should not largely affect the attitude towards government intervention. Although a high degree of Long-Term Orientation could protect individuals against social risks by making a long-term planning, making government intervention less necessary, Gründler & Köllner (2017) do not find a significant effect for the cultural dimension of Long-Term Orientation on government redistribution. Long-Term Orientation should therefore only have a direct negative effect on income inequality. The remaining four cultural dimensions appear to have no relation with income inequality according to the literature. Because the field of economics that

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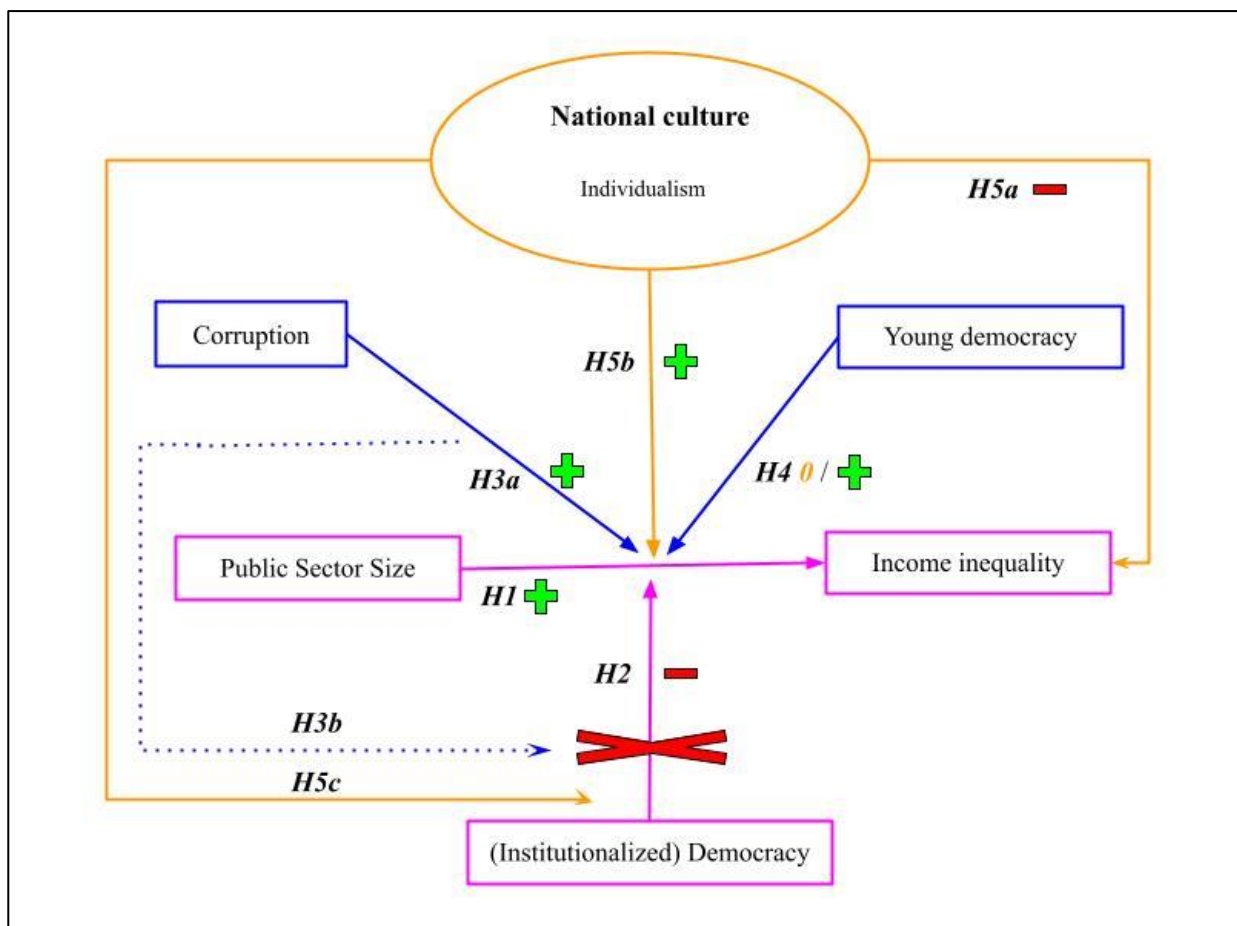
<sup>9</sup> These countries are also known as collectivistic countries. Countries with a low individualism score are defined as countries that score below the average value of individualism (38) in my dataset.



incorporates cultural variables is a young one, these four remaining cultural dimensions are added in a robustness check to see if an interesting result emerges.

To make the theoretical reasoning more clear, all three conceptual models of figure 1 are displayed with the corresponding hypotheses in figure 2. This summarizes the main effects of the discussed hypotheses. The next section, methodology and data, will go into more detail about how these effects are going to be measured.

Figure 2: Conceptual model with hypotheses



### 3. Methodology and data

#### 3.1 Data

To test the hypotheses a panel data research will be conducted with 137 countries from 2000 to 2019. Income inequality will be the main dependent variable and is measured as the Gini-index retrieved from the Standardized World Income Inequality Database of Solt (2021). This variable ranges from 0 to 100, respectively going from perfect equality to perfect inequality.

The freedom in the World variable by Freedom House (2021) will be used as data for the democracy variable. This variable contains two subcategories, called Political Rights and Civil Liberties. The score ranges from 0, not free, to 100, totally free. The variable of Freedom House includes three components of a democracy, namely (i) free, fair and competitive elections of executives, (ii) universal and equal suffrage, and (iii) the freedom of speech, association and group opposition. Hence, it is a suitable variable for democracy. As discussed by Lee (2005) there is a difference between democracy and institutionalized democracy. Data for institutionalized democracy has been retrieved from the Polity5 project of the Center for Systematic Peace constructed by Marshall & Gurr (2020). Following Lee (2005), the institutionalized democracy indicator, which ranges from 0 to 10, will be used to define institutionalized democracy. A higher score for this variable resembles a more democratic country. Next, a dummy variable of institutionalized democracy will be created to develop the fully institutionalized democracy variable. Countries with a score equal to or higher than 9 on the democracy variable of Polity5 will be coded as 1 and all other scores will be coded as 0. This created dummy variable makes a distinction between fully institutionalized democracies, coded as a 1, and limited institutionalized democracies, coded as 0. 'New' democracies are defined in line with Muller (1988) as countries with less than a generation - 20 years – of democratic experience. The Boix-Miller-Rosato (2018) dataset of dichotomous coding for democracies is being used to determine a democracies' age. Countries with less than 20 consecutive years of democracy are being defined as new democracies.

Public Sector Size is defined as the share of tax revenues in GDP. Data will be used from the World Development Indicators of the World Bank (2021a). Corruption is a variable that is hard to measure and quantify. Currently, the most extensive data for especially public corruption is available at Transparency International (2021). They measure the perceived level of corruption in the public sector with the Corruption Perception Index (CPI). This variable ranges from 0 to 100. A lower score indicates a higher perception of corruption in the public sector of that country.

The CPI is constructed from multiple data sources per country, up to 13, including the World Bank and the World Economic Forum. The scores of corruption of these different sources are averaged and standardized to the 0-100 scale, leading to the final score that defines CPI.

To counter a possible omitted variable bias, multiple control variables will be added to the model. According to Kuznets (1955) and its eponymous hypothesis, income per capita has an inverted U-curve effect on income inequality. To test and control for this effect both GDP per capita and its squared term will be added to the model. The GDP per capita variable has been divided by 1000 in all models to be able to better interpret its coefficient. By doing so, the coefficient of this variable becomes larger and clearer to read. Education, measured as the gross enrollment of secondary education, also has an income inequality-reducing effect (De Gregorio & Lee, 2002). Education reduces the income share of top earners and increases the share of bottom earners. Without going into much detail this is caused by the so-called composition effect where an increase of supply in skilled workers lowers the wage premium of skilled workers leading to lower levels of income inequality (Abdullah et al., 2015). Furthermore, poor children have a better chance to climb the social ladder if they are being educated. The educational variable is the gross enrollment of secondary education of the World Bank (2020a) because secondary schooling has a larger effect than primary schooling on income inequality. According to Dabla-Norris et al. (2015), foreign direct investment has a positive effect on income inequality in both emerging and advanced economies. Hence, there will be also corrected for FDI, measured by the World Bank (2020a). Lastly, in line with Lee (2005), I control for the share of employment in agriculture, which is also retrieved from the World Bank (2020a).

The effect of government size on income inequality is dependent on the policy angle of the government. According to Lee (2005), this policy angle can be partly derived from democracy. However, national culture plays an important role in determining the attitude of society towards distributive policies (Pitlik & Rode, 2016) and also the real distributional policies (Alesina & Angeletos, 2003). This attitude towards redistribution policies could affect the equalizing effect of democracy as discussed in the literature review. It is therefore important to map these national redistribution attitudes together with other relevant cultural dimension variables. Hence, in a later stage of this thesis, the cultural dimensions Individualism and Long-Term Orientation of Hofstede (2011) are being added to the model to see how they influence the relationship between government size and income inequality. The remaining four cultural dimensions of Hofstede, (i) Power Distance, (ii) Uncertainty Avoidance, (iii) Masculinity and (iv) Indulgence versus constraint, are being added to a model shown in the appendix to see if

they have an unexpected effect on income inequality. All cultural dimensions are distinct from one other and occur in all possible combinations, while some appear more frequently than others. These cultural variables are time-invariant and are retrieved from the database of Hofstede (2011). According to Hofstede (2011), culture only changes very slowly over time and this makes the data time-invariant from 2000 till 2019. The statement that culture changes very slowly over time is also supported by Williamson (2000). He argues that it takes 100 to 1000 years to change a countries' culture. A summary of all variables is provided in table 1, for more detailed information see appendix table 3A.

*Table 1: Descriptive statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
Isocode	2855	.	.	.	.
Year	2855	2008.224	5.083	2000	2019
Gini	2855	39.111	8.402	22.6	66.9
Public Sector Size	1829	18.021	8.478	.89	149.284
Government expenditure in GDP	2758	31.046	13.092	3.787	131.721
Control of Corruption	2657	.06	1.01	-1.722	2.47
Corruption Perception Index	2401	44.287	21.615	4	100
Democracy	2787	65.269	26.317	2	101
Institutionalized Democracy	2475	6.306	3.606	0	10
Democracy duration	2762	42.563	44.407	1	219
Young Democracy	2762	.375	.484	0	1
GDP per capita	2808	12672.56	18124.99	111.927	119000
Foreign Direct Investment	2720	6.207	18.467	-58.323	449.083
Gross enrollment in secondary education	2122	81.892	29.362	6.197	163.935
Share employment in agriculture	2687	26.911	22.884	.06	91.76
Individualism	1984	38.099	21.857	6	91
Masculinity	1971	46.512	18.424	5	110
Uncertainty Avoidance	1971	67.084	22.034	8	112
Long-Term Orientation	1788	45.263	24.139	0	100
Indulgence	1766	46.277	22.412	0	100
Power Distance	1984	65.356	20.817	11	104

### 3.2 Methodology

To test all the aforementioned hypotheses a panel data research has been conducted. First, all variables have been checked for multicollinearity problems. If two variables are highly correlated it becomes difficult to distinguish the separate effect of both highly correlated variables, leading to higher standard errors. Multicollinearity mainly causes problems when variables have a correlation over 0.80 according to Katz (2011). In our dataset, there are two pairs of variables that meet this 0.80 correlation criteria. Democracy and institutionalized democracy have a correlation of almost 0.90, which is not a problem because these variables are not regressed in the same model. Next, both corruption variables, control of corruption and Corruption Perception

Index, show almost perfect collinearity. Again, this is not a problem because there is not one regression in which both corruption variables are being regressed. Appendix Table 4A shows the correlation between all variables.

To be able to find the most suited panel data model a Breusch-Pagan Lagrange multiplier test (LM test) will be performed. This test shows if there are variances across entities and if so a pooled OLS regression cannot be used (Breusch & Pagan, 1979). Hence, a simple pooled OLS model ignores entity-specific effects. When the LM test is significant there are variances across entities and the pooled OLS model is subsequently not suited for the analysis. The Hausman (1978) test determines whether a fixed-effects or a random-effects model should be used. It identifies the possible endogeneity in the explanatory variables, hence if there is a correlation between the model's error term and the independent variables. The unique errors ( $u_i$ ) of the model could be correlated with the independent variables in a random-effect model due to an omitted variable bias. Preferably, the random-effects model would be used because it has more degrees of freedom and time-invariant variables can be included, which is not possible in a fixed-effects model. However, when the Hausman test is significant, the regression coefficients under both models are statistically different indicating endogeneity in the explanatory variables. To counter this, the fixed-effects model should be used because in this model every entity has its unique intercept that captures all time-invariant variables. For every upcoming regression, the Hausman and Breusch-Pagan Lagrange multiplier tests have been conducted to determine the most suited panel model. To check for autocorrelation the xtserial test of Drukker (2003) will be performed. This test measures if the residuals of the model are correlated. When the residuals are correlated the estimators will be less efficient, but not inconsistent or biased. A significant xtserial test indicates serial correlation and to counter this problem robust standard errors are being added to the model if serial correlation is being detected.

The first regression shown below is to test the main analysis of Lee (2005). This is called level 0 and it includes hypotheses 1 and 2. This is a fixed-effect model, which implies that all time-invariant variables of the different countries are captured by an entity-specific y-intercept ( $\beta_0$ ). First, only the Public Sector Size with all the control variables are included in the model to know the direct effect of PSS on income inequality. Thereafter, a democracy variable and its interaction term with PSS are being added to the model to test for hypothesis 2. This leads to the following formula:

$$(1) \text{Inequality}_{it} = \beta_0 + \beta_1 \text{PublicSectorSize}_{it} + \beta_2 \text{Democracy}_{it} + \beta_3 (\text{PublicSectorSize}_{it} * \text{Democracy}_{it}) + \beta_4 \text{GDPpc}_{it} + \beta_5 (\text{GDPpc}_{it} * \text{GDPpc}_{it}) + \beta_6 \text{ForeignDirectInvestment}_{it} + \beta_7 \text{Education}_{it} + \beta_8 \text{Agriculture}_{it} + \varepsilon_{it}$$

Note that three separate regressions will be run in the second part of equation one. The institutionalized democracy variable<sup>10</sup>, the fully institutionalized democracy variable and the democracy variable all are separately regressed as “Democracy” variable, including its interaction effect with Public Sector Size in equation one. In line with Lee (2005), countries that score a 9 or 10 on the institutionalized democracy scale are defined as fully institutionalized democracies. All other countries are perceived as limited institutionalized democracies. See appendix figure 2A for more detailed information. According to Lee (2005), the fully institutionalized variable should be the only democracy variable in equation one that will have a negative and significant interaction term. As discussed earlier, this might not be true anymore considering the much older average age of democracies in this analysis as compared to Lee’s (2005) dataset. This average age difference is the result of the difference in time of writing. In line with theoretical mechanism 2, (non-fully institutionalized) democracies might now be able to effectively translate distributional demands that will have an equalizing effect. Hence, these non-fully institutionalized democracies are older in this analysis while they were (relatively) young compared to fully institutionalized democracies in Lee’s analysis.

To further strengthen the results of regression one, an alternative measurement of Public Sector Size is being introduced in an additional model. This will be done because there is no uniform way to measure the size of a government. Until now, the definition of Lee (2005) has been taken over. The size of the government is determined by its share of revenue in GDP. However, government size can also be measured in terms of employment or expenditure instead of revenue (Berry & Lowery, 1984; Nyasha & Odhiambo, 2019). Subsequently, the current Public Sector Size variable, which measures government size as the ratio of government revenue in GDP, will be substituted by a government size variable that measures government size as the ratio of government expenditure in GDP. This data has been retrieved from the International Monetary Funds (IMF) database (2021).

The second and third regression summarizes the two theoretical mechanisms that could explain the results of the analysis of Lee (2005). This is called level 1 and includes hypotheses 3 and 4. Again, all the specific regression in this section are a fixed effect panel data model. The corruption variable with its interaction of Public Sector Size is introduced in the model. This

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<sup>10</sup> To make the tables in the main analysis as clear as possible the results of the institutionalized democracy variable’s regression are displayed in the appendix. This variable should have the same results as the democracy variable, hence they both could still include young democracies.

section is partly depicted in figure 1b and is the first theoretical mechanism that might explain the negative interaction effect of fully institutionalized democracy with Public Sector Size on income inequality of Lee (2005). Contrary to the fully institutionalized variable, Lee (2005) did not find a significant interaction effect for the ordinary institutionalized democracy variable. The relatively low level of corruption in fully institutionalized democracies compared to ordinary institutionalized democracies might explain the results of Lee (2005). First, only the direct effect of corruption with its interaction effect and control variables are regressed, disregarding the effects of democracy on income inequality. Next, the effects of democracy and corruption are combined to be able to test hypotheses 3b. The following formula emerges:

$$(2) \text{Inequality}_{it} = \beta_0 + \beta_1 \text{PublicSectorSize}_{it} + \beta_2 \text{Corruption}_{it} + \beta_3 \text{Democracy}_{it} + \beta_4 (\text{PublicSectorSize}_{it} * \text{Corruption}_{it}) + \beta_4 (\text{PublicSectorSize}_{it} * \text{Democracy}_{it}) + \beta_5 \text{GDPpc}_{it} + \beta_6 (\text{GDPpc}_{it} * \text{GDPpc}_{it}) + \beta_7 \text{ForeignDirectInvestment}_{it} + \beta_8 \text{Education}_{it} + \beta_9 \text{Agriculture}_{it} + \varepsilon_{it}$$

Again, the regression will be run twice. First, the fully institutionalized democracy variable represents democracy and thereafter it will be represented by the democracy variable of the Freedom House. Data for the corruption variable will be retrieved from Transparency International (2021). This is the Corruption Perception Index (CPI) and measures the perceived level of corruption. Critics could argue that the perceived value of corruption could be significantly different from the real level of corruption. People's perception including the perception of experts is instinctively based on comparison. The level of corruption may be based on a comparison with neighboring countries and how the situation ought to be according to the citizens of a country. When a state is surrounded by high corrupt countries and has a relatively high acceptance of corruption, the state will have a high chance to underestimate its level of corruption (Søreide, 2006). On the other side, a country like Germany, which has an aversion to corruption, is likely to overestimate its level of corruption (Bussmann, Niemeczek & Vockrodt, 2018). To control for the possible mismatch between real corruption and perceived corruption the CPI variable will be substituted by the (control of) corruption variable of the World Governance Indicators (World Bank, 2021b). The World Governance Indicator (WGI) of corruption also partly measures the perception of corruption but this is the second-best alternative because objective criteria are too hard to collect, too expensive and most importantly are largely misleading (Rohwer, 2009).

The second possible mechanism for the findings of Lee (2005) is the shift of political power to the majority that has been triggered by democratization. The majority of people demand redistribution policies, which can only be effectively executed by older democracies, see figure

1b. To test this mechanism the variable Young Democracy, which is a dummy variable constructed by the Boix-Miller-Rosato (2018) dataset, will be put into the model instead of the democracy variable. Countries with less than twenty years of consecutive democratic experience are coded as 1, while all other countries with more democratic experience are coded as 0. In line with hypothesis 4 and theoretical mechanism 2, young democracies should not be able to transform the distribution demands of the majority into concrete policy actions, while this should be the case for older democracies. This leads to the following equation:

$$(3) \text{Inequality}_{it} = \beta_0 + \beta_1 \text{PublicSectorSize}_{it} + \beta_2 \text{YoungDemocracy}_{it} + \beta_3 (\text{PublicSectorSize}_{it} * \text{YoungDemocracy}_{it}) + \beta_4 \text{GDPpc}_{it} + \beta_5 (\text{GDPpc}_{it} * \text{GDPpc}_{it}) + \beta_6 \text{ForeignDirectInvestment}_{it} + \beta_7 \text{Education}_{it} + \beta_8 \text{Agriculture}_{it} + \varepsilon_{it}$$

The Young Democracy variable only tells a part of the story. It shows if the possible equalizing effect of democracy, due to a shift in political power, may not apply to younger democracies. According to Muller (1988), being a democracy only reduces income inequality if it is maintained for a relatively long period of time. A democracy duration variable would give additional information about the exact relationship between the age of a democracy and income inequality. Judging by Muller's findings and the theory of political power, one would expect that a democracy duration variable should be negative and significant when income inequality is the dependent variable. Because of that, the variable democracy duration will also be regressed with all control variables. Data for the democracy duration variable is retrieved from the Boix-Miller-Rosato (2018) dataset. The democracy duration variable is the number of consecutive years of being a democracy. Coming back to the Young Democracy variable, there is no exact definition for a young or new democracy. In the previous regressions, young democracy has been defined as a country with less than 20 years of democratic experience, which is in line with the definition of Muller (1988). However, there is no consensus about the exact definition of being a young democracy. Brender & Drazen (2005), for example, defined the first four competitive elections of a country as a young democracy, which is a lower cut-off point than Muller's definition. Hence, different age limits<sup>11</sup> will be taken for a young democracy to see if the results still hold.

Next, I zoom in on a problematic implicit assumption of theoretical mechanism 2, which is called level 2 as can be seen in figure 1c. Lee (2005) neglects cultural heterogeneity in his analysis and assumes that the lower and middle classes in every country would like to have more distributional policies if they gain political power. However, the desire for more distribution is a preference and this preference differs between countries. It appears that culture has a large effect

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<sup>11</sup> The age limits are set on 15, 12 and 10 consecutive years of being a democracy.



on the attitude towards redistribution, via the degree of self-determination, (Pikit & Rode, 2016) and even on redistributive policies itself (Alisina, 2003). There are two cultural dimensions of Hofstede (2011) that could have a possible effect on income inequality. These cultural dimensions are Individualism and Long-Term Orientation. To measure the role of culture on income equality multiple random-effects model will be run. The reason for this specific type of panel data model is because it enables the inclusion of time-invariant variables like Individualism and Long-Term Orientation, while this analysis would not be possible in a fixed-effect model. Contrary to Long-term Orientation, Individualism also has an indirect effect via Public Sector Size on income inequality because it influences distributional preferences.

In addition, the cultural dimension of Individualism says something about the willingness of the majority of people to redistribute money. Similar to the age of a democracy (theoretical mechanism 2), you need a certain level of willingness to redistribute money in order to activate the equalizing effect of being a democracy. To test this hypothesis 5c, together with the earlier sub-hypotheses of 5, the following formula emerges:

$$(4) \text{Inequality}_{it} = \beta_0 + \beta_1 \text{PublicSectorSize}_{it} + \beta_2 \text{Individualism}_i + \beta_3 (\text{PublicSectorSize}_{it} * \text{Individualism}_i) + \beta_4 \text{Democracy}_{it} + \beta_5 (\text{PublicSectorSize}_{it} * \text{Democracy}_{it}) + \beta_6 \text{Corruption}_{it} + \beta_7 (\text{PublicSectorSize}_{it} * \text{Corruption}_{it}) + \beta_9 \text{DemocracyDuration}_{it} + \beta_{10} \text{YoungDemocracy}_{it} + \beta_{11} (\text{PublicSectorSize}_{it} * \text{YoungDemocracy}_{it}) + \beta_{12} \text{LongtermOrientation}_i + \beta_{13} \text{GDPpc}_{it} + \beta_{14} (\text{GDPpc}_{it} * \text{GDPpc}_{it}) + \beta_{15} \text{ForeignDirectInvestment}_{it} + \beta_{16} \text{Education}_{it} + \beta_{17} \text{Agriculture}_{it} + \varepsilon_{it}$$

First, only the cultural variable Individualism with all the control variables are being regressed to test the direct effect of Individualism as described in hypothesis 5a. Second, the interaction variable of Public Sector Size and Individualism is being added to the model to test for the indirect effect of Individualism via PSS on income inequality as portrayed by hypothesis 5b. Next, the democracy variable and its interaction effect are being added to the model to test for hypothesis 5c. If the model controls for the relevant cultural variables it should be the case that the interaction effect of the democracy variable remains significant. To see if the theoretical mechanism of corruption is still relevant after controlling for national culture, the corruption variable and its interaction term with PSS are being added to the model shown in equation 4. Once checked if corruption is still relevant the variables democracy duration, Young Democracy and its interaction term with PSS are added to the model to see if the age of a democracy is still relevant after controlling for national culture.

To gain more insights into the exact role of culture in the relationship between democracy and income inequality an additional analysis will be performed. The average value of

Individualism is taken from the dataset and countries scoring below that average value are indicated as collectivistic countries. All other countries are defined as individualistic countries. Collectivistic countries are more willing to redistribute money compared to individualistic countries and if culture plays an important role in the relationship between democracy and income inequality I should only see an indirect equalizing effect of democracy in collectivistic countries, i.e. a negative and significant interaction effect of democracy with Public Sector Size on income inequality. Hence, the equalizing effect of democracy cannot be activated in individualistic countries due to societies' lack of willingness to redistribute money. The basic regression, displayed in formula 4, excluding the corruption and age of democracy variables, will thus be regressed two additional times. First, only including collectivistic countries and a second time only including individualistic countries. All these models will now be performed, presented and discussed in the empirical results section.

## 4. Empirical results

### 4.1 Main analysis: level 0

In this subsection, the main analysis of Lee (2005) has been duplicated to see if the results still apply to a more present situation. All the models have been checked for serial correlation using the xtserial test of Drukker (2003). If the test was significant, indicating serial correlation, robust standard errors were added to the model. In addition, every regression has been checked by the Hausman (1978) and Breusch-Pagan Lagrange multiplier (1979) test to apply the most suited panel data model. Most regressions had both a significant Hausman and Breusch-Pagan Lagrange Multiplier test and are therefore assigned to a fixed-effects model. It will be explicitly mentioned if this is not the case.

As can be seen in Table 2, the Public Sector Size (PSS) variable has a negative and significant effect at the 1 percent level. After controlling for other factors the PSS variable remained its significance at the 10 percent level, see model 2. An increase of one standard deviation in the share of tax revenues in GDP leads to a 0.16 - point<sup>12</sup> decrease of the Gini-index. Thus, government size has a relatively small, but significant, impact on income inequality. This is not in line with hypothesis 1, which stated that government size has a positive effect on income inequality. A possible explanation for this finding is that there are relatively more developed democracies in my dataset as compared to Lee (2005), which are more likely to have equity-oriented policies. Lee predicted that government size had a net positive effect on income inequality because more countries were hypothesized to execute growth-oriented policies than equity-oriented policies in his dataset. The kind of policy angle determines the effect of government size on income inequality. As mentioned earlier, growth-oriented policies exacerbate income inequality while equity-oriented policies reduce income inequality. Lee's observations are from 1970 to 1994, which are significantly older than the dataset from 2000 to 2019 used in this paper. Countries could have become more democratic during those two periods, implementing relatively more equity-enhancing policies and this could explain the significant negative effect of government size on income inequality in our analysis.

Foreign Direct Investment and the share of employment in agriculture have their expected sign but both are not significant at the 10 percent level. The education variable, gross enrollment in secondary education, is negative and significant at the 1 percent level. This is also in line with

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<sup>12</sup>  $0.0183 * 8,478 = 0,155$

the findings of De Gregorio & Lee (2002) and Abdullah et al. (2015), indicating that education has a negative effect on income inequality. Contrary to the Kuznets hypothesis, GDP

Table 2: Main analysis of Lee (2005)

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini	(6) Gini
<i>Public Sector Size</i>	-0.0216*** (0.00834)	-0.0183* (0.00948)	-0.0387*** (0.0109)	-0.0289** (0.0123)	-0.0213*** (0.00895)	-0.0142 (0.0105)
<i>Fully Institutionalized Democracy</i>			-0.339 (0.243)	-0.0153 (0.00960)		
<i>PSS * FullyInstdem.</i>			0.00850 (0.00902)	0.00399 (0.00960)		
<i>Democracy</i>					0.0175*** (0.00536)	0.0185*** (0.00680)
<i>PSS * Democracy</i>					-0.000331 (0.000344)	-0.000678* (0.000412)
<i>GDP per capita</i>		-0.0359*** (0.0122)		-0.0286** (0.0126)		-0.0446*** (0.0125)
<i>GDP per capita<sup>2</sup></i>		0.000423*** (0.000110)		0.000385*** (0.000113)		0.000485*** (0.000112)
<i>Foreign Direct Investment</i>		0.00109 (0.00155)		0.000229 (0.00256)		0.00141 (0.00157)
<i>Gross enrollment secondary education</i>		-0.0171*** (0.00448)		-0.0174*** (0.00461)		-0.0158*** (0.00450)
<i>Share employment in agriculture</i>		0.00420 (0.0119)		0.00366 (0.0127)		0.00472 (0.0120)
<i>Constant</i>	38.27*** (0.152)	38.89*** (0.598)	38.52*** (0.211)	38.79*** (0.688)		38.32*** (0.566)
# of observations	1829	1458	1647	1354	1816	1446
R-squared overall	0.033	0.297	0.064	0.261	0.055	0.285
R-squared between	0.030	0.283	0.056	0.255	0.046	0.287
R-squared within	0.004	0.035	0.009	0.036	0.012	0.044

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

per capita shows a U-curve relationship with income inequality. Both GDP per capita and its quadratic term are significant at the 1 percent level, thereby creating a U-curve. For clarification, the GDP per capita variable has been divided by 1000 to make the coefficient larger and more interpretable. A possible explanation for this unexpected result might again be the difference in

time when measuring the effect of development on income inequality. The Kuznets curve has been developed in 1955 and our dataset ranges from 2000 to 2019. Between these two periods, many countries have developed and gained more income. List & Gallet (1999) researched what would happen “after” the inverted U-curve hypothesized by Kuznets. They concluded that there is indeed an inverted U-curve relationship between development and income inequality for countries with an income under \$12000. However, advanced economies with a GDP per capita of over \$12000 experience a positive relationship between GDP per capita and income inequality. This finding, combined with the fact that most countries significantly increased their income between 1955 and 2000 might explain the U-curve relationship between GDP per capita and income inequality in Table 2.

Next, the direct and interaction effect of (fully institutionalized) democracies on income inequality has been examined in models 3 to 6. Government size still has a negative and significant effect at the 1 percent level in model 3, while the fully institutionalized democracy variable has a positive but insignificant effect on income inequality. Only countries which scored a 9 or higher on the institutionalized democracy scale are coded as a 1 and are defined as fully institutionalized democracies. In model 3 the interaction effect of fully institutionalized democracy and government size is added and this is indicated by the multiplication sign between the Public Sector Size variable and the fully institutionalized democracy variable. This interaction term is negative and insignificant, which is contrary to the results of Lee (2005). When adding control variables the absolute size of the interaction effect decreases, but neither enough to reach a negative sign nor enough to reach the 10 percent significance level in model 4. In appendix table 5A this analysis has also been run with the institutionalized democracy variable leading to similar results as the fully institutionalized democracy variable.

The same analysis has been applied in models 5 and 6 except for the fact that the fully institutionalized democracy variable of Polity5 has been replaced by the Democracy variable of Freedom House. In addition, the variables Democracy and Public Sector size are being centered, which might need some extra explanation. The coefficients of the PSS and Democracy variable normally represent the situation in which the other variable has a value of 0, due to the interaction effect. This situation is not realistic because the coefficient of Public Sector Size depicts the effect of government size in fully non-democratic countries (value democracy = 0) and the coefficient of democracy depicts the effect of this variable when the government’s tax revenue share in GDP is 0, which is an unrealistic situation. To make both coefficients interpretable the Public Sector Size variable and the democracy variable with its interaction term are being centered in Table 2.

This is a linear transformation where the mean of the variable is shifted to a value of 0. When doing so, the interpretation of both Public Sector Size and institutionalized democracy coefficient changes to a situation in which the other variable has an average score and not a meaningless score of 0 anymore. For example, the coefficient of the democracy variable is now applicable to a situation for a country with an average government size instead of a country with a non-existing government size of 0. This linear transformation, called centering, has been applied to all subsequent interaction effects between different variables in this thesis and exceptions will be explicitly mentioned<sup>13</sup>.

Coming back to the results of models 5 and 6, the democracy variable has, quite surprisingly, a positive and significant effect in all the models of Table 2. Being a democracy thus exacerbates income inequality but its effect is almost neglectable. An increase of one standard deviation of the democracy variable leads to less than a 0.5 - point<sup>14</sup> increase in the Gini-index. All control variables have approximately the same effect size. Most interesting, the interaction effect of government size and democracy is negative and significant at the 10 percent level after adding all the control variables. Hence, government size coupled with a high degree of democracy lowers income inequality as stated in hypothesis 2. In short, both the fully institutionalized democracy variable and the institutionalized democracy variable (shown in Appendix Table 5A) do not have a negative significant interaction effect with PSS on income inequality. However, the democracy variable has a negative and significant interaction effect with PSS on income inequality, concluding that there is weak evidence for hypothesis 2. After adding the interaction term with control variables in model 6 the government size variable is not negative and significant anymore. Hence, government size does not have a direct effect anymore on income inequality, but its interaction effect with democracy is significant at the 10 percent level. The negative effect of government size thus is conditional on the level of democracy within a country according to this model.

A limitation of the main analysis is that there is no uniform way to measure the size of a government. In the previous analyses government size was defined as the share of government revenue in GDP. Another way of measuring the government size is to express this as the governmental expenditures in GDP. Instead of using government revenue, the governmental expenses will be used to strengthen the results in this robustness check. Data has been retrieved

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<sup>13</sup> The institutionalized democracy variable is also centered in appendix table 5A, but the fully institutionalized democracy variable and its interaction term with PSS is not. The reason for this is because the latter variable is a dummy variable and the average value of such variable has no useful meaning.

<sup>14</sup>  $0.0186 * 26.317 = 0.490$

from IMF (2021) and ranges from 2000 to 2019. It includes total expense plus the net acquisition of nonfinancial assets. When substituting the government revenue in GDP variable to government expenditure in GDP variable the results do not differ a lot. Government size, now measured as a share of government expenditure, is negative and significant in every model. The interaction effect of fully institutionalized democracy and Public Sector Size is positive and significant at the 5 percent level in model 3. However, this unexpected effect becomes insignificant in model 4 after adding control variables. The interaction effect of institutionalized

Table 3: Government expenditure as government size variable

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini	(6) Gini
<i>Government expenditure</i>	-0.0404*** (0.00525)	-0.0428*** (0.00724)	-0.0537*** (0.00634)	-0.0483*** (0.00839)	-0.0447*** (0.00533)	-0.0451*** (0.00725)
<i>Fully Institutionalized democracy</i>			-0.642** (0.284)	-0.0109 (0.339)		
<i>Govexp * FullyInstdem</i>			0.0192** (0.00798)	0.0126 (0.00794)		
<i>Democracy</i>					0.0159*** (0.00404)	0.0230*** (0.00531)
<i>Govexp * Democracy</i>					-0.000449** (0.000188)	-0.000434* (0.000266)
<i>GDP per capita</i>		-0.0490*** (0.0116)		-0.0462*** (0.0122)		-0.0535*** (0.0120)
<i>GDP per capita<sup>2</sup></i>		0.000539*** (0.000108)		0.000541*** (0.000112)		0.000564*** (0.000110)
<i>Foreign Direct Investment</i>		0.00119 (0.00156)		0.00238 (0.00253)		0.00108 (0.00155)
<i>Gross enrollment secondary education</i>		-0.0138*** (0.00384)		-0.0156*** (0.00416)		-0.0127*** (0.00386)
<i>Share employment in agriculture</i>		0.0193** (0.00942)		0.0231** (0.0101)		0.0215** (0.00942)
<i>Constant</i>	40.44*** (0.164)	39.42*** (0.473)	40.73*** (0.198)	40.61*** (0.575)	39.24*** (0.342)	39.26*** (0.474)
# of observations	2758	2030	2444	1869	2719	2015
R-squared overall	0.205	0.336	0.209	0.300	0.087	0.355
R-squared between	0.171	0.283	0.214	0.253	0.079	0.295
R-squared within	0.0225	0.0691	0.0305	0.0782	0.0342	0.0811

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

democracies and PSS, displayed in Appendix table 5A, is also still insignificant for this new measurement of government size. In line with the previous analysis, the democracy index has a

negative and significant interaction effect at the 5 percent level. After adding control variables in model 6 the significance drops to the 10 percent level. There is thus only evidence for a negative interaction effect of the democracy variable of Freedom House (2021) on income inequality via government size.

In short, both results of Table 2 and 3 are contradicting the findings of Lee (2005). Fully institutionalized democracies should have a negative and significant interaction effect with government size on income inequality, while this should not be the case for institutionalized democracies. However, as discussed earlier, due to the increase of the average age of a democracy over time it could be possible that (institutionalized) democracies could also have a significant and negative interaction effect with government size on income inequality. Longer periods of democracy also lead to a lower level of corruption (Bäck & Hadenius, 2008) and to an effective translation of distributional demands of the majority of people (Lee, 2005), which might cause the significant negative interaction effect of democracy with government size on income inequality. However, neither fully institutionalized democracies nor institutionalized democracies show a significant interaction effect. Only the democracy variable of Freedom House (2021) has a significant interaction effect with government size on income inequality at the 10 percent level.

#### **4.2 Factors causing main analysis: level 1**

In order to explain these rather disappointing results, the two different theoretical mechanisms derived from Lee (2005) that could possibly explain the equalizing effect of democracy via government size will now be analyzed in detail. By doing so, a possible explanation could also be found for the insignificant interaction effect of (fully) institutionalized democracies. First, the role of corruption is being examined (theoretical mechanism 1) and thereafter the shift in political power combined with the age of a democracy (theoretical mechanism 2). Mapping the relationship between democracy and income inequality, via government size, could also help to find an explanation for the rather contradictory results in the literature. Hence, the relationship between democracy and income inequality has been described as both negative (e.g. Weede, 1989; Reuveny & Li, 2003) and insignificant (e.g. Bollen & Jackman, 1985; Deininger & Squire, 1996). The equalizing effect of a democracy could, for example, only be activated by older democracies (theoretical mechanism 2), which could subsequently possibly explain the different results in the literature. Regardless of the results, clarifying the possible theoretical mechanisms of Lee (2005) helps to know what the possible effects are of a decline in democracy on income inequality.



#### 4.2.1 Theoretical mechanism 1: Corruption

Lee (2005) finds a negative interaction effect for fully institutionalized democracies with government size on income inequality while he attains no significant results for institutionalized democracies. As already mentioned the main difference between these two variables is the inclusion of well-functioning accountability groups in fully institutionalized democracies while these do not have to be present in ordinary institutionalized democracies. The lower degree of corruption might thus explain the negative and significant interaction effect of fully institutionalized democracies in Lee's analysis. To test this theory together with hypothesis 3a the Corruption Perception Index and its interaction term with government size have been added in Table 4. Keep in mind that the Corruption Perception Index (CPI) variable ranges from 0 to 100 and that a *higher* score implicates a *lower* perception of corruption. According to hypothesis 3a, corruption should have a positive effect on the relationship between government size and income inequality. Knowing that a lower CPI score indicates a higher perception of corruption, the interaction effect between CPI and government size should be negative. A government coupled with a higher CPI score, and thus a lower perception of corruption, should lower income inequality. Government officials are (perceived to be) less corrupt and will more likely refuse to use their public power to attain private gains, which flows to the influential rich elite, thereby exacerbating income inequality. Models 1 to 3 display the relationship between CPI and income inequality. After including corruption and its interaction effect with government size, the Public Sector Size variable is still negative and significant at the 1 percent level. CPI has a direct and indirect insignificant effect on income inequality but this changes after adding control variables in model 3. After adding these control variables CPI becomes positive and significant at the 1 percent level. All models find a negative interaction effect of government size and corruption on income inequality. However, model 5 is the only model which finds a negative and significant interaction effect at the 1 percent level. Hence, there is weak evidence for hypothesis 3a.

Models 4 and 5 include the fully institutionalized democracy index with its interaction term to be able to test hypothesis 3b. If corruption affects the fully institutionalized democracy effect then there should be a difference in the coefficient of fully institutionalized democracy and its interaction effect between models 4 and 5. Hence, model 5 corrects for the corruption variable and its interaction effect, while model 4 is the old regression without the inclusion of corruption. The inclusion of corruption and its interaction term in model 5 did not largely alter the results of model 4. Hence, the variable fully institutionalized democracy is still insignificant. However, the interaction term of fully institutionalized democracy variable became positive and significant at the 10 percent level. This made the already insignificant equalizing effect of fully

institutionalized democracy and government size even worse. After correcting for corruption, it shows that fully institutionalized democracies exacerbate income inequality via government size. This result is to a certain degree in line with hypothesis 3b: after correcting for corruption, the

Table 4: Effect corruption on relationship Public Sector Size and income inequality

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini	(6) Gini	(7) Gini
<i>Public Sector Size</i>	-0.0244*** (0.00918)	-0.0243*** (0.00919)	-0.0246** (0.0104)	-0.0289* (0.0123)	-0.0639*** (0.0149)	-0.0142 (0.0105)	-0.0203* (0.0118)
<i>Corruption Perception Index</i>	0.0101 (0.00619)	0.0129 (0.0102)	0.0333*** (0.00790)		0.0253 (0.0176)		0.0300** (0.00807)
<i>PSS * CPI</i>		-0.000152 (0.000431)	-0.000709 (0.000498)		-0.00306*** (0.00116)		-0.000181 (0.000692)
<i>Fully Institutionalized Democracy</i>				-0.0153 (0.272)	-0.506 (0.795)		
<i>PSS * Fully Instdem</i>				0.00399 (0.00960)	0.0317* (0.0172)		
<i>Democracy</i>						0.0185*** (0.00680)	0.0143* (0.00762)
<i>PSS * Democracy</i>						-0.000678* (0.000412)	-0.000676 (0.000636)
<i>GDP per capita</i>			-0.0462*** (0.0129)	-0.0286** (0.0126)	-0.0419*** (0.0130)	-0.0446*** (0.0125)	-0.0508*** (0.0133)
<i>GDP per capita<sup>2</sup></i>			0.000523*** (0.000116)	0.000385*** (0.000113)	0.000484*** (0.000116)	0.000485*** (0.000112)	0.000553*** (0.000118)
<i>Foreign Direct Investment</i>			0.00148 (0.00177)	0.000229 (0.00256)	-0.00256 (0.00270)	0.00141 (0.00157)	0.00168 (0.00178)
<i>Gross enrollment secondary education</i>			-0.0163*** (0.00470)	-0.0174*** (0.00461)	-0.0162*** (0.00473)	-0.0158*** (0.00450)	-0.0152*** (0.00474)
<i>Share employment in agriculture</i>			0.0186 (0.0138)	0.00366 (0.0127)	0.0164 (0.0144)	0.00472 (0.0120)	0.0156 (0.0139)
<i>Constant</i>	37.50*** (0.0403)	37.51*** (0.0480)	37.77*** (0.607)	38.79*** (0.688)	37.95*** (0.644)	38.32*** (0.566)	37.59*** (0.611)
# of observations	1675	1675	1367	1354	1308	1446	1356
R- squared overall	0.060	0.055	0.161	0.261	0.203	0.285	0.092
R-squared between	0.019	0.019	0.195	0.255	0.210	0.287	0.128
R-squared within	0.006	0.006	0.046	0.036	0.051	0.044	0.051

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

fully institutionalized democracy variable's effect becomes insignificant. Hence, the equalizing effect of these fully institutionalized democracies is now captured by the negative and significant

interaction effect of the Corruption Perception Index with government size<sup>15</sup>. However, without the additional benefit of having a lower level of corruption, the fully institutionalized democracy variable became even positive and significant at the 10 percent level. This was not predicted by hypothesis 3b. In addition, the initial interaction effect of fully institutionalized democracy with PSS was already insignificant, which was also not predicted in an earlier stated hypothesis.

Models 6 and 7 in Table 4 substitute the fully institutionalized democracy variable with the democracy variable of Freedom House to answer hypothesis 3b. Contrary to fully institutionalized democracy, the democracy variable's direct effect and its interaction effect with government size are significant as can be seen in model 6. After adding corruption in model 7 the interaction effect of democracy with government size becomes insignificant and the direct effect of democracy also decreased in size and significance to the 10 percent level. Hence, hypothesis 3b cannot be rejected. After correcting for corruption in model 7, the democracy variable's effect has become. Overall, there is limited evidence for the theory that states that the indirect equalizing effect of democracy is largely due to the simultaneous change in the level of corruption. If the theory behind theoretical mechanism 1 was hypothetically speaking true, the results of the democracy variable should also be seen in the fully institutionalized democracy variable and the institutionalized democracy<sup>16</sup> variable. However, both interactions of the latter variables with government size showed insignificant results and stayed insignificant after controlling for corruption.

However, data on corruption has its limitations because most people will not openly speak about corruption. Unfortunately, the debate about the level of corruption in a society is often based on weak information. Furthermore, there is no distinction for different kinds of corruption and there is a large grey area in this field of study. Every country has its own rules and what is perceived as corruption in one country might be perfectly legal in another. For example, facilitation payments, which are unofficial fees to get things done, are seen as a form of corruption in Germany, while this is technically speaking legal in countries like Australia and the United States (Girard, 2019). Hence, there is no clear-cut definition of corruption, it differs per country and is dependent on national law. An expensive gift to encourage informal relations

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<sup>15</sup> Remember that theoretical mechanism 1 pointed out that the indirect equalizing effect of the fully institutionalized democracies emerged due to its low level of corruption.

<sup>16</sup> The analysis of Tables 4 and 5 have also been run for institutionalized democracies. The direct and interaction effect of the institutional democracy variable with Public Sector Size was already insignificant without controlling for corruption. After controlling for corruption the institutionalized democracy variable and its interaction effect with PSS remained insignificant. These results can be provided on request.

with potential clients can be seen as corruption in one country, while it is common practice in another (Søreide, 2006). The level of perceived corruption is also biased by neighboring countries and the overall acceptance of corruption. When a country dislikes corruption it will more often perceive facilitation payments and expensive gifts to potential clients as corruption, leading to an overestimation of corruption.

Despite the widely adopted definition of corruption, the misuse of public power for private benefit, there is no consensus about the exact definition of corruption (Rohwer, 2009). Because of this ambiguity and the many different faces of corruption, it is almost impossible and very expensive to construct a measurement system that maps actual levels of corruption. Hence, to control for the possible mismatch between real corruption and perceived corruption the Corruption Perception Index variable will be substituted by a second-best option. This is the (control of) corruption variable of the World Governance Indicators (World Bank, 2021b). Unfortunately, this variable also partly measures the perception of corruption but there is not (yet) a variable that captures the objective level of corruption. The control of corruption variable measures the degree to which public power has been used for private gain. Although the WGI of corruption slightly differs from the corruption perception index of Transparency International both variables have a very high correlation (0.98). The WGI variable is constructed by more sources and also measures the perception of opinion polls instead of only consulting experts. After replacing the corruption variable the results did not change, see table 6A in the appendix. Control of corruption has a direct positive and significant effect on income inequality, while its interaction effect with government size is negative and significant at the 5 percent level in 1 out of the 4 models. After adding the control of corruption variable the negative and significant interaction term of democracy became insignificant in line with hypothesis 3b, but the interaction term of corruption itself is also insignificant. Unfortunately, the results largely stay the same when the corruption variable is being replaced. Overall, this means that there is limited support for the corruption theory behind theoretical mechanism 1. Next, I move on to theoretical mechanism 2, which covers the alternative mechanism of political power and age of democracy to possibly explain the equalizing effects of democracy.

#### **4.2.2 Theoretical mechanism 2: Age of democracy**

According to Lee (2005), fully institutionalized democracies have an equalizing effect via government size on income. Thereby he mentions that democratization leads to a shift of political power to the majority, who demand more redistribution and in the end this leads to lower income inequality. The main difference with the analysis of Lenski (1966) is that he argues that the

equalizing effect of democracy goes via Public Sector Size and has a conditionality. This conditionality is that a democracy has to be experienced to be able to translate the distributional demands of the majority of people to effective policy actions. This conditionality can be linked to the findings of Muller (1988) who argues that it takes some time for a democracy to have an equalizing effect on income. A democracy can only have a negative effect on income inequality when it is maintained for a longer period of time. To analyze this theoretical mechanism 2, the shift of political power combined with the age of a democracy, a new variable called democracy duration has been added to the model. This variable measures the number of consecutive years that a country has been a democracy according to the binary definition of Boix-Miller-Rosato (2018). More consecutive years of democracy should have a negative effect on income inequality according to Muller (1988) and this is also the result in model 1 of Table 5. Both government size and democracy duration are negative significant at the 1 percent level. This result does not change after adding control variables in model 2.

The dummy variable Young Democracy, which is a country with less than 20 consecutive years of democratic experience, is being added in models 3 to 5. Being a young democracy has a positive and significant effect on income inequality in all three models. Its effect size is being tripled after adding the interaction term of Young Democracy with government size. Young democracies have a Gini-index which is nearly 2-points higher as older democracies. These are countries that have over 20 consecutive years of democratic experience. According to the theoretical mechanism of the shift of political power, the equalizing effect of being a democracy should only appear for older democracies and not for young democracies. Hence, an insignificant interaction effect between young democracies and Public Sector Size is expected as stated in hypothesis 4. Although young democracies experience more income inequality than old(er) democracies, the interaction effect of Young Democracy with government size is negative and significant at the 10 percent level. Contrary to hypothesis 4, young democracies with a larger government are indeed capable to lower income inequality despite the fact of a more corrupt government (see appendix table 2A) and the theorized inability to transform distributional demands into effective policy actions. Because of this, hypothesis 4 has to be rejected together with the idea that only older democracies could benefit from the equalizing effect via government size caused by a shift in political power to the majority of people.

After adding the interaction term of Young Democracy and government size, the Public Sector Size variable has lost its negative and significant effect on income inequality. Models 6 to 8 incorporated the effect of old democracies, countries over 40 consecutive years of democratic

experience, on income inequality. In line with the democracy duration variable, old democracies experience lower levels of inequality compared to younger democracies. After adding its

Table 5: Effect age of democracy on income inequality

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini	(6) Gini	(7) Gini	(8) Gini
<i>Public Sector Size</i>	-0.0334*** (0.00970)	-0.0318*** (0.0115)	-0.0278*** (0.00973)	-0.0109 (0.0175)	-0.0121 (0.0165)	-0.0329*** (0.00983)	-0.0492* (0.0283)	-0.0488 (0.0314)
<i>Democracy duration</i>	-0.0319*** (0.00472)	-0.0337*** (0.00936)						
<i>Young Democracy</i>			0.532*** (0.0902)	1.710** (0.832)	2.735*** (0.422)			
<i>PSS * Young Democ</i>				-0.0698* (0.0409)	-0.134*** (0.0241)			
<i>Old Democracy</i>						-0.497*** (0.179)	-1.261* (0.642)	-2.838*** (0.672)
<i>PSS * Old Democ</i>							0.0394* (0.0235)	0.126*** (0.0298)
<i>Corruption Perception index</i>					0.0442*** (0.00803)			0.0349*** (0.00789)
<i>PSS * CPI</i>					-0.00201*** (0.000116)			-0.00171** (0.000734)
<i>GDP per capita</i>		-0.00924 (0.0145)			-0.0354*** (0.0131)			-0.0405*** (0.0129)
<i>GDP per capita<sup>2</sup></i>		0.000283** (0.000118)			0.000448*** (0.000278)			0.000479*** (0.000116)
<i>Foreign Direct Investment</i>		0.00115 (0.00156)			0.00114 (0.00175)			-0.000226 (0.00198)
<i>Gross enrollment secondary education</i>		-0.0116** (0.00471)			-0.0180*** (0.00465)			-0.0164*** (0.00471)
<i>Share employment in agriculture</i>		-0.00947 (0.0124)			0.0136 (0.0140)			0.0226 (0.0141)
<i>Constant</i>	40.01*** (0.291)	40.22*** (0.684)	38.22*** (0.179)	37.90*** (0.330)	37.50*** (0.681)	38.69*** (0.197)	38.98*** (0.538)	39.38*** (0.701)
# of observations	1822	1451	1822	1822	1360	1822	1822	1360
R-squared overall	0.086	0.095	0.041	0.006	0.014	0.060	0.019	0.092
R-squared between	0.082	0.081	0.037	0.006	0.034	0.055	0.020	0.115
R-squared within	0.032	0.046	0.026	0.038	0.058	0.010	0.014	0.062

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

interaction effect with government size the coefficient of old democracy nearly triples. The interaction effect of Old Democracy with PSS is positive and significant in models 7 and 8, which goes completely against the predictions of theoretical mechanism 2. Hence, these older democracies were expected to have an equalizing effect via PSS but the opposite effect is being found. However, it seems that the age of a democracy does play an important role in determining the effect of a democracy on income inequality. When a dummy variable of democracy age, either young or old democracy, is being added to the model the initial government size effect becomes insignificant.

The most surprising result is that the equalizing effect of a democracy via government expenditures only applies to democratic countries which have little democratic experience. This completely goes against the view of Gradstein & Milanovic (2000) and Muller (1988) who argue that the egalitarian influence of democracy is a long-term incremental effect. Being an experienced democracy seems to exacerbate income instead of improving it, indicated by the positive coefficient of the interaction term of old democracy. Hence, the theoretical mechanism of the shift of political power to the majority, due to democracy, combined with the fact that the distributional demands of the majority can only be effectively translated by experienced democracies, summarized as theoretical mechanism 2, also fails to be an explanation for the indirect equalizing effect of democracy in Lee (2005). These results might indicate that a different variable, which is more present in young democracies as in other governments, causes the negative and significant interaction effect of young democracies.

Before delving into that, the problem about the ambiguous age bar for young democracies should first be tackled. As discussed in the methodology section, there is no uniform definition of young or new democracies in the literature. In the main analysis, the definition of Muller (1988) has been applied to define the age bar for young democracies, which was set at 20 consecutive years. This has been a fairly high age bar compared to the definition of Brender & Drazen (2005), who argue that countries within the first four competitive elections fall into the young democracy category. The first four competitive elections usually have a time frame between 10 and 15 years, which is significantly lower than the age bar of Muller (1988). Hence, multiple equations will be regressed with different age bars for young democracies to see if the results change.

In addition to the previous regression of the democracy duration variable, there have been a small number of adjustments. The democracy duration variable applies a dichotomous coding.

A country is being coded as a democracy if both contestation and participation conditions are being met. This means that there are free and fair elections but also that a threshold value for suffrage is being met. This is a narrow definition for being a democracy, especially if you take into consideration that only a majority of adult men should have the right to vote to satisfy the participation condition (Biox, Miller & Rosato, 2015). The reason for this narrow threshold is to prevent a loss of information before World War I and thereby missing the first wave of democratization. However, this time frame is not relevant for my research and this narrow definition does not perfectly fit in the present situation. The democracy variable of Freedom House (2021) also includes additional criteria for being a democracy like civil liberty. Countries that score below 50 points of the available 100 are not seen as an ‘electoral democracy’ according to Freedom House (2021). However, some of these non-electoral democracies are defined as a democracy in the Biox, Miller and Rosato (2015) dataset. To combine this dataset and the Freedom House data, countries that scored below 50 on the democracy index are coded as “0” in the democracy duration variable. If the same countries score a value above 50 next year this will be seen as the first year of being a democracy. The age of a democracy thus restarts from 0 every time the democracy score falls below 50. In appendix table 7A the whole analysis showed in Table 8 is being performed without this small adjustment in the data.

As can be seen in Table 6, the interaction effect of Young Democracy with government size is negative in every regression regardless of its age bar. In addition, the interaction effect of Young Democracy with Public Sector Size is significant for every definition of Young Democracy except for model 2 where the cutoff point for young democracies has been set on 15 or fewer consecutive years. These results are very similar as compared to table 7A, where the democracy duration variable has not been adjusted. In short, the results are not in line with the idea that it takes some time for democracies to have an equalizing effect. In fact, the results are completely opposite as predicted by Muller (1988), Gradstein & Milanovic (2000) and Lee (2005). Both theoretical mechanisms constructed in level 1 (see figure 1b) fail to explain the equalizing effect of being a democracy in Lee (2005).

However, replicating both theoretical mechanisms has led to interesting results. Young democracies appear to have the ability to have an equalizing effect via Public Sector Size, while older democracies struggle to do so. In the current developed theoretical mechanisms, this does not add up. Hence, older democracies have relatively lower levels of corruption and the experience to effectively translate redistributive policy, which should have an equalizing effect, while young democracies do not have this experience and have relatively higher levels of



Table 6: Detailed information relationship between Young Democracy and income inequality

	(1) Gini	(2) Gini	(3) Gini	(4) Gini
<i>Public Sector Size</i>	-0.00486 (0.0121)	-0.0235** (0.0119)	-0.0234** (0.0117)	-0.0237** (0.0116)
<i>Young Democracy (20 years)</i>	2.026*** (0.334)			
<i>PSS * Young Democracy</i>	-0.0965*** (0.0189)			
<i>Young Democracy (15 years)</i>		0.262 (0.344)		
<i>PSS * Young Democracy</i>		-0.0278 (0.0189)		
<i>Young Democracy (12 years)</i>			0.307 (0.342)	
<i>PSS * Young Democracy</i>			-0.0341* (0.0191)	
<i>Young Democracy (10 years)</i>				0.635* (0.381)
<i>PSS * Young Democracy</i>				-0.0484** (0.0215)
<i>GDP per capita</i>	-0.0271** (0.0124)	-0.0433*** (0.0126)	-0.0418*** (0.0124)	-0.0384*** (0.0123)
<i>GDP per capita<sup>2</sup></i>	0.000356*** (0.000111)	0.000481*** (0.000113)	0.000470*** (0.000112)	0.000443*** (0.000111)
<i>Gross enrollment secondary education</i>	-0.0171*** (0.00442)	-0.0169*** (0.00447)	-0.0173*** (0.00447)	-0.0176*** (0.00449)
<i>Foreign Direct Investment</i>	0.000852 (0.00154)	0.00127 (0.00156)	0.00124 (0.00156)	0.00124 (0.00156)
<i>Share employment in agriculture</i>	-0.0103 (0.0120)	0.00677 (0.0126)	0.00871 (0.0124)	0.00663 (0.0122)
<i>Constant</i>	38.71*** (0.611)	39.05*** (0.616)	39.02*** (0.616)	39.04*** (0.617)
# of observations	1451	1451	1451	1451
R-squared overall	0.141	0.286	0.284	0.283
R-squared between	0.156	0.265	0.264	0.267
R-squared within	0.065	0.040	0.042	0.041

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

corruption, thereby hindering the equalizing effect. However, there is an implicit inaccurate assumption in the second developed theoretical mechanism, which might explain the odd results

of young and older democracies. Democratization leads to a shift of political power to the majority of people and the middle and lower classes, belonging to the majority of people, gain political power. Lee (2005) then subsequently assumes that these lower and middle classes demand more redistribution but as already mentioned this is a preference that could differ between countries. Before even looking whether older democracies are only able to translate distributional demands of the lower and middle classes to effective policy action, you should first want to know which countries (including the lower and middle classes) want to have more redistribution. As mentioned in the literature section, the culture dimension Individualism of Hofstede (2011) entails information about the preferences for redistribution. In Table 5, all countries that were once or more defined as a young democracy in the period of 2000 to 2019 are displayed in appendix table 7A. It appears that the average value for Individualism in the dataset (37) is far above the average for all young democracies (24). This might be a similar shared trait that could explain the unexpected negative interaction effect of young democracies on income inequality. Hence, in the next sections, I analyze the possible role of national culture on the relationship between democracy and income inequality.

#### **4.3 The influence of culture: level 2**

Until now, the theorized mechanisms that could possibly explain the equalizing effect for fully institutionalized democracies by Lee (2005) did not hold. Hence, the fully institutionalized democracy variable did not have a significant negative interaction effect with Public Sector Size in our earlier analyses. Only the democracy variable of Freedom House (2011) had an indirect equalizing effect via PSS. Contrary to the theorized mechanisms, young democracies also seem to have this indirect equalizing effect. A possible explanation for this result may be found in national culture. In the theoretical mechanism of the shift of political power there appears to be an inaccurate implicit assumption. This problematic implicit assumption will now be highlighted and nullified, at level 2, by adding national culture in the regression models. Hence, the lower and middle classes do not automatically demand more distribution policies when obtaining more political power but this is dependent on the attitude towards distributional policies. When the lower and middle classes have a relatively negative attitude towards redistribution, obtaining more political power will not lead to more distributional demands and policies. This means that the equalizing effect of democracy via a shift of political power is conditional on the attitude towards distributional policies, which is largely captured by national culture, i.e. the level of Individualism. Unfortunately, national culture has been largely ignored by most economists until recently (Guiso et al., 2006) and this might explain why Lee (2005) also neglected relevant

cultural variables. According to Malinoski (2012), these relevant cultural variables are Individualism and Long-Term Orientation of Hofstede (2011). Hence, they will be included in the upcoming regression models.

#### **4.3.1 Individualism & Long-Term Orientation**

First, a regression analysis with the variable Young Democracy will be performed again but now with the inclusion of the relevant cultural variables. The variables Individualism, Long-Term Orientation and the interaction effect of Individualism with Public Sector Size will be added to the model to see if the quite surprising results of the Young Democracy variable will change. In addition, hypotheses 5a and 5b can also be answered by including these cultural variables. Before moving to the results, I will first elaborate on the type of panel data model in the following regression analyses. In all previous models, the Hausman test (1978) pointed out that a fixed-effects model should be used instead of a random-effects model. This is also the case in the upcoming regressions but the fixed-effects model cannot be used. The cultural variables Individualism and Long-Term Orientation are time-invariant variables, indicating that their value does not change over time and is entity-specific. The fixed-effects model creates entity-specific intercepts that capture all time-invariant variables and because of that time-invariant variables cannot be included in a fixed-effects model. Hence, these time-invariant variables are already captured by the entity-specific intercept. Using a random-effects model could lead to biased results when the Hausman test (1978) is significant, but it is the only reasonable panel data model that could include the important time-invariant cultural variables. For that reason, I have decided to use a random-effects model in the following regressions.

According to Table 5, young democracies have a negative indirect effect on income inequality, indicated by the significant interaction coefficient, and have a direct positive effect. These specific countries are displayed in appendix Table 8A. As mentioned earlier, young democracies have a low degree of Individualism (24) compared to the whole sample (37). This cultural variable might explain the direct positive effect of young democracies and its negative indirect effect on income inequality. Furthermore, the theoretical reasoning that it takes some time for a democracy to have an equalizing effect due to the development of bottom-up controls did not hold for young democracies. Otherwise, a positive or insignificant effect would have been discovered in line with hypothesis 4. To see if this cultural variable might explain the peculiar relationship between government size, democracy and income inequality, the two cultural dimensions Individualism and Long-Term Orientation have been regressed in Table 7. In

addition, an interaction variable of Individualism and government size has been created to see if the hypothesized indirect effect of culture by Alesina (2003) and Pitlik & Rode (2016) hold.

In line with Elahee et al. (2016), individualistic countries appear to have lower income inequality, as can be seen in Table 7. The variable Individualism is negative and significant in every model at the 1 percent level and this does not change after adding control variables and the corruption variable. Hypothesis 5a can therefore not be rejected. Countries that score high on the Long-Term Orientation dimension of Hofstede also experience lower levels of income inequality, indicated by a negative and significant coefficient at the 1 percent level. The cultural variable Long-Term Orientation is still significant after adding control variables in model 3, which is in line with the findings of Malinoski (2012). It seems that the cultural variables of Hofstede (2011) indeed directly affect income inequality and should be included in the analysis. The level of Individualism in a country displays the attitude towards government intervention and redistribution (Alesina & Angeletos, 2005). Hence, it should also have an indirect effect on income inequality via Public Sector Size. In line with hypothesis 5b, Individualism has a positive and significant interaction effect with government size. However, instead of strengthening the positive relationship between Public Sector Size and income inequality, it weakens the negative relationship between PSS and income inequality. A larger government of a high individualistic country will probably not redistribute more money but is more likely to implement more growth-oriented policies, that exacerbate income inequality, due to the high degree of self-determination in these individualistic countries.

In models 4 and 5 the variable Young Democracy and its interaction term with Public Sector Size are added to the model. When controlling for corruption the interaction term of Young Democracy and government size is still negative and significant in model 4, which is contrary to both earlier discussed theoretical mechanisms. However, this effect becomes insignificant when controlling for the relevant cultural variables in model 5. Indicating that the specific national culture of these young democracies in all likelihood caused the significant interaction effect of Young Democracy and government size in Tables 5 and 6, instead of merely being a young democracy. These results show that the effect of government size on income inequality depends on national culture and should therefore not be neglected in the analysis. In appendix table 9A all other cultural dimensions of Hofstede are included in the model to see what effect<sup>17</sup> they could possibly have on income inequality. Due to the lack of a sound theoretical

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<sup>17</sup> All other cultural dimensions of Hofstede (2011) appear to have no significant direct effect on income inequality except for the cultural dimension of Uncertainty Avoidance. This cultural variable has a negative and significant

basis, they are not included in the main analysis, i.e. there are no direct linkages found in the literature between these cultural dimensions and income inequality.

Table 7: Effect culture on government size and income inequality

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini
<i>Public Sector Size</i>	-0.0280** (0.0121)	-0.0572*** (0.0142)	-0.0707 (0.0445)	0.00426 (0.0262)	-0.0424 (0.0407)
<i>Individualism</i>	-0.186*** (0.0353)	-0.154*** (0.0342)	-0.135*** (0.0355)		-0.139*** (0.0352)
<i>PSS * Individualism</i>		0.00341*** (0.000708)	0.00396** (0.00179)		0.00317* (0.00186)
<i>Long-Term Orientation</i>		-0.161*** (0.0330)	-0.158*** (0.0254)		-0.161*** (0.0259)
<i>Corruption Perception Index</i>				0.0415** (0.0197)	
<i>PSS * CPI</i>				-0.00166 (0.00118)	
<i>Young Democracy</i>				2.801*** (1.029)	1.681 (1.399)
<i>PSS * Young Democracy</i>				-0.140** (0.0573)	-0.0755 (0.0803)
<i>GDP per capita</i>			-0.0400 (0.0359)	-0.0396 (0.0345)	-0.0299 (0.0332)
<i>GDP per capita<sup>2</sup></i>			0.000452 (0.000307)	0.000477 (0.000296)	0.000374 (0.000285)
<i>Gross enrollment secondary education</i>			-0.0261* (0.0146)	-0.0180 (0.0122)	-0.0254* (0.0146)
<i>Foreign Direct Investment</i>			-0.000245 (0.00142)	0.00121 (0.00110)	-0.000938 (0.00137)
<i>Share employment in agriculture</i>			-0.0134 (0.0433)	0.00964 (0.0410)	-0.0191 (0.0423)
<i>Constant</i>	45.36*** (1.614)	48.11*** (1.706)	49.78*** (3.476)	37.89*** (1.785)	47.22*** (2.416)
# of observations	1462	1314	1133	1362	1133
R-squared overall	0.231	0.385	0.416	0.020	0.404
R-squared within	0.00369	0.0222	0.0609	0.0877	0.0774
R-squared between	0.240	0.395	0.436	0.0385	0.423

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

effect on income inequality at the 5 percent level. This significance remains at the 10 percent level after adding control variables.

According to Muller (1988) and Lee (2005), it takes time before political interest groups can gain influence and build an efficient institutional framework that supports the distributional process. Unfortunately, this theoretical reasoning has not been supported by the results, see for example Table 6. A possible undiscussed reason for this outcome is the inclusion of former communist countries that might bias the results. Democratization in these countries might be paired with the fall of the communistic regime and in line with this reasoning, Glenn (2003) calls the policy shift of the Soviet Union in the 1980s a necessary precondition for democratization. It is indeed the case that full-scale socialist (i.e. communist) countries had a Gini-coefficient that was twice as small compared to capitalist democracies around 1980 (Collins, 2004). However, these communistic regimes were lead by an elite communistic party that typically restricted membership and provided special economic service for its members. Democratization in these countries should also lead to more political power of the majority of people leading to lower income inequality. The results of Table 7 might answer the reason why the earlier results do not support theoretical mechanism 2. When I control for Long-Term Orientation and especially Individualism in Table 7 the effect of young democracies with their interaction effect of Public Sector Size on income inequality becomes insignificant. After correcting for the problematic implicit assumption of theoretical mechanism 2, regarding the equal preference for distributional policies, it seems that the results are yet again according to this theoretical mechanism, hence young democracies now have an insignificant effect. Concluding that the main reason for the largely insignificant outcomes of democracy, in all previous analyses, is probably due to the little attention that has been paid to culture, which will now be discussed in detail.

The equalizing effect of a democracy can only enter into force if the majority of its population also has a positive attitude towards redistributive policies. As mentioned earlier, this attitude is partly measured by the cultural dimension of Individualism by Hofstede (2011). In Table 10 the democracy variable and its interaction term are being regressed together with the relevant cultural variables to answer the question of whether the indirect equalizing effect of democracy is conditional on a nation's culture. The interaction effect of democracy and government size on income inequality is negative and significant at the 1 percent level in model 1. Hence, after controlling for the *willingness* of distributional policies in a society the democracy variable's interaction effect is in line with hypothesis 2. To further strengthen this result only countries that score below average (38) on the Individualism cultural dimension are included in models 4 and 8. These countries could be classified as collectivist countries and are more open and positive to government interventions and redistribution policies. Again, the interaction effect

of democracy and government size is negative and significant at the 1 percent level. When a society has a positive attitude towards distribution and political power, due to democracy, an increase in government size leads to a more equal income distribution. This is in line with theoretical mechanism 2. However, if a country lacks the willingness to distribute money but has the political power to do so, democracy will not have an equalizing effect as can be seen by the largely insignificant interaction effects of democracy and government size in Tables 2 and 3. To reinforce this theoretical line of thought the same regression analysis has been run in appendix table 10A including only high Individualistic countries. As predicted, the results point out that democracy does not have an indirect equalizing effect in these high individualistic countries, which is quite likely explained by the low willingness to redistribute money. These results support hypothesis 5c, the equalizing effect of being a democracy, via the political power of the majority, is conditional on a nation's culture. Hence, the national culture determines the willingness of a country to redistribute money.

In model 2, the corruption variable is added to see if the results change. Yet again, the interaction effect of democracy and government size is negative and significant at the 1 percent level. Adding the corruption variable did not change the interaction effect of democracy with Public Sector Size. In addition, the interaction effect of corruption with government size is insignificant, thereby rejecting hypothesis 3b and theoretical mechanism 1. Hence, democracy has not an indirect equaling effect via government size because it is linked to a lower level of corruption. Otherwise, including the interaction effect of corruption and Public Sector size should have caused an insignificant interaction effect of democracy and PSS, which did not happen.

In model 3, I control for the age of democracy theory by adding three variables. These variables are Democracy duration, Young Democracy (age bar at 20 years) and its interaction effect with Public Sector Size. Including these variables does not change the main results. In addition, none of the added variables is significant, thereby rejecting the age of democracy theory. Hence, if this theory would have held, the Democracy duration or Young Democracy variable would have appeared to be significant. However, it could still be the case that the main theoretical base of the age of democracy mechanism works. Democratization leads to a shift of political power to the majority of people, these people have distributional demands, which in the end are executed and have an equalizing effect. Lee (2005) argued that these distributional demands could only be effectively executed in older democracies but that proposition has already been rejected in this analysis. However, the majority of people will only demand more redistribution if they have a positive attitude towards this. After controlling for the distributional

preferences, which is captured by the interaction term of Individualism and government size, being a democracy indirectly has an equalizing effect via government size. Going one step further, in model 4 only countries with have a preference for redistribution, captured by a below-average value for Individualism, are included in the model. The interaction term of government size and democracy now is negative and significant at the 1 percent level. Indicating that the mechanism of the shift of political power works but only in countries where the majority of people, including the lower and middle classes, have a positive attitude towards redistribution and will actually demand more distribution. Models 1-3 and 5-7 include all countries and the variable Individualism has a direct negative effect on income inequality at the 1 percent level in both models. This is in line with Elahee et al. (2016), who argue that due to the lack of a support network, supplied by family and friends in individualistic societies, the government has to create its own safety net, leading to a more income equal society. The cultural dimension of Individualism is insignificant in models 4 and 8, which is explained by the fact that only countries below the average value of Individualism are included in these models. Long-Term Orientation is also negative and significant at the 1 percent level in every model. The results of Table 10 are thus in line with hypotheses 5a and 5b.

Models 5 to 8 have the institutionalized democracy<sup>18</sup> variable instead of the democracy index variable as main variable of interest. The results are similar to the ones of the democracy index variable. The interaction effect with government size is negative and significant in every model. The results also hold after controlling for the corruption variable thereby rejecting hypothesis 3b. The inclusion of democracy age and Young Democracy do also not change the results in model 3 and appear to be less relevant. Hence, the mechanism of age of democracy does also not hold after controlling for national culture. The interaction effect of Individualism and government size is similar to the results of Table 7, implying that its effect is positive and significant in models 1-3 and 5-7. This is in line with expectations, hence an individualistic country wants to reward personal endeavor and seek to take advantage of economic opportunities. Public money will be more used to enhance economic growth by picking winners, while less profitable industries are more neglected by the government. Thereby increasing the (income) gap between those industries. Furthermore, individualistic values are conducive to the establishment of a more growth-friendly framework of formal institutions (Greif, 1994), making

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<sup>18</sup> Results for the fully institutionalized variable can be provided on request.



the growth-oriented policy angle relatively more attractive compared to the earlier mentioned equity-enhancing policy angle.

The results for the fully institutionalized variable are not displayed in the main analysis and are available on request. Contrary to the democracy and institutionalized democracy variable, the fully institutionalized democracy variable together with its interaction effect of Public Sector Size is insignificant when performing the analysis of table 10. All other variables have the same expected sign and significance. Ironically, after correcting for national culture the Fully institutionalized democracy variable appears to be the only democracy variable that does not have an indirect equalizing effect via government size, while this was the only variable in Lee's (2005) analysis that had an indirect equalizing effect. After a detailed analysis, there is a simple reason why this might be the case. In my analysis countries that score high on the institutionalized democracy scale (either a 9 or 10) are categorized as fully institutionalized democracies, see appendix table 2A. This group of countries scores far above the average value of Individualism (50) as compared to the whole dataset (38). Countries with an above-average value for individualism have a relatively negative attitude towards redistribution. Hence, the equalizing effect of a democracy due to the shift of political power will not happen in these countries, because the majority of people will not demand more distributional policies. An insignificant effect of fully institutionalized democracy and its interaction effect with PSS thus only strengthens the earlier discussed theoretical mechanism. A possible reason why Lee (2005) did only find a negative interaction effect for these fully institutionalized democracies is that these countries had a relatively low level of Individualism compared to the average value of Individualism at that time of writing.

Table 8: Effect of democracy after controlling for individualistic countries

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini	(6) Gini	(7) Gini	(8) Gini
<i>Public Sector Size</i>	-0.0584* (0.0354)	-0.0698* (0.0391)	-0.0293 (0.0310)	-0.205** (0.0841)	-0.0627 (0.0464)	-0.0773* (0.0445)	-0.0332 (0.0447)	-0.179** (0.0798)
<i>Democracy</i>	0.00173 (0.0137)	-0.00122 (0.0137)	-0.00705 (0.0142)	0.00855 (0.0152)				
<i>PSS * Democracy</i>	-0.00571*** (0.00164)	-0.00482*** (0.00181)	-0.00421** (0.00174)	-0.00419*** (0.00146)				
<i>Institutionalized Democracy</i>					-0.0518 (0.0889)	-0.0629 (0.0865)	-0.00685 (0.0958)	-0.00765 (0.0972)
<i>PSS * Instdem</i>					-0.0305*** (0.0105)	-0.0210** (0.0103)	-0.0198* (0.0118)	-0.0199* (0.0103)
<i>Corruption Perception</i>		0.0306				0.0214		

<i>Index</i>	(0.0208)				(0.0181)			
<i>PSS * CPI</i>	-0.00275 (0.00255)				-0.00677*** (0.00231)			
<i>Democracy duration</i>	-0.0242 (0.0236)				-0.0189 (0.0228)			
<i>Young Democracy</i>	1.304 (1.339)				1.283 (1.433)			
<i>PSS * Young Democracy</i>	-0.0605 (0.0748)				-0.0554 (0.0819)			
<i>Individualism</i>	-0.141*** (0.0379)	-0.143*** (0.0387)	-0.125*** (0.0481)	-0.0197 (0.160)	-0.130*** (0.0378)	-0.123*** (0.0376)	-0.125*** (0.0475)	-0.0116 (0.159)
<i>PSS * Individualism</i>	0.0105*** (0.00317)	0.0113*** (0.00353)	0.00813** (0.00343)		0.00747*** (0.00263)	0.0113*** (0.00339)	0.00591** (0.00289)	
<i>Long-Term Orientation</i>	-0.158*** (0.0265)	-0.154*** (0.0265)	-0.176*** (0.0339)	-0.188*** (0.0347)	-0.162*** (0.0260)	-0.165*** (0.0253)	-0.178*** (0.0333)	-0.189*** (0.0338)
<i>GDP per capita</i>	-0.0373 (0.0349)	-0.0462 (0.0352)	-0.00558 (0.0322)	-0.292* (0.173)	-0.0343 (0.0357)	-0.0466 (0.0352)	-0.0100 (0.0319)	-0.293* (0.173)
<i>GDP per capita<sup>2</sup></i>	0.000455 (0.000301)	0.000533* (0.000307)	0.000234 (0.000256)	0.00747* (0.00428)	0.000424 (0.000307)	0.000505* (0.000302)	0.000250 (0.000257)	0.00756* (0.00427)
<i>Gross enrollment secondary education</i>	-0.0241* (0.0135)	-0.0237* (0.0137)	-0.0158 (0.0124)	-0.0216 (0.0222)	-0.0260* (0.0151)	-0.0258* (0.0149)	-0.0157 (0.0133)	-0.0258 (0.0250)
<i>Foreign Direct Investment</i>	0.00236 (0.00164)	0.00363 (0.00311)	0.000353 (0.00110)	0.0108 (0.0427)	0.000193 (0.00410)	-0.0000599 (0.00421)	0.0000127 (0.00399)	0.0144 (0.0447)
<i>Gross share employment agriculture</i>	-0.00970 (0.0407)	0.00860 (0.0433)	-0.0183 (0.0412)	-0.0158 (0.0441)	-0.0152 (0.0430)	0.00463 (0.0447)	-0.0201 (0.0433)	-0.0184 (0.0460)
<i>Constant</i>	46.94*** (2.363)	46.31*** (2.497)	47.41*** (2.613)	51.53*** (4.020)	47.62*** (2.488)	47.55*** (2.516)	47.22*** (2.454)	51.74*** (4.026)
<i># of observations</i>	1122	1107	962	522	1097	1085	942	532
<i>R-squared overall</i>	0.403	0.398	0.378	0.433	0.429	0.452	0.406	0.449
<i>R-squared within</i>	0.112	0.125	0.111	0.195	0.0869	0.116	0.0942	0.176
<i>R-squared between</i>	0.428	0.418	0.403	0.366	0.443	0.465	0.418	0.378

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Instead of the two expected theoretical mechanisms, I found a (re)new(ed) mechanism that might explain the controversy of democracy. Being a democracy enables a society to do something about the social-economic situation in a country because the *political power* is now in the hands of the majority of people. However, this does not automatically lead to a reduction of income inequality as predicted by Reuveny & Li (2003). An important assumption is that the majority of people want redistributive policies and have a positive attitude towards government

intervention. This attitude is conditional on a nation's culture. Individualistic countries prefer to have little government intervention and try to reward effort and innovation. This attitude paves the way for a growth-oriented policy in which the government invests in winning industries and largely neglects weaker ones. Equity enhancing policies are not the focus of the government. Democratization does not alter this attitude and the high degree of self-determination in individualistic countries still blocks the indirect equalizing effect of a democracy. Countries with an above-average value of Individualism do *not* experience an equalizing effect of democracy, i.e. a negative and significant interaction effect of democracy and Public Sector Size (see appendix Table 10A and insignificant effect of fully institutionalized democracies). However, countries with a below-average value of Individualism are experiencing an equalizing effect of democracy via Public Sector Size (see Table 8). After adding the cultural variables in Tables 7, 8 and 10A the R-squared between ( $\approx 0.40$ ) is significantly larger than the R-squared within ( $\approx 0.10$ ). This indicates that these models especially explain the variance of income inequality *between* countries instead of within a country.

The main finding is that the equalizing effect of being a democracy is conditional on the willingness of a society to implement distributive policies. If a society relatively dislikes redistribution a government will not execute more distributive policies although this society has the political power to implement redistribution policies. Lee (2005) was not incorrect with his idea about the equalizing effect of democracy due to the shift of political power to the majority of people (part of theoretical mechanism 2). However, as mentioned by Dahrendorf (1966) the theory about the shift of political power by Lenski (1966) neglects national culture. National culture and especially the level of Individualism in a country determines if the shift of political power to the majority leads to more redistribution policies, which lower income inequality. The age of a democracy does not seem to matter for the translation of these redistribution demands into concrete policy action after controlling for national culture. This is indicated in Table 8 by the insignificant results of the age of democracy variable and the Young Democracy variable with its interaction effect.

Knowing a nation's culture is therefore important if you want to know the effect of a decline in democracy on income inequality. A decline in democracy might exacerbate income inequality in collectivistic countries, where society has a preference for distributional policies. Hence, democracy has an equalizing effect in collectivist countries as can be seen by the negative interaction term of democracy in Table 8. If a democracy crumbles down the political power of the majority is transferred to influential rich elites, who have little to no interest in redistribution

policies. An example would be a country like Hong Kong, which scores below average on the Individualism dimension. However, when the majority of people already dislike government interventions and belief in self-determination, a decline in democracy and the shift of political power will have little to no effect on income inequality. Hence, in individualistic countries the interaction effect of democracy and government size is already insignificant (see appendix table 10A). Hungary has an above-average individualistic culture and therefore the effect on income inequality due to the fall of democracy will be little to neglectable. In short, the shift of political power, predicted by Lee (2005), is still the main mechanism for the equalizing effect of being a democracy. However, instead of the age of a democracy, the equalizing effect of a democracy is conditional on a nation's culture. Contrary to corruption, the cultural dimensions of Long-Term Orientation and especially Individualism are important for the relationship between democracy and income inequality.

## 5. Conclusion

The global score of democracy has been in a rapid decline since 2014 and has hit an all-time low in 2020. Linked to this trend is the rise of income inequality in most developed and middle-income countries since 1990. Democracy is mostly being praised for its equalizing effect on income but there is still controversy about the exact relationship between democracy and income inequality. This paper tried to answer what possible effect this decline in democracy has on income inequality. To make this feasible the relationship between democracy and income inequality together with its controversy has been clarified in three stages. First, the main mechanism of Lee (2005) has been highlighted, which partly answers why different results about the relationship between democracy and income inequality appear in the literature. Second, this paper digs deeper into the two implicitly mentioned theoretical mechanisms of Lee why democracy has an indirect equalizing effect on income. Third and finally, a problematic theoretical assumption in the second theoretical mechanism has been corrected, which leads to the inclusion of a new relevant variable. Combining these three stages results in a panel data analysis from 2000 to 2019, which includes 137 countries from all around the globe.

Lee (2005) first concludes that the equalizing effect of being a democracy on income inequality is an indirect effect, because democracy cannot change distributional outcomes without being mediated by a government's role in resource allocation and extraction. Next, he makes a distinction between institutionalized democracies and fully institutionalized democracies. While the former variable has a negative and significant interaction effect with government size the institutionalized democracy variable with its interaction effect is insignificant. Two implicit theoretical mechanisms could explain this finding. The first theoretical mechanism goes via corruption. The main difference between fully institutionalized democracy and institutionalized democracy is the level of corruption. The former has well-functioning accountability groups, which control for corruption. The indirect equalizing effect of fully institutionalized democracies could thus be caused by a simultaneously low level of corruption. However, limited evidence has been found for this theoretical mechanism. The second theoretical mechanism is all about the shift of political power to the majority of people. Democracy leads to a shift of political power from the influential elite to the majority of people, which subsequently demand more redistribution. These distributional demands can only be effectively translated to policy actions, which reduce income inequality, in an experienced democracy. Fully institutionalized democracies are more experienced which explains the significant and negative interaction effect of fully institutionalized democracies with government

size on income inequality in Lee's main analysis. However, contrary to this theoretical reasoning, young democracies appear to have an indirect equalizing effect while older democracies have an insignificant interaction effect via government size in my analysis. Here comes the third stage and the problematic theoretical assumption in the second theoretical mechanism into play. Lee (2005) assumed that the majority of people, including the lower and middle classes, always prefer more redistribution. However, this distributional preference is dependent on national culture. Countries with a high level of Individualism have a high degree of self-determination, which results in a relatively negative attitude towards government intervention and redistribution. Collectivistic countries have a lower degree of self-determination and have a relatively positive attitude towards redistribution. The results point out that both the *political power* (provided by democracy) and the *willingness* (dependent on culture) are needed to conduct redistributive policies, which lower income inequality. The indirect equalizing effect of democracy via government size is thus only present in collectivistic countries, while the interaction effect of democracy and government size is insignificant in countries with a high degree of Individualism (>45). After controlling for the cultural variable Individualism both the corruption variable and the age of democracy variable become insignificant. However, the democracy variable of Freedom House (2021) and the institutionalized democracy variable of Polity5 (2021) obtain a negative and significant interaction effect with government size after controlling for national culture, while there was limited evidence for this claim before this analysis. Hence, it appears that the theoretical mechanism consisting of the shift of political power, due to democracy, combined with the willingness to conduct distribution policies, is responsible for the indirect equalizing effect of being a democracy. This also explains why fully institutionalized democracies have an insignificant interaction effect with government size on income inequality, even after controlling for national culture. This is contrary to the analysis of Lee (2005) but can be explained by the fact that fully institutionalized democracies have an average value of 50 for Individualism in my dataset. Although the majority of people have the political power to redistribute more, due to democracy, they are not willing to have more redistribution, due to a high level of Individualism, leading to an insignificant indirect effect on income inequality. On the other side, the group of young democracies have an average value of 24 for Individualism and subsequently have an indirect equalizing effect via government size. Hence, both the political power of the majority and the willingness to conduct redistributive policies are present.

The contribution of this paper is shedding a light on the exact relationship between democracy and income inequality. Thereby highlighting the role of national culture and possibly

explaining the controversy about the relationship between democracy and income inequality. Coming back to the main question, a decline in democracy will likely exacerbate income inequality in relatively collectivistic countries such as Hong Kong, while relatively individualistic countries will experience no to a little effect because democracy has not indirectly lead to a more equal distribution in those countries. The decline of democracy in a relatively individualistic country, like Hungary, should therefore not indirectly exacerbate income inequality. The indirect effect of democracy on income inequality thus depends on national culture and this might explain the controversy about the relationship between democracy and income inequality. Individualistic countries are expected to have an insignificant interaction effect of democracy, while collectivistic countries should experience a negative and significant interaction effect of democracy. In addition, the equalizing effect of democracy is indirect and goes via government size because democracy cannot change distributional outcomes without being mediated by a government's role in resource allocation and extraction. The past few years have proven that democracy is a fragile thing and that democracy is in decline. Disregarding the value of democracy itself (see Sen, 1999), this paper shows that a decline in democracy might especially be undesirable in collectivistic countries because this could indirectly exacerbate income inequality.

Despite these interesting findings there are some limitations to this study. First, the models that include time-invariant cultural variables are specified as random effects models, while the Hausman test (1978) indicates that a fixed-effects model should be used. Using a random-effects model, while the Hausman test suggests a fixed-effects model, leads to possible biased results because the unique errors of the model are possibly correlated with the independent variables. However, these regressions could not have been performed in a fixed-effects model because the time-invariant cultural variables would have been captured in the intercept of the model and they would automatically be thrown out as a dependent variable. In line with that, it might be the case that the size of the government is not exogenous with respect to income inequality. A high degree of income inequality might motivate a government to increase social spending, which leads to a larger government. When correcting for this possible endogeneity via a two-stage least square model Guzi & Kahanec (2019) found that the equalizing effect of redistributive policies is even larger. Future research should therefore focus on more extensive and complex econometric techniques to solve these shortcomings in my analysis. Another aspect is the role of political systems. The implicit idea about the shift of political power to the majority of people is that these people form or support a political party that eventually becomes a majority

party. This party subsequently pursues redistributive goals if the majority of people desire this. However, coalition governments with different smaller parties are more prevalent and this makes it harder for a single party to pursue redistributive goals (Bollen & Jackman, 1985). Future research could possibly examine whether different political systems or the number of political parties could influence the effect size of democracy on income inequality via government size. In any case, future research should not neglect the role of national culture when analyzing the effect of democracy on income inequality.



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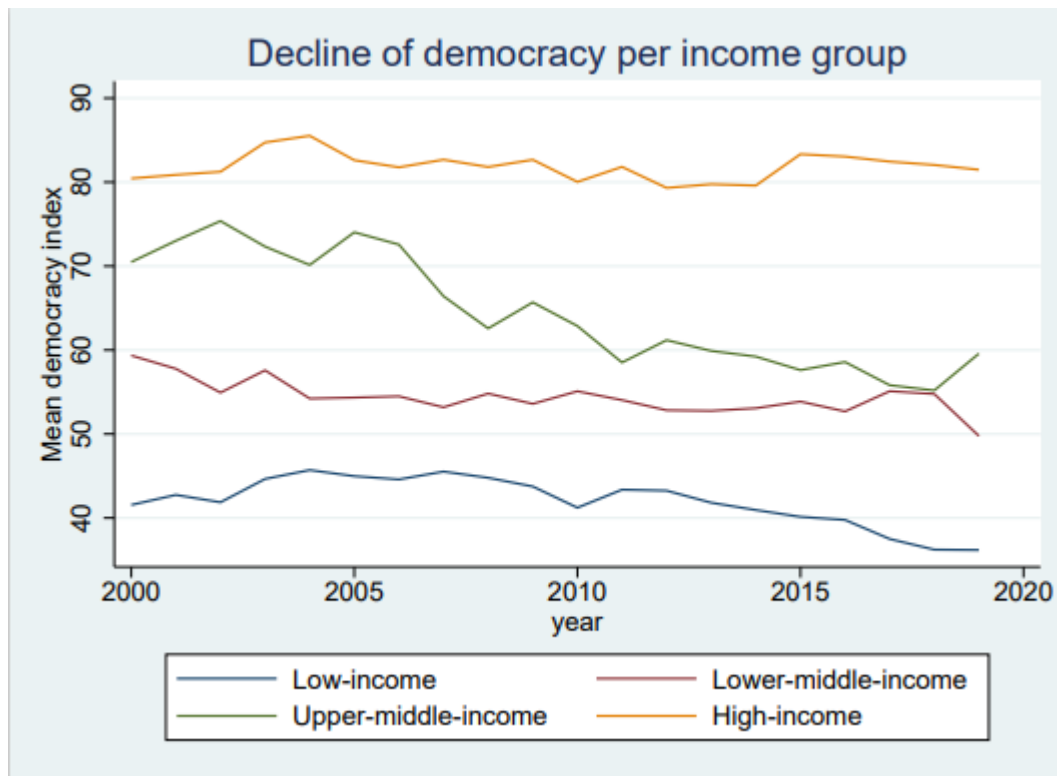
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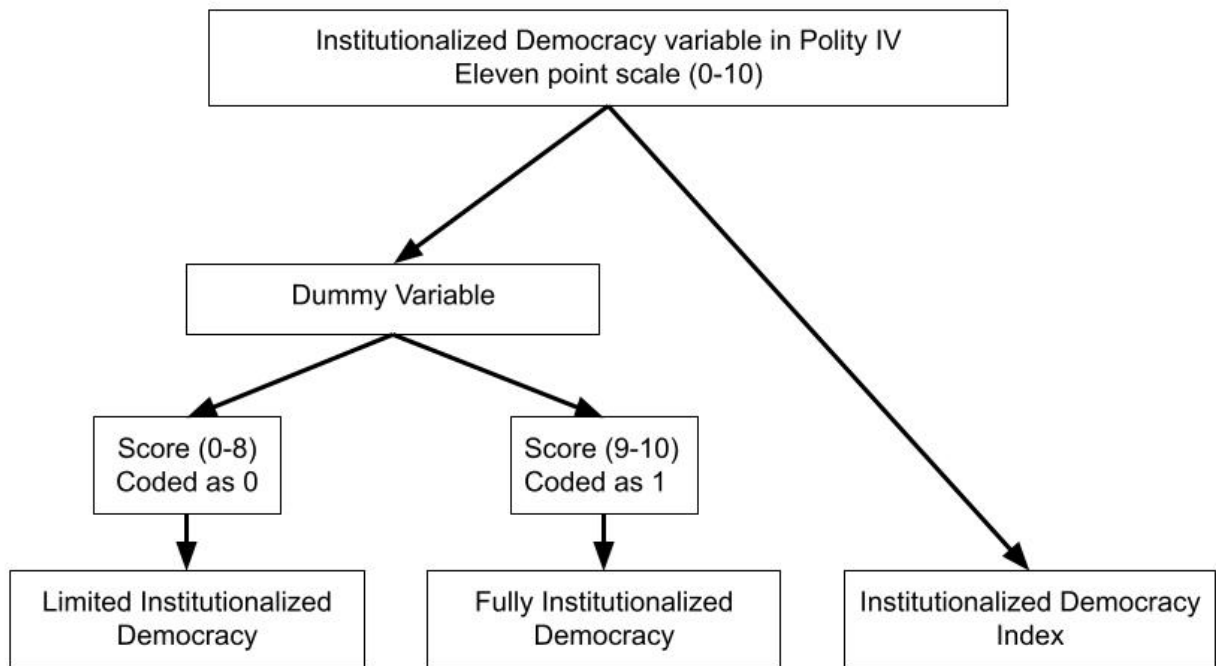
## Appendix

*Figure 1A: Decline of democracy 2000-2019 per income group*



Higher-income groups have a higher level of democracy compared to lower-income groups. Every income group has experienced a decline in democracy since 2000 with the exception of high-income countries. In accordance with the definition of the world bank, countries are defined as low-income, lower-middle-income, upper-lower-income and high-income with a respectively gross National Income under \$1000, between \$1000 - \$4000, between \$4000 - \$12000 and over \$12000. The average level of democracy has also been declining since 2009 and this average corrects for the fact that countries usually move to a higher income group over time.

**Figure 2A: Conceptualization Democracy & Institutionalized democracy (Lee, 2005)**



The altered conceptualized model of Lee (2005) is depicted above. Instead of “Democracy Index” the term “Institutionalized Democracy Index” is being used. This choice has been made because the institutionalized democracy variable in Polity IV already includes accountability groups as a sub-category and thus expresses an institutionalized democracy variable. Hence, the main difference between democracy and institutionalized democracy is the inclusion of accountability groups in the latter. Next, a dummy variable has been made. A Country that scores between 0-8 have poor or limited accountability groups, is coded as a 0, and is defined as a “Limited Institutionalized Democracy”. Lee uses “limited democracy” but because of the inclusion of accountability groups within the definition, the terminology limited institutionalized democracy is more fitted. A country that scores between 9-10 has well-functioning accountability groups, is coded as a 1, and is defined as “Fully Institutionalized Democracy”. This term fits better as Lee’s “Institutionalized democracy” because the initial democracy variable of Polity IV already includes accountability groups in its definition. The dummy variable makes merely a distinction between the quality of these accountability groups and hence is defined as either a limited or a fully *institutionalized* democracy.

**Table 1A: Frequency table of Polity score**

Polity	Frequency
-10	109
-9	123
-8	69
-7	343
-6	199
-5	106
-4	147
-3	141
-2	122
-1	114
0	33
1	43
2	65
3	79
4	127
5	256
6	376
7	272
8	476
9	391
10	951

On the left, there is a frequency table of the Polity5 score from 2000 till 2019. This score ranges from +10, being strongly democratic, to -10, being strongly autocratic. The average stands over 3, meaning that the lion's share of countries is more democratic than autocratic. According to Lee (2005), a larger government will lower income inequality when its policy is equity-oriented, while growth-oriented policies would exacerbate income inequality. Autocratic and limited democratic regimes are more likely to have a growth-oriented policy, while democratic regimes are more equity-oriented. However, a sound translation of equity-oriented policies into more social policy programs and progressive tax would only occur at a fairly high level of democracy. These would be countries that have the highest score (+10) or close to that (+9). In the dataset of Lee (2005), there are more autocratic and limited democratic regimes as fully democratic regimes, hence the net effect of an increase in government size should lead to more income inequality. A small group of elite people will acquire more means, which exacerbates income inequality. However, in (fully) democratic countries the opposite effect would occur: more means for an equity-striving government leads to less income inequality. In my dataset, there are also slightly more autocratic and limited democratic regimes as fully democratic regimes, hence government size should also have a positive effect on income inequality.

**Table 2A: Democracy and corruption**

<b>Young Democracy</b>				
	Mean	Std. Err.	[95% Confidence interval]	
Control of Corruption	-.3513167	.0210154	-.3925586	-.3100747
Corruption Perception Index	33.8786	0.422899	33.0486	34.7087
<b>Older democracy</b>				
Control of Corruption	.274454	.0272835	.2209396	.3279684
Corruption Perception Index	50.0581	0.601741	48.8778	51.2384

In this table a young democracy is defined as a democracy under the age of 20, all older democracies are defined as an older democracy. Young democracies have a lower control of corruption score than older democracies ( $-.35 < 0.27$ ). Furthermore, the corruption perception index is also lower for younger democracies ( $33.9 < 50.1$ ), which means that the perceived level of corruption is higher in young democracies as compared to older democracies. These findings are in line with Mohtadi & Roe (2003) and Kubbe & Engelbert (2018).



**Table 3A:Detailed: summary of variables used with source**

<b>Variable</b>	<b>Description</b>	<b>Source</b>
The Gini-index (Gini)	The most common measure to indicate the economic size of a country. It is the monetary value of all goods and services made within a country for a year divided by its population. Expressed in US dollars. The Gini-index ranges from 0 (perfect equality), to 100 (maximum inequality).	Standardized World Income Inequality Database by Solt (2021)
Democracy	The freedom in the world index of Freedom House is used as a democracy variable. It is a 100-point scale ranging from 0, not free, to 100, free. This variable consists of 2 main categories: political rights and civil liberties. The political rights category consists of 40 points and the civil liberty of 60 points. In total there are 25 questions with a score between 0 and 4, making the maximum score 100. According to Freedom House, an electoral democracy requires a minimum score of 20 and 30 for respectively political rights and civil liberties. In addition, the subcategory of electoral process requires a minimum score of 7.	Freedom House (2021)
Institutionalized Democracy	The Institutionalized Democracy variable in the Polity5 database. It is an 11-point scale and goes from no democracy (0) to fully institutionalized democracy (10). It consists of 3 essential elements. First, the presence of institutions through which citizens could express effective preferences about leaders and alternative policies. Second, institutionalized constraints on the exercise of power by the executive. Third, guarantee of civil liberties to all citizens in their lives and in act of political participation.	Polity5 Project constructed by Marshall & Gurr (2020)
Fully Institutionalized Democracy	This is the same variable as Institutionalized Democracy. However, a dummy variable is created. In line with Lee (2005), scores larger or equal to '9' are classified as fully institutionalized democracies and coded with a 1, all other values are coded with a 0 and are considered as limited institutionalized democracies.	Polity5 Project constructed by Marshall & Gurr (2020)
Duration of Democracy	A variable called democracy duration in the Boix-Miller-Rosato (BMR) dichotomous Coding of Democracy, version 3. These are the consecutive years of democracy in a country.	Boix-Miller-Rosato (2018)
Young Democracy	Countries with few consecutive years of democratic experience, in the main analysis the cut-off is set to 20 years. This is a dummy variable and countries under 20 years of democratic experience are coded as a 1, all other countries as a 0.	Boix-Miller-Rosato (2018)
Old Democracy	Countries with many consecutive years of democratic experience, in the main analysis the cut-off is set to 40 years. This is a dummy variable and countries over 20 years of democratic experience are coded as a 1, all other countries as a 0.	Boix-Miller-Rosato (2018)
Public Sector Size	The share of tax revenues of GDP. More precisely, the compulsory transfers of tax revenue to the central government for public purposes.	World Bank (2021a)
Government expenditure	Government expenditure in GDP by the definition of IMF. It includes wages of employees, use of goods and services, consumption of fixed capital, subsidies, grants, social benefits, interest and the net acquisition of non-financial assets.	IMF (2021)
Control of Corruption	The control of corruption measure in the Worldwide Governance Indicators series. It is the extent to which public power is exercised for private gain, including grand and petty forms of corruption, as well as "capture" by elites. The scale ranges from -2.5 to 2.5. A higher score means better control of corruption.	World bank (2021b)
Corruption perception index (CPI)	A measure for the perceived level of corruption in a country. The score ranges from 0 (very corrupt) to 100 (very clean).	Transparency International (2020)
GDP per capita	The sum of gross value added by all resident producers divided by its population.	World Bank (2021a)
Secondary school enrollment	Percentage of the population of official secondary education age that is or has been enrolled to secondary education. This ratio can exceed 100% due to various factors such as grade repetition or under-aged students.	World Bank (2021a)

Share agriculture employment	Percentage of working force who is employed in the agricultural sector. This consists of activities in hunting, forestry, fishing and agriculture.	World Bank (2021a)
Foreign Direct investment	The net inflows of foreign investment are measured as a percentage of GDP. These are investments to acquire lasting management interest, defined as 10% or more of the voting stock.	World Bank (2021a)
Individualism	One of the six cultural dimensions of Hofstede. This dimension reached from Collectivism to Individualism. Its score ranges from 0 to 115, which applies to all six cultural dimensions. An individualistic society is one where people expect that they should care for themselves, wherein in collectivistic countries people can rely on family, friends and in-group members for support.	Hofstede (2011)
Uncertainty avoidance	One of the six cultural dimensions of Hofstede. It measures the degree of willingness to accept uncertainty or ambiguity. Countries with a high uncertainty avoidance score maintain rigid codes or beliefs and feel threatened by uncertain, unknown situations, while low uncertainty avoidance countries are much more relaxed about uncertainty.	Hofstede (2011)
Long-Term Orientation	One of the six cultural dimensions of Hofstede. It measures the degree to which a country looks at the future instead of the past for solving present or future problems. Short-term oriented countries score low on this dimension and resort to the past to solve problems in the future.	Hofstede (2011)
Masculinity	One of the six cultural dimensions of Hofstede. This dimension reaches from Femininity to Masculinity. A society scores low on masculinity if it prefers cooperation, modesty, caring for the weak and quality of life. It's a consensus-oriented society. A country with high masculinity is more competitive. It prefers achievement, heroism, assertiveness and material rewards for success.	Hofstede (2011)
Indulgence	One of the six cultural dimensions of Hofstede. This dimension reaches from restraint to indulgence. A country with strict social norms that suppresses gratification of needs is defined as restraint and scores low at this dimension. A country that allows relatively free gratifications and has none to few social norms that could restrict enjoying life or having fun scores high at the indulgence dimension.	Hofstede (2011)
Power Distance	One of the six culture dimensions of Hofstede. It displays the degree to which the less powerful members of a nation expect and accept that power is distributed unequally. In high power distance countries, there is mostly a hierarchical order present in society.	Hofstede (2011)

*Table 4A: Correlation table*

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Gini	1.000																		
(2) year	0.013	1.000																	
(3) Public Sector Size	-0.361	-0.020	1.000																
(4) Government expenditure	-0.689	0.044	0.616	1.000															
(5) GDP per capita	-0.535	0.141	0.429	0.516	1.000														
(6) Foreign Direct Investment	-0.125	-0.038	0.170	0.084	0.185	1.000													
(7) Gross employment in agriculture	0.487	-0.027	-0.393	-0.578	-0.576	-0.055	1.000												
(8) Gross enrollment secondary education	-0.562	0.095	0.491	0.601	0.525	0.124	-0.721	1.000											
(9) Democracy	-0.382	-0.033	0.430	0.487	0.590	0.121	-0.556	0.518	1.000										
(10) Institutionalized democracy	-0.290	-0.036	0.336	0.417	0.457	0.082	-0.483	0.487	0.882	1.000									
(11) Democracy duration	-0.230	0.038	0.164	0.243	0.647	0.081	-0.341	0.311	0.223	0.077	1.000								
(12) Corruption Perception Index	-0.495	0.003	0.529	0.536	0.796	0.158	-0.642	0.612	0.712	0.549	0.610	1.000							
(13) Control of Corruption	-0.511	-0.063	0.534	0.559	0.798	0.165	-0.648	0.621	0.741	0.576	0.587	0.981	1.000						
(14) Individualism	-0.449	-0.067	0.457	0.594	0.655	0.119	-0.618	0.579	0.622	0.493	0.582	0.702	0.726	1.000					
(15) Indulgence	0.153	0.002	0.207	0.049	0.394	0.092	-0.256	0.123	0.332	0.286	0.408	0.478	0.457	0.221	1.000				
(16) Long-term Orientation	-0.531	-0.007	0.051	0.305	0.156	0.054	-0.265	0.359	0.122	0.179	-0.105	0.081	0.090	0.200	-0.493	1.000			
(17) Masculinity	0.110	0.007	-0.203	-0.073	-0.056	-0.014	-0.010	-0.121	0.019	0.067	0.046	-0.137	-0.114	0.128	0.014	-0.003	1.000		
(18) Uncertainty avoidance	-0.035	0.024	-0.129	0.052	-0.311	-0.046	0.026	0.068	-0.133	-0.028	-0.490	-0.359	-0.335	-0.409	-0.307	0.150	-0.051	1.000	
(19) Power distance	0.291	0.060	-0.459	-0.389	-0.664	-0.092	0.533	-0.462	-0.630	-0.458	-0.519	-0.761	-0.770	-0.707	-0.407	0.039	0.100	0.364	1.000

**Table 5A: Effect Institutionalized democracy on relationship Government Size and income inequality**

	(1) Gini	(2) Gini	(3) Gini	(4) Gini
<i>Public Sector Size</i>	-0.0329*** (0.0105)	-0.0229* (0.0121)		
<i>Government expenditure</i>			-0.0496*** (0.00599)	-0.0425*** (0.0151)
<i>Institutionalized Democracy</i>	0.0246 (0.0339)	0.0105 (0.0578)	0.0571** (0.0251)	0.108* (0.0550)
<i>PSS * Instdem.</i>	-0.00323 (0.00266)	-0.00420 (0.00312)		
<i>Govexp * Instdem</i>			-0.00118 (0.00139)	-0.000669 (0.00187)
<i>GDP per capita</i>		-0.0292** (0.0126)		-0.0439*** (0.0122)
<i>GDP per capita<sup>2</sup></i>		0.000388*** (0.000113)		0.000516*** (0.000112)
<i>Foreign Direct Investment</i>		-0.000418 (0.00258)		0.00250 (0.00253)
<i>Gross enrollment secondary education</i>		-0.0171*** (0.00462)		-0.0148*** (0.00417)
<i>Share employment in agriculture</i>		0.00381 (0.0123)		0.0227** (0.00997)
<i>Constant</i>	37.74*** (0.053)	38.30*** (0.592)	39.12*** (0.0351)	39.34*** (0.657)
# of observations	1647	1354	2444	1869
R-squared overall	0.015	0.287	0.222	0.333
R-squared between	0.009	0.283	0.227	0.282
R-squared within	0.010	0.038	0.0309	0.0783

The first two models display the relationship between Institutionalized Democracy and Public Sector Size. Model 3 and 4 display the same relationship but now the government size variable, PSS, has been replaced by another government size variable called government expenditure. The main results do not significantly change and are largely similar to the fully institutionalized democracy variable

**Table 6A: Effect corruption on relationship Public Sector Size and income inequality**

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini	(6) Gini	(7) Gini
<i>Public Sector Size</i>	-0.0198** (0.00833)	-0.0197** (0.00834)	-0.0171* (0.00940)	-0.0289** (0.0123)	-0.0358*** (0.0134)	-0.0142 (0.0105)	-0.0114 (0.0116)
<i>Control of corruption</i>	0.537*** (0.160)	0.537*** (0.160)	0.634*** (0.187)		0.572*** (0.204)		0.544*** (0.192)
<i>PSS * COC</i>		-0.00424 (0.00831)	-0.0122 (0.00937)		-0.0397** (0.0128)		0.00130 (0.0149)
<i>Fully Institutionalized Democracy</i>				-0.0153 (0.272)	-0.294 (0.0278)		
<i>PSS * Fully Instdem</i>				0.00399 (0.00960)	0.0130 (0.00973)		
<i>Democracy</i>						0.0185*** (0.00680)	0.0141* (0.00725)
<i>PSS * Democracy</i>						-0.000678* (0.000412)	-0.000798 (0.000662)
<i>GDP per capita</i>			-0.0446*** (0.0130)	-0.0286** (0.0126)	-0.0415*** (0.0134)	-0.0446*** (0.0125)	-0.0499*** (0.0134)
<i>GDP per capita<sup>2</sup></i>			0.000479*** (0.000113)	0.000385*** (0.000113)	0.000462*** (0.000116)	0.000485*** (0.000112)	0.000516*** (0.000115)
<i>Foreign Direct Investment</i>			0.00110 (0.00155)	0.000229 (0.00256)	-0.00218 (0.00261)	0.00141 (0.00157)	0.00128 (0.00156)
<i>Gross enrollment secondary education</i>			-0.0154*** (0.00450)	-0.0174*** (0.00461)	-0.0150** (0.00464)	-0.0158*** (0.00450)	-0.0147*** (0.00454)
<i>Share employment in agriculture</i>			0.0159 (0.0123)	0.00366 (0.0127)	0.0131 (0.0129)	0.00472 (0.0120)	0.0149 (0.0123)
<i>Constant</i>	37.87*** (0.0447)	37.88*** (0.0512)	38.12*** (0.581)	38.27*** (0.614)	38.06*** (0.628)	38.32*** (0.566)	37.96*** (0.584)
# of observations	1732	1732	1393	1354	1294	1446	1381
R- squared overall	0.157	0.151	0.182	0.287	0.210	0.285	0.137
R-squared between	0.120	0.119	0.209	0.283	0.234	0.287	0.172
R-squared within	0.010	0.010	0.050	0.038	0.053	0.044	0.055

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 7A: Relationship Young Democracy and income inequality**

	(1) Gini	(2) Gini	(3) Gini	(4) Gini
<i>Public Sector Size</i>	-0.00377 (0.0124)	-0.0231* (0.0120)	-0.0234** (0.0118)	-0.0232** (0.0117)
<i>Young Democracy (20 years)</i>	1.841*** (0.347)			
<i>PSS * Young Democracy</i>	-0.0870*** (0.0191)			
<i>Young Democracy (15 years)</i>		0.199 (0.350)		
<i>PSS * Young Democracy</i>		-0.0275 (0.0189)		
<i>Young Democracy (12 years)</i>			0.214 (0.333)	
<i>PSS * Young Democracy</i>			-0.0331* (0.0186)	
<i>Young Democracy (10 years)</i>				0.611* (0.368)
<i>PSS * Young Democracy</i>				-0.0489** (0.0208)
<i>GDP per capita</i>	-0.0245** (0.0126)	-0.0454*** (0.0128)	-0.0443*** (0.0125)	-0.0387*** (0.0124)
<i>GDP per capita<sup>2</sup></i>	0.000337*** (0.000113)	0.000498*** (0.000114)	0.000490*** (0.000113)	0.000446*** (0.000111)
<i>Gross enrollment secondary education</i>	-0.0175*** (0.00444)	-0.0171*** (0.00448)	-0.0177*** (0.00449)	-0.0178*** (0.00452)
<i>Foreign Direct Investment</i>	0.000804 (0.00155)	0.00126 (0.00156)	0.00124 (0.00156)	0.00123 (0.00156)
<i>Share employment in agriculture</i>	-0.00821 (0.0121)	0.00807 (0.0126)	0.00968 (0.0123)	0.00706 (0.0122)
<i>Constant</i>	38.64*** (0.617)	39.08*** (0.618)	39.09*** (0.618)	39.04*** (0.620)
# of observations	1451	1451	1451	1451
R-squared overall	0.132	0.292	0.290	0.284
R-squared between	0.138	0.268	0.266	0.264
R-squared within	0.058	0.041	0.043	0.042

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 8A: Countries classified as young democracies in period 2000 - 2019**

Albania	Korea	Paraguay
Antigua and Barbuda	Kosovo	Peru
Bangladesh	Lebanon	Senegal
Bhutan	Lesotho	Serbia
Bosnia and Herzegovina	Liberia	Sierra Leone
Comoros	Madagascar	Singapore
Croatia	Malawi	Solomon Islands
Ecuador	Malaysia	Sri Lanka
Fiji	Maldives	Taiwan
Gabon	Mauritania	Thailand
Georgia	Mexico	Tunisia
Ghana	Montenegro	Turkey
Guinea-Bissau	Mozambique	Venezuela
Honduras	Nepal	Zambia
Indonesia	Niger	
Kenya	Nigeria	

**Table 9A: Effect additional culture variables on relationship government size and income inequality**

	(1) Gini	(2) Gini	(3) Gini	(4) Gini	(5) Gini
<i>Public Sector Size</i>	-0.0280** (0.0121)	-0.0573*** (0.0148)	-0.0723 (0.0451)	0.00426 (0.0262)	-0.0419 (0.0411)
<i>Individualism</i>	-0.186*** (0.0353)	-0.149*** (0.0465)	-0.129*** (0.0367)		-0.130*** (0.0371)
<i>PSS * Individualism</i>		0.00345*** (0.000726)	0.00404** (0.00181)		0.00321* (0.00187)
<i>Long-Term Orientation</i>		-0.130*** (0.0347)	-0.135*** (0.0236)		-0.141*** (0.0242)
<i>Corruption Perception Index</i>				0.0415** (0.0197)	
<i>PSS * CPI</i>				-0.00166 (0.00118)	
<i>Young Democracy</i>				2.801*** (1.029)	1.804 (1.468)
<i>PSS * Young Democracy</i>				-0.140** (0.0573)	-0.0823 (0.0837)
<i>GDP per capita</i>			-0.0374 (0.0360)	-0.0396 (0.0345)	-0.0312 (0.0346)
<i>GDP per capita<sup>2</sup></i>			0.000431 (0.000305)	0.000477 (0.000296)	0.000381 (0.000293)

<i>Gross enrollment secondary education</i>			-0.0195 (0.0127)	-0.0180 (0.0122)	-0.0250* (0.0146)
<i>Foreign Direct Investment</i>			-0.000487 (0.00141)	0.00121 (0.00110)	-0.00104 (0.00139)
<i>Share employment in agriculture</i>			-0.00168 (0.0406)	0.00964 (0.0410)	-0.0204 (0.0425)
<i>Masculinity</i>		0.0563 (0.0367)	0.0571 (0.0404)		0.0568 (0.0410)
<i>Uncertainty Avoidance</i>		-0.0666** (0.0336)	-0.0590* (0.0304)		-0.0616** (0.0310)
<i>Indulgence</i>		0.0416 (0.0392)	0.0267 (0.0315)		0.0209 (0.0314)
<i>Power Distance</i>		0.0441 (0.0504)	0.0355 (0.0455)		0.0392 (0.0461)
<i>Constant</i>	45.36*** (1.614)	48.11*** (1.706)	49.78*** (3.476)	55.53*** (5.457)	55.08*** (5.291)
# of observations	1462	1261	1101	1362	1101
R-squared overall	0.231	0.478	0.479	0.0196	0.469
R-squared within	0.00369	0.0214	0.0611	0.0877	0.0789
R-squared between	0.240	0.502	0.538	0.0385	0.527

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 10A: Relationship democracy and income inequality with high Individualism\*\***

	(1) Gini	(2) Gini	(3) Gini	(4) Gini
<i>Public Sector Size</i>	-0.0887 (0.142)	-0.0719 (0.114)	-0.108 (0.111)	-0.0926 (0.102)
<i>Democracy</i>	-0.0420 (0.0326)	-0.0327 (0.0331)		
<i>PSS * Democracy</i>	0.00307 (0.00428)	0.000973 (0.00402)		
<i>Institutionalized democracy</i>			-0.420 (0.353)	-0.443 (0.328)
<i>PSS * Institutionalized Democracy</i>			0.0316 (0.0236)	0.0274 (0.0187)
<i>Corruption Perception Index</i>		-0.0230 (0.0377)		-0.0627*** (0.0220)
<i>PSS * CPI</i>		0.00187 (0.00219)		0.00110 (0.00203)



<i>Democracy duration</i>		-0.00375 (0.0318)		-0.000371 (0.0302)
<i>Young Democracy</i>		1.394 (2.442)		1.608 (2.636)
<i>PSS * Young Democracy</i>		-0.0622 (0.129)		-0.0780 (0.138)
<i>Individualism</i>	-0.158 (0.114)	-0.143 (0.159)	-0.191 (0.120)	-0.169 (0.176)
<i>Long-Term Orientation</i>	-0.138*** (0.0534)	-0.143** (0.0621)	-0.156*** (0.0539)	-0.161*** (0.0596)
<i>GDP per capita</i>	-0.0361 (0.0397)	-0.0226 (0.0354)	-0.0471 (0.0465)	-0.0340 (0.0298)
<i>GDP per capita<sup>2</sup></i>	0.000368 (0.000311)	0.000265 (0.000268)	0.000450 (0.000359)	0.000309 (0.000248)
<i>Gross enrollment secondary education</i>	-0.0145 (0.0123)	-0.0140 (0.0120)	-0.0141 (0.0133)	-0.0167 (0.0115)
<i>Foreign Direct Investment</i>	-0.000546 (0.00126)	0.00146 (0.00332)	-0.00126 (0.00337)	-0.000856 (0.00336)
<i>Gross employment in agriculture</i>	-0.186** (0.0925)	-0.207** (0.0916)	-0.223*** (0.0808)	-0.304*** (0.0752)
<i>Constant</i>	53.97*** (9.888)	53.44*** (10.57)	58.26*** (9.794)	59.04*** (10.78)
# of observations	559	555	524	524
R-squared overall	0.0607	0.0581	0.0753	0.0852
R-squared within	0.0918	0.117	0.138	0.222
R-squared between	0.0669	0.0605	0.0821	0.0873

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

\*\* In this table, only countries with a score of 45 or more at the Individualism culture dimension are included in this table. As can be seen, both interaction variables of democracy and institutionalized democracy with government size are insignificant. Indicating that the equalizing effect of democracy can only be 'activated' in the appropriate cultural environment.