

## Democracy Level and Its Impact on Economic Development

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### Abstract:

While there are benefits of democracy, not all democracies are the same. Consistent with previous findings, we find democracy positively affects economic development in general. However, after we classify democracy into different levels, we find a high democracy level positively affects economic development more than the low and mid democracy level. We find both high and low democracy levels have further enhanced the positive effect of higher political rating (lower political risk) on economic development.

Consistent with previous findings, we find high population growth negatively affects economic development overall. A high democracy level, however, helps mitigate the negative effect of higher population growth on economic development while low democracy level enhances the negative effect further. We find the democratic level does matter more for the economic development of developing economies compared to developed economies. We find the democratic level helps contribute to the positive relationship between lower political risk and economic development of developing economies. However, if the democratic level of the developing economies is low, higher population growth will further enhance the negative effect of high population growth on economic development. Therefore, the democratic level does matter for economic development and channels through which democracy level affects economic development, especially for the developing economies.

**Keywords:** democracy; democracy level; economic development; political risk; population growth.

**JEL Classification:** E00; I15; P16; P48.

### Introduction

According to Freedom in the World 2019 by Freedom House, democracy has been in a steady decline for the last 13 years, worldwide. While it is easy to harp on the benefits of democracy from a theoretical point, it is also obvious that not all countries can ensure the inherent economic and personal freedoms promised by democracy. Previous studies (Acemoglu *et al.* 2019, Heo and Hahm 2015) have found that the key difference is the maturity of the democratic institutions that make the difference.

Several research papers have studied the impact of democracy on economic development. Researches conducted by Acemoglu *et al.* (2019) and Carden and James Jr. (2013) have proven that democracy has led to higher overall growth in the long term. Acemoglu *et al.* (2019) find that if a country has been able to sustain a democratic system over the long term, GDP would increase by 20-25% in the first 25 years after democratization. In other words, the longer a country is democratic, the more impact democracy can have on its long-term economic prospects. The democratic system by not being leader-centric allows for a group process in policymaking which leads to better quality policies (Gerring *et al.* 2005). A democratic system also allows for a more independent judicial system, which is one of the most important underlying factors of property rights (Gerring *et al.* 2005). Stronger property rights lead to productive economic activities and steers away from rent-seeking activities (Acemoglu 1995,

Feng 1997) and thus help to enhance economic development. Acemoglu et al. (2019) argue that democracy may result in economic reform and reduction in social unrest and therefore results in higher economic growth.

Persson and Tabellini (2006) believe that not all democracies are the same. Gerring et al. (2005) find the degree and duration of democracy affect economic growth. The level of democratic maturity is very different across countries (Knack and Keefer 1995). A high democracy level is likely to positively impact economic development more than a low democracy level. This is due to, in contrast to high democracy level countries, political leaders in younger/low or less developed democracies tend to over-promise and set lofty expectations especially in poor countries (Gerring et al. 2005). Thus, looking at how different level of democracy affects a country's economic development is interesting.

To understand more how a country's democracy level impacts economic development, we investigate the channels through which democracy level affects economic development. In other words, we investigate how the democracy level helps contribute to the factors previously found to affect economic development. Among many factors that found to affect economic development, we are particularly interested in political risk and population growth. Uddin et al. (2017) find political risk has negative effects on economic growth while they find political stability is crucial for the economic growth of developing countries. Henisz (2000) also finds political stability positively affect economic growth as a reduction in political risk by one standard deviation enhances economic growth by roughly 1.3%. The evidence of the contribution of population growth on economic development has been mixed. Heo and Ham (2015) find population growth provides input in the form of labor, which in turn helps enhances economic output. Becker et al. (1999) argue that population growth in low-income, agricultural societies tend to slow growth in per capita income due to diminishing returns while the growing population in high income, urban economies tend to give rise to greater income growth as a result of increasing returns from greater specialization and more rapid accumulation of new knowledge. Peterson (2017) argues that rapid population growth is likely to be detrimental to low-income countries' economic growth in the short-run and medium run as it leads to a large number of dependent children. Therefore, if the country's democracy level does matter for economic development, it is interesting to investigate how the democracy level affects the relationship between political risk and economic development as well as population growth and economic development.

To the best of our knowledge, we help contribute to the existing literature by focusing on how democracy level affects economic development. In other words, rather than just focusing how "democracy" affects economic development like previous literature, we focus on "democracy level" instead, as we firmly believe different democracy level contributes to economic development differently. We believe that a country that has been democratic for 10 years is vastly different from a country that has just started practicing democracy. As Heo and Hahm (2015) find more mature democracies have better economies, we believe high-level and maturity of democracy is a key reason that helps to enhance economic development and that somehow set high democracy level apart from low democracy level. Our study also contributes to the existing literature by investigating channels through which democracy level affects economic development by focusing on how it affects the relationship between political risk and economic development as well as population growth and economic development. Also, we help contribute to the existing literature further by studying whether the "democratic level" matters more to the economic development of developed economies compared to less developed economies.

Using annual data of 125 developed and developing countries from 1990 to 2016, we find democracy does positively impact economic development in overall although we also find autocracy also positively affects economic development. To identify what sets high-level democracies apart from mid and low-level democracies in terms of its impact on economic development, we shift our focus to democratic countries only which brings the total countries in our sample to 105. We then categorize democracies into three levels: high, mid, and low based on the Freedom House Index criteria. We find high-level democracies has a higher positive significant impact on economic development more than low and mid democracy level. This result is consistent with the study of Lehtonen and Heimonen (2015) who find younger democratic institutions have a lower impact as opposed to more mature democratic institutions.

When investigating further how democracy level affects the relationship between political risk and economic development by using political rating as a proxy for political risk. A high political rating implies lower political risk and vice versa. As low political risk creates a favorable condition for the economy to thrive, the low political risk associated with high-level democracy should result in better economic development compared to a low democracy level where leaders tend to over-promise and set lofty expectations (Gerring et al. 2005). Besides, Doucouliagos and Ulubaşoğlu (2008) find democracy has significant and positive indirect effects through lower political instability and higher economic freedom. Therefore, we expect a high democracy level associated with lower political risk would help enhance a nation's economic growth more compared to the low democracy level.

Our results show high political rating (lower political risk) has a positive and significant impact on economic development in general. When we investigate how democracy level affects the relationship between economic development and political risk, we find both high and low democracy levels help to enhance the positive effect of lower political risk on economic development. Upon investigating further whether the results would be different if focusing on developed countries and less developed countries only. In the case of a developed country, we find high and low democracy levels do not help enhance the positive effect of lower political risk on economic development. On the other hand, in the case of a developing country, we find both high and low democracy levels help enhance the positive effect of lower political risk on economic development. Thus, the democracy level seems to matter more for the economic development of developing countries compared to developed countries.

For population growth, consistent with previous findings, we find population growth is negatively related to economic development in general. As Easterlin (1967) argues high population growth puts pressure on limited resources and may result in the reduction of private and public capital formation and therefore results in lower economic development. We, however, find that a high democracy level helps mitigate the negative effect of population growth on economic development. Low democracy levels, on the other hand, further enhances the negative effect of population growth on economic development. As per previous studies, population growth in a country where individual and national resources are already stretched, an increasing population may strain their limited resources especially for poorer nations where the democracy level is usually low. A high democracy level may help enhance the human capital accumulation and efficient allocation of limited resources and therefore helps mitigate the negative effect of population growth on economic development, especially for less-developed nations. When we separate the sample into developed and less developed nations, we find these effects are more pronounced in developing economies compared to less developed economies. Therefore, the democracy level does matter for economic development, especially for developing nations.

## 1. Previous Related Literature

Acemoglu *et al.* (2019) explore the relationship between democracy and economic development measured by GDP. Based on the Freedom House Index and the Polity IV, they created a list of 175 democratic countries. They found that a country's, if it has been able to sustain a democratic system long-term, GDP increases by 20-25% in the first 25 years after democratization. Therefore, the longer a country is democratic, the more impact democracy can have on its long-term economic prospects. They also found there is a high probability a country will shift to democracy or non-democracy if the same shift is happening in other neighboring countries. They have explored the channels through which democracy impacts economic development. Their findings suggest that "democracy contributes to growth by increasing investment, encouraging economic reforms, improving the provision of schooling and health care, and reducing social unrest" (Acemoglu *et al.* 2019, 51).

Heo and Hahm (2015) studied the feedback relationship between economic development and the maturation of democracy. They test how the maturity of democracy or democracy stock affects economic development and find that the two have positive effects on each other. They focused on the importance of institutional maturity on the relationship between democracy and economic development measuring by the log of GDP per capita. They used the variable *democracy stock* developed by Gerring *et al.* (2005). Democracy stock includes the transition, survival, and maturity of democracy by adding up democracy scores for 50 years (The Polity score). In the first model, they used Democracy Stock as the output variable, which is positively affected by Economic Development, Education, Economic Openness, Years of Independence, English Legal Origin, and negatively impacted by Social Conflict (Heo and Hahm 2015, 1046). The second model, they used Economic Development as the main output variable, which is positively affected by Democracy Stock, Population Growth, Education, Economic Openness, Life Expectancy, Government Expenditures, while being negatively impacted by Inflation and Social Conflict (Heo and Hahm 2015, 1046). The results indicated that both have a significant positive impact on each other. As for the other variables, life expectancy, economic openness, population growth, and education have a significant effect on economic development. While English legal origin and years of independence have a positive significant impact on democracy stock. Like Acemoglu *et al.* (2019) this implies that the longer a country has been democratic, the more time it had for its democratic institutions to grow and mature and that this growth has been aided by economic development.

Gerring *et al.* (2005) tested the relationship between democracy and economic growth by treating it as another variable or as they put it 'stock' (a country's 50-year summation of Polity Score, which indicates the transition, maturity, and development of its democracy). First, they tested the effect of 'democracy level' on economic growth; for which they found no statistical significance. In subsequent models, they use democracy as a 'stock' and investigate other variables' effects on it. Those variables are GDP, trade openness, investment, inflation,

investment, life expectancy, regime durability *et al.* In these instances, democracy stock is strongly affected by these variables. They went further and tested democracy stock with a length of time. They concluded that the 'degree' and 'duration' of democracy affect economic growth. This conclusion is supported by Acemoglu *et al.* (2019) and Heo and Hahm (2015), about institutional maturity and its role in democracy.

Persson and Tabellini (2006) took a more detailed look at the impact of democracy on the economy measured by the log of per capita income. They felt that the evidence linking democratization and economic growth was weak as not all democratic regimes have the same characteristics. Moreover, different political regimes other than democracies have overseen economic growth. They found democratization after economic liberalization led to a 3.5% growth when the two are put together. On the other hand, economic liberalization after democratization is "barely positive and statistically insignificant" (Persson and Tabellini 2006, 321). They interpret that immediately after democratization, but without economic liberalization, leaders are more occupied with populist policies and resource redistribution which leads to growth is negative. It is only after economic liberalization, which lags by a few years, do they see positive economic growth. As mentioned before, economic liberalization with stronger property rights (a result of democratization) eventually leads to high growth. Singularly the two reforms have a small impact, but together they have a large impact. When comparing parliamentary and presidential democracies, they find that presidential democracies grow by 1.5% more than parliamentary democracies. They argued that parliamentary democracies increase government spending more, which in turn leads to higher taxes. They also looked at regime change in a democratic manner and a transition to democracy from an autocratic regime. Within a democracy, if the transition occurs constitutionally there is a 1% growth. A change from an autocratic regime is normally preceded by violence, which has an initial negative impact on growth.

Lipset (1959) investigated the conditions of a functioning and stable democracy. He tested two conditions that he thought were most important: economic development and legitimacy. Lipset posits that the wealthier a country is, the likelier it will be able to sustain democracy. Lipset divides economic development into four sub-categories: wealth, industrialization, urbanization, and education. His observations were based on English speaking and European countries and Latin American countries. He further divided democracies into four categories: stable democracies in English speaking and European countries, unstable democracies and dictatorships in English speaking and European countries, democracies and unstable dictatorships in Latin American countries, and stable dictatorships in Latin American countries. He averaged each nation's scores within a group. The result led him to conclude that economic development aids democracy because the countries with the highest scores were the most democratic.

La Porta, Lopez-de-Silanes, Shleifer, and Vishny (LLSV) made a series of research papers in the late 1990s examining the relationship between law and economic growth (Xu 2011). Xu (2011) does a literature review of those papers. He concludes that legal institutions play a major role in modern economies. La Porta, Lopez-de-Silanes, Pop-Eleches, and Shleifer (2004) test two types of judicial checks and balances: judicial independence and constitutional review and they have found that it has the most impact on economic freedom.

Therefore, to investigate how democracy level affects economic development, we set our hypotheses as follows:

#### H1: Democracy leads to economic development.

Heo and Hahm (2015), Acemoglu *et al.* (2019), Feng (1997), and Vega-Gordillo and Alvarez-Arce (2003) studied the impact of democracy on economic development. Acemoglu *et al.* (2019) and Carden and James Jr. (2013) find that democracy has led to higher overall growth in the long term. Vega-Gordillo and Alvarez-Arce (2003) find that political and economic freedom positively impact economic growth. They find economic freedom impacts economic growth more, and at the same time, there is a strong positive correlation between economic freedom and political freedom. Feng (1997) finds that democracy impacts growth indirectly by encouraging regular government change, which has a direct positive impact on economic growth. Feng (1997) also makes a clear distinction between regime change and government change. Government change under democracy happens constitutionally, which is another indication of stability. Regime change is always predicated on political turbulence (e.g. military coup) which harms the economy. Thus, if democracy leads to political stability, it would, therefore, lead to higher economic development.

#### H2: Higher democracy level impacts economic development more than a lower democracy level.

The level of democratic maturity is very different across countries (Knack and Keefer 1995). A high democracy level is likely to positively impact economic development more than a low democracy level. Acemoglu *et al.* (2019) find that the longer a country is democratic, the more impact democracy can have on its long-term

economic prospects. Gerring *et al.* (2005) find the degree and duration of democracy affect economic growth. Gerring *et al.* (2005) point out that decision making processes in democratic countries and authoritarian countries are vastly different. Authoritarian regimes' decision-making process is leader-centric while democratic regimes' is a group process. This, in turn, will lead to more quality decisions.

Following this line of reasoning, we can assume developed democracies will have more quality group inspired policies in contrast to less developed democracies given their level of maturity. Gerring *et al.* (2005) argue that political leaders in younger/less developed democracies tend to over-promise and set lofty expectations on what self-determination can provide in a limited timeframe. They argue that if the country in question is poor or ethnically divided, it is easy for citizens to become disillusioned. This is because it takes time for democracy to materialize. Kriekhaus (2006) believes democracy can constrain or facilitate growth. According to Kriekhaus (2006), democratic countries where leaders focus on redistributive policies or not focus on economic growth, democracy will constrain growth. On the other hand, if citizens can remove leaders based on poor performance, democracy will facilitate growth. With democracy, minorities (lower classes, ethnic, religious, or racial) find a larger voice and are no more held back through fear in voicing their demands.

Based on these reasons, we believe it is worthwhile to investigate the economic growth difference between developed and less developed democracies<sup>1</sup>. As Heo and Hahm (2015) and Acemoglu *et al.* (2019) have shown that democracies get stronger with time; therefore, in mature/high-level democracies these factors should have a larger impact. The longer the duration and maturity of democracy, the more positive effect it will have on economic development.

**H3: Higher political rating (lower political risk) positively impacts the Economic Development of high-level democracies more and Population Growth negatively impacts the Economic Development more in low-level democracies.**

*H3.1: Positive contribution of Political Rating on Economic Development should be higher for high-level democracies.*

Political rating is used to measure political risk in which higher political rating means lower political risk. Political risk is a factor that affects how businesses (local and foreign) and entrepreneurs make business decisions. The lower a country's political risk, the better environment it provides for investment. Low political risk also implies high political stability. Economic growth flourishes most in an environment of political stability (Feng 1997). Henisz (2000) finds that as the political risk decreases by one standard deviation, economic growth increases by roughly 1.3%. Abu and Karim (2015) find that political instability causes lower economic development, high corruption, and more reliance on aid. Thus, they argue that political stability would help enhance economic development. Jensen (2008) posits that risk reduction is the link between political institutions and their positive impact on economic performance. Busse and Hefeker (2007) also look at the impact of political risk on foreign direct investment (FDI). They find multinational companies' decision to invest in a country is heavily influenced by its political risk. Therefore, more FDI to the country results in higher economic development.

Democracy has a heavy role in reducing the political risk of a country (Feng 1997, Henisz 2000). Jensen (2008) has found that high-level democracy and high political risk have a negative relationship. Lehkonen and Heimonen (2015) find that there is a J-shaped relationship between political risk and type of government. In a J-shaped curve, strong democratic countries have low political risk and are on one end. While 'semi-democracies' have high political risk and fall on the bend of the curve. The reason being that strong democratic countries have different methods and strong institutions to deal with protests and anti-government activities. A look at their sample countries has shown that countries fall in the curve or 'semi-democracies' are countries that have been categorized as mid and low-level countries in this paper. They underline that as a country "pass[es] a threshold level, the higher levels of democracy decrease political risk." (Lehkonen and Heimonen 2015, 78). Also, they argue that low-level democracies don't yet have a strong institutional environment therefore their political stability is weak. Hence, low-level democracies have higher political risk, and only with time will their political risk decrease as their democracies mature. This is consistent with Heo and Hahm (2015) and Acemoglu *et al.* (2019) stating that democracies need time to let their institutions develop and mature. Also, Rock (2009), supported by Mohtadi and Roe (2003) finds that democracy and corruption have an inverted U-shaped curve. This mirrors Lehkonen and Heimonen (2015), where

<sup>1</sup> Gerring *et al.* (2005) tested something similar. While testing their hypothesis with all free countries, the authors did separate tests by excluding countries based on regions and test the effectiveness of democracy stock on economic development on the rest. They had 5 regions: Middle East, Africa, Asia, Latin America/Caribbean and OECD. They have found that the connection between democratization and economic growth are the same and regional effects are a non-issue.

younger democracies have higher corruption than more mature democracies. Rock (2009) also looks at bureaucratic quality and rule of law. They have a J-shaped pattern exactly like Lehkonen and Heimonen (2015) with initial democratic years having low bureaucratic quality and rule of law ratings and then the ratings rise with more mature democratic countries. Rock (2009) concludes that time is needed for “new democracies to build those transparent and accountable institutions (rule of law and a high-quality public-sector bureaucracy) necessary to control corruption” (Rock 2009, 70). Reynal-Querol (2002) looks at the impact of political regimes and the level of democracy’s impact on ethnic and religious conflict. She finds that low to mid-level democracies has a higher chance of conflict. While high-level democracies have low chances of conflict arising from ethnic and religious issues.

Therefore, based on previous literature, lower political risk is conducive to economic growth and that higher democracy level countries are more conducive to lower political risk. As Jensen (2008) has found that democracy leads to political stability which in turn has a positive impact on the economy, we believe that higher political rating (lower political risk) should positively contribute more to economic development in high-level democratic countries compared to low-level democratic countries. In other words, we believe a high democracy level will enhance the positive effect of lower political risk on economic development more than a low democracy level.

### *H3.2: Negative contribution of Population Growth on Economic Development should be higher for low-level democracies.*

The majority of low-level democracies also happen to be low-income countries in which real GDP per capita is already low. This implies these economies have lower financial and natural resources available per person. Therefore population growth will likely harm their real GDP per capita. Simply put as their population increases, the amount invested per person will decrease or slow down their growth. According to Becker *et al.* (1990), the modern economy relies on skilled and trained labor, in other words, higher human capital. Therefore, countries with large human capital and rapid accumulation of new knowledge will have better economies. For human capital to be large, there has to be a relevant investment in its population. But low-income countries inherently have less to invest in their population. This leads to a scarcity of human capital and lower economic development. On the other hand, richer countries have larger human capital, and more to invest in per person, maintaining their economic development.

Therefore, low-level democracies should see population growth negatively impacting their economic development as it leaves fewer resources per person. According to Becker *et al.* (1999), higher population growth seems to benefit urbanized and high-income economies while bringing harm to low-income economies as it results in diminishing returns of intensive usage of limited resources. Peterson (2017) argues that rapid population growth is likely to be detrimental to low-income countries’ economic growth in the short-run and medium run as it leads to a large number of dependent children. Easterlin (1967) also argues that high population growth in less-developed economies increases pressures on limited natural resources and diverts those resources away from using them to increase capital stock per worker and therefore resulting in lower economic development.

Doucouliağos and Ulubaşoğlu (2008) argue that democracy has a significant positive indirect effect on economic growth through human capital accumulation. Thus, the higher the democracy level, the more positive effect on human capital accumulation, and the more rapid accumulation of knowledge in contrast to low democracy level. For these reasons, we believe higher population growth should benefit economic development more for high democracy level countries while negatively affect economic development further for low democracy level countries.

In our study, we follow papers done by Persson and Tabellini (2006), Heo and Hahm (2015) and Acemoglu *et al.* (2019) and put the concentration on how ‘democracy level’ contributes to economic development and affects the relationship between political risk and population growth with economic development. We use government spending and trade as control variables. We also extend our study by investigating whether the democracy level matters more for the economic development of developed nations compared to less developing nations and channels through which democracy level affects the economic development of those nations.

## **2. Data**

We employ a panel dataset of 105 countries in yearly frequency, covering the period from 1990 to 2016. The chosen period of study is due to the economic indicators being available from 1990 onward, but ICRG’s political risk rating using as a proxy of political risk is available only until 2016. More importantly, the year 1990 is the beginning of the dissolution of the Soviet Union. Between 1990 and 1992, sixteen countries became independent democratic nations. Since then, there had not been a major wave of regime shifts towards democracy. Hence, starting from 1990 allows us to expand our data set with more variation of democratic levels across countries that could provide

a higher statistical power of our study. Our first sample to test *hypothesis 1* is composed of 125 countries including both authoritarian and democratic countries. Then, we reduce our sample to 105 countries that include only democratic countries to test the subsequent hypotheses as our study mainly focuses on the impact of democracy level on economic development. Our dataset contains countries which were democratic for most of the time except for a few years of backsliding, for instance, Thailand and Bangladesh, but those years of the countries are excluded when we test *hypothesis 2 and 3*. However, given that our democracy variable is time-varying, the number of countries we use to test *hypothesis 1* is the same due to the democracy level for some countries varies over time, with some countries moving in and out of the different levels. In other words, there are some years that some democratic countries in the sample are authoritarian and we exclude those years.

To investigate the impact on economic development, we follow mainstream literature to use the log of real GDP per capita as the result in the models. This, for comparable results, is also in line with several previous notable studies such as Acemoglu *et al.* (2019), Heo and Hahm (2015), Mauro (1995), and Chong and Calderon (2000). We also use control variables similar to prior studies, including population growth, government spending as a percentage of GDP, and total trade as a percentage of GDP. Population growth is used to capture the effect of labor input as argued in (Heo and Hahm 2015) and, implicitly, human capital followed Krieckhaus's (2006) argument based on fertility growth theory. Government spending is to control for a government's general roles and policies toward macroeconomic conditions as in Ram's (1986) argument. Lastly, trade is controlled for as it has now become a more important contributor to many economies in the age of globalization. All these variables were retrieved from the World Development Indicators by the World Bank Group.

Apart from the variables mentioned above, we need to measure democracy levels and political risks of the countries in our sample which may be different across the years. The impact of democracy level on economic development is our main interest. Besides, as political risk and population growth can also contribute to economic development, we also interest how the democracy level affects the relationship between political risk and economic development as well as the relationship between population growth and economic development.

### Democracy and Democracy Level

To classify whether a country is democratic and to determine levels of democracy of each country in each year, we rely on the Freedom House Index or Gastil Index by Freedom House<sup>2</sup>, which has been widely adopted in many social science research publications. The Freedom House Index is constructed based on an average of the two criteria: political rights (PR) and civil liberties (CL), both of which have a scale of one to seven, with one being the highest level of freedom and seven being the lowest. Freedom House then uses the resulting index score to designate a country in each year into three groups: Free (F), Partly Free (PF), and Not Free (NF). However, the ranges of the index scores used to define each group were modified slightly in 2003<sup>3</sup>, as illustrated in Table 1 that the criterion for "Not Free" has been eased to just above 5.0 instead of 5.5 since the year 2003.

Table 1. Freedom house index rating

Before 2003		2003 and After	
Rating	Classification	Rating	Classification
1.0 – 2.5	Free	1.0 – 2.5	Free
3.0 – 5.5	Partly Free	3.0 – 5.0	Partly Free
5.5 – 7.0	Not Free	5.0 – 7.0	Not Free

Source: Freedom in the World 2019

Our study herein, firstly focusing on impacts of democracy on economic development. In other words, we define a country in a given year as democratic if it did not fall into Freedom House's Not Free category in that year. We redefine whether the country in a sample is democratic or authoritarian (not free) for each year.

Furthermore, to investigate possibly heterogeneous impacts of democracy levels on economic development, we divide the democratic countries into three groups by their level of democracy: high, mid, and low. This is because the effect of democracy on economic development may not be monotone in democracy levels, in which case using a raw index score may fail to capture significant effect. Those with a stable democratic system should be able to enjoy good aspects of democracy, as evidenced in Acemoglu *et al.* (2019), while the borderline countries between

<sup>2</sup> Freedom House is a US government funded non-governmental organization. They publish an annual report called Freedom in the World that looks at the state of democracy around the world. The Freedom House Index's methodology was created by Dr. Raymond Gastil and first used in 1972.

<sup>3</sup> See Table 1 for the summary

democratic and authoritarian systems may still struggle to manage democracy, making it unclear whether the benefits from democracy could outweigh management costs. Hence, classifying roughly into just two groups of Free and Not Free may not be adequate to capture the heterogeneity in effects as well. Our criteria for this further classification are shown in Table 2.

Table 2. Democracy level

Before 2003		2003 and After	
Range	Democracy Level	Range	Democracy Level
1.0 – 2.0	High-Level Democracy	1.0 – 2.0	High-Level Democracy
2.5 – 4.0	Mid-Level Democracy	2.5 – 3.5	Mid-Level Democracy
4.5 – 5.5	Low-Level Democracy	4.0 – 5.0	Low-Level Democracy

Source: Freedom in the World 2019

Therefore, for the last two hypotheses which we include only 105 democratic countries, we group the countries into three democratic levels. We created our classification but based on Freedom House's basic categorization. We have taken only countries that fall into the category of Free and Partly Free or countries falling in the range of 1.0 to 5.5 for years before 2003 and 1.0 to 5.0 for years after 2003. The democratic countries are then divided into three categories: high, mid, and low level. Each level is comprised of three 0.5 increments. As the countries are all rated on increments of 0.5, we can further sub-categorize them into 3 different levels, with each group having 3 increments. Our 'Democracy level' classification can be found in Table 2 above. Our democracy level variable is time-varying as we reclassify the democracy level variable for each country every year according to criteria stated in Table 2. As mentioned earlier, the democracy level for some countries varies over time, with some countries moving in and out of the different levels.

#### Political Rating

We use political rating from the International Country Risk Guide (ICRG)'s political risk index as a proxy for political risk. The higher ICRG's political risk (higher political rating) means lower political risk and vice versa. The ICRG rates three main categories of a country: Political Risk, Economic Risk, and Financial Risk. For this paper, we only focus on the Political Risk rating. Keefer and Knack (1997) use ICRG's political risk rating when studying the slow growth of poorer nations to more developed economies. Similar to this paper, Henisz (2000) uses the ICRG index when looking at the impact of the political and its institution's environment on economic growth. Therefore, we use ICRG's political risk rating to measure political risk in this paper.

As mentioned earlier, political risk has a massive impact on a country's economy. Local and foreign companies base their long-term and short-term decisions based on political risk. Political and social instability (social conflict: religious, ethnic, or otherwise) often hurting economic growth (Acemoglu *et al.* 2019, Heo and Hahm 2015). Acemoglu *et al.* (2016) and Heo and Hahm (2015) both use conflict or social unrest events as a variable with negative effects on the economy. We then further investigate how the democracy level affects the contribution of political risk on economic development.

#### Population Growth

Previous literature finds population growth could benefit as well as harm economic development. In terms of benefits, population growth increases labor inputs, which in turn increases economic input. The population is an important factor in economic development in this manner (Heo and Hahm 2015). Population growth, however, can harm economic development, especially for less-developed nations. Kriekhaus (2006) using the fertility growth theory, posits that as family size increases, the parents' average investment per child decreases. This in turn reduces the quality of human capital and therefore lower economic development. Regardless of the two opposing views, population growth impacts economic development. Then we further investigate how democracy level affects the contribution of population growth on economic development.

#### Government Spending

Governments have a huge impact on the economy through their economic and financial policies. Based on Ram's (1986) economic growth model, government expenditure as a percentage of GDP is used as a proxy for the government's role in the economy.

## Trade

In the age of globalization, trade is an important contributor to the economy. The larger an economy is, the larger their trade tends to be, which in turn leads to greater economic performance. Trade as a percentage of GDP has been used by Heo and Hahm (2015), Reuveny and Li (2003), and Acemoglu *et al.* (2019).

Therefore, in our study, we initially use population growth, government spending, trade, and political rating as control variables to investigate the relationship between democracy level and economic development. Then, we focus on how the democracy level affects the impact of political rating (high political rating implies lower political risk) and population growth on economic development to further understand channels through which democracy level affects economic development.

### 3. Methodology

Following Lehkonen and Heimonen (2015) and Busse and Hefeker (2007), We apply the system GMM estimation by using the Arellano-Bond estimator to test the first hypothesis.

#### H1: Democracy leads to economic development

$$y_{i,t} = \gamma + \alpha_i + \beta_1 y_{i,t-1} + \beta_2 X_{i,t} + \beta_3 D_{i,t} + \beta_4 A_{i,t} + \varepsilon_{i,t} \quad (1)$$

The log of GDP per capita is denoted by  $y_{i,t}$  which is a proxy for economic development for a given country  $i$  at a given year  $t$ . The lag of log GDP per capita is represented by  $y_{i,t-1}$ .  $D_{i,t}$  is the dummy variable for democracy in which 1 indicates democracy in that given year and 0 if on a year the country is undemocratic. The variable  $A_{i,t}$  indicates autocratic countries. These samples have been autocratic for the whole or majority of the sample period. The  $x_{i,t}$  variable represents the matrix of control variables which are the factors that have an impact on a country's economic development. Those variables are population growth, trade, government spending, and political risk (proxy by political rating). The country fixed effect is denoted by  $\alpha_i$ . The  $\gamma$  represents the constant. In this hypothesis, we include both democratic and non-democratic countries in our sample. We expect democracy would lead to higher economic development.

#### H2: Higher democracy level impacts economic development more than a lower democracy level.

$$y_{i,t} = \gamma + \alpha_i + \beta_1 y_{i,t-1} + \beta_2 X_{i,t} + \beta_3 D_{H,i,t} + \beta_4 D_{L,i,t} + \varepsilon_{i,t} \quad (2)$$

We now include only democratic countries in our sample and separate democracy into levels. Since we are interested in investigating whether democracy level affects a country's economic development, we add two new dummy variables that represent high-level and low-level democracies. If a country is deemed to be a high-level democracy, the dummy variable  $D_H$  is equal to one and zero otherwise and if it is a low-level democracy, the dummy  $D_L$  is equal to one and zero otherwise. Like the previous hypothesis, the high and low democracy dummy is time-variant and we reclassify the democracy level of each country each year. We expect a high democracy level impacts country's economic development more than a low democracy level.

#### H3: Higher political rating (lower political risk) positively impacts the Economic Development of high-level democracies more and Population Growth negatively impacts the Economic Development more in low-level democracies.

We now investigate how democracy level impacts the relationship between political rating (a proxy for political risk) and economic development and the relationship between population growth and economic development. We include interaction variables in our model which is the democracy level multiplied with the variable being tested (political risk or population growth). The new variables included in the model to test the subsequent hypotheses are summarized in Table 4. We expect higher political rating (lower political risk) in high democracy level countries would positively contribute to economic development more than low democracy level countries. Also, we expect high population growth in low democracy level countries would negatively contribute to economic development more than high democracy level countries.

Table 4. Variable names

Name	Variable name
Political Rating (a proxy for Political risk)	Polrat
Population Growth	Popgrow
Trade	Trade
Government Spending	Govsp

*H3.1: Positive contribution of high Political Rating (low political risk) on Economic Development should be higher for high-level democracies.*

$$y_{i,t} = \gamma + \alpha_i + \beta_1 y_{i,t-1} + \beta_2 \text{polrat}_{i,t} + \beta_3 \text{popgrow}_{i,t} + \beta_4 \text{trade}_{i,t} + \beta_5 \text{govsp}_{i,t} + \beta_6 (\text{polrat}_{i,t} * D_{H,i,t}) + \beta_7 (\text{polrat}_{i,t} * D_{L,i,t}) + \varepsilon_{i,t} \quad (3)$$

*H3.2: Negative contribution of Population Growth on Economic Development should be higher for low-level democracies.*

$$y_{i,t} = \gamma + \alpha_i + \beta_1 y_{i,t-1} + \beta_2 \text{polrat}_{i,t} + \beta_3 \text{popgrow}_{i,t-1} + \beta_4 \text{trade}_{i,t} + \beta_5 \text{govsp}_{i,t} + \beta_6 (\text{popgrow}_{i,t-1} * D_{H,i,t}) + \beta_7 (\text{popgrow}_{i,t-1} * D_{L,i,t}) + \varepsilon_{i,t} \quad (4)$$

Overall, we test hypothesis III (H3) again as follows:

$$y_{i,t} = \gamma + \alpha_i + \beta_1 y_{i,t-1} + \beta_2 \text{polrat}_{i,t} + \beta_3 \text{popgrow}_{i,t-1} + \beta_4 \text{trade}_{i,t} + \beta_5 \text{govsp}_{i,t} + \beta_6 (\text{polrat}_{i,t} * D_{H,i,t}) + \beta_7 (\text{polrat}_{i,t} * D_{L,i,t}) + \beta_8 (\text{popgrow}_{i,t-1} * D_{H,i,t}) + \beta_9 (\text{popgrow}_{i,t-1} * D_{L,i,t}) + \varepsilon_{i,t} \quad (5)$$

In total, 144 observations are dropped due to missing data. Some of the missing data are overlapping. After testing Hypothesis 1, we focus only on democratic countries. Thus in testing Hypothesis 2 and 3, for certain countries that were categorized as autocracy for specific years, those years were dropped. Overall, we have a total of 2,411 observations to test hypotheses 2 and 3.

Following the Arellano-Bond Estimator and the variables used for testing the hypotheses, it requires the variables to be separated into two groups: endogenous and exogenous. The endogenous variables are lag of log GDP per capita and log of trade. As per the rules of the Arellano-Bond method, the lag of log GDP per capita is used to consider the accelerator affects. Being the lag of log GDP per capita, it is naturally an endogenous variable. According to Acemoglu *et al.* (2019) trade is also an endogenous variable. GDP per capita and trade tend to have a circular relationship. In an open economy, trade is a sizable chunk of the GDP. Trading activities (export and import) raises income which in turn increases GDP. The GDP growth, in turn, encourages more trading activities (Reuveny and Li 2013). Barro (1990) has found that government spending has a negative relationship with economic development. The economic outlook also influences government spending. Generally, if the economic outlook is negative, governments will increase spending to stimulate the economy. Therefore, government spending is another endogenous variable in our model.

All other variables are exogenous variables. The variable Population Growth (*popgrow*) is already a logged variable as per World Bank Data. The impact of population growth on labor output is lagged since those born need to grow up before they can start contributing to the economy (Peterson 2017). Generally, the lag of population growth is used when it is a variable. Acemoglu *et al.* (2019) use four lags and Huang and Xie (2013) used one lag. In this paper, a lag of one year is used. Political rating (*polrat*) is comprised of social, legal, and political components. As such it has been treated as an exogenous variable by previous literature used in this paper (Henisz 2000, Lehkonen and Heimonen 2015). Likewise, the interaction variables used in H3.1, H3.2, and overall H3 are categorized as exogenous. The democracy variables (high and low included) are considered as exogenous.

Given the sample size is larger than thirty, the use of z-statistics is preferred to t-statistics. The Arellano-Bond is a GMM estimation. The system GMM was applied to estimate the models as it corrects endogeneity by introducing more instruments to improve efficiency.

#### 4. Results

Table 5. Descriptive Statistics – Democracy and Autocracy

Variable	Obs	Mean	Std. Dev.	Min	Max
Log of GDP per Capita	2,685	9.198	1.219	5.870	11.491
Log of Trade	2,685	68.122	13.113	0.000	96.080
Political Rating	2,575	1.394	1.243	-2.851	7.061
Lag of Population Growth	2,685	4.257	0.536	2.621	6.090
Government Spending	2,685	15.593	5.135	0.911	43.479
Democracy	2,685	0.947	0.223	0.000	1.000
Autocracy	2,685	0.053	0.223	0.000	1.000

Table 6. Data Correlations – Democracy and Autocracy [Hypothesis 1]

Variable	Log of GDP per Capita	Log of Trade	Political Rating	Lag of Population Growth	Government Spending	Democracy	Autocracy
Log of GDP per Capita	1						
Log of Trade	0.759	1					
Political Rating	-0.4936	-0.3978	1				
Lag of Population Growth	0.2707	0.3078	-0.1228	1			
Government Spending	0.4155	0.4616	-0.2922	0.2196	1		
Democracy	0.1719	0.2124	-0.1546	0.0396	0.1491	1	
Autocracy	-0.1719	-0.2124	0.1546	-0.0396	-0.1491	-1	1

Table 7. Descriptive Statistics – Democracy Levels [Hypothesis 2 and 3]

Variable	Obs	Mean	Std. Dev.	Min	Max
Log of GDP per Capita	2,684	9.197	1.219	5.870	11.491
Log of Trade	2,684	68.122	13.115	0.000	96.080
Political Rating	2,574	1.394	1.242	-2.851	7.061
Lag of Population Growth	2,684	4.257	0.537	2.621	6.090
Government Spending	2,684	15.590	5.134	0.911	43.479
Democracy High	2,684	0.455	0.498	0.000	1.000
Democracy Mid	2,684	0.304	0.460	0.000	1.000
Democracy Low	2,684	0.189	0.391	0.000	1.000
Political Rating*Democracy High	2,684	35.556	39.327	0.000	96.083
Political Rating*Democracy Mid	2,684	18.517	28.480	0.000	80.875
Political Rating*Democracy Low	2,684	11.063	23.466	0.000	89.125
Lag of Population Growth*Democracy High	2,684	0.338	0.703	-2.258	6.017
Lag of Population Growth*Democracy Mid	2,684	0.512	0.996	-2.851	5.564
Lag of Population Growth*Democracy Low	2,684	0.424	1.036	-1.475	7.061

From Table 6, democracy is positively correlated with economic development while autocracy is negatively correlated with economic development. Thus, democracy seems to positively contribute to economic development. When looking at the democracy levels in Table 7, the mean of high-level democracies is higher than the other two levels. This implies there are more countries in the higher end of the democratic level and for a longer time in our sample. In other words, when a country reaches or is already a high democracy level country, they are likely to stay that way for more years. As opposed to mid-level and low-level countries that tend to phase in and out their respective categories, sometimes even becoming autocratic.

When looking at the raw correlation matrix in Table 8, high democracy level has a positive correlation with economic development (log of GDP per capita) while mid-level and low-level democracies have a negative correlation. At a glance, this reflects that different democracy level contributes to economic development differently. When looking into the relationship between political rating and economic development, when the democracy level of the country is high, the higher political rating (lower political risk) seems to positively correlated with economic development. This might imply that a high democracy level positively correlated with lower political risk and a stable political environment. On the other hand, higher political rating (thus lower political risk) seems to negatively contribute to economic development in lower democracy level countries. This might be due to lower democracy level countries having low-quality democratic institutions while higher democracy level countries have strong democratic foundations. This pattern is in conjunction with the J-curved relationship posited by Lehkonen and Heimonen (2015) where younger democratic countries have a poor quality rule of law and bureaucracy; where the quality only improves as the countries mature over time.

Table 8. Data Correlations – Democracy Levels

	Log of GDP per Capita	Log of Trade	Political Rating	Lag of Pop Growth	Government Spending	Democracy High	Democracy Mid	Democracy Low	Political Rating * Democracy High	Political Rating * Democracy Mid	Political Rating * Democracy Low	Lag of Pop Growth * Democracy High	Lag of Pop Growth * Democracy Mid	Lag of Pop Growth * Democracy Low
Log of GDP per Capita	1.000													
Log of Trade	0.759	1.000												
Political Rating	-0.494	-0.398	1.000											
Lag of Pop Growth	0.271	0.308	-0.123	1.000										
Government Spending	0.416	0.462	-0.292	0.220	1.000									
Democracy High	0.667	0.709	-0.481	0.157	0.483	1.000								
Democracy Mid	-0.424	-0.369	0.168	-0.141	-0.267	-0.605	1.000							
Democracy Low	-0.254	-0.350	0.329	-0.012	-0.217	-0.440	-0.317	1.000						
Political Rating * Democracy High	0.697	0.762	-0.484	0.170	0.495	0.990	-0.599	-0.436	1.000					
Political Rating * Democracy Mid	-0.395	-0.304	0.154	-0.128	-0.255	-0.597	0.987	-0.312	-0.591	1.000				
Political Rating * Democracy Low	-0.195	-0.269	0.325	0.054	-0.195	-0.431	-0.310	0.980	-0.427	-0.306	1.000			
Lag of Pop Growth * Democracy High	0.291	0.340	0.139	0.061	0.156	0.526	-0.318	-0.232	0.510	-0.314	-0.227	1.000		
Lag of Pop Growth * Democracy Mid	-0.467	-0.324	0.440	-0.161	-0.226	-0.472	0.780	-0.247	-0.467	0.753	-0.242	-0.248	1.000	
Lag of Pop Growth * Democracy Low	-0.230	-0.294	0.490	-0.013	-0.160	-0.375	-0.269	0.851	-0.371	-0.266	0.836	-0.197	-0.210	1.000

For population growth, when the democratic level of countries is low, higher population growth seems to negatively affect economic development while when the democratic level of countries is high, higher population growth seems to positively affect economic development. As mentioned earlier, there are conflicting theories on how population growth impacts economic growth. One is that population growth leads to more labor which in turn increases economic output (Heo and Hahm 2015, Peterson 2017). Another theory says that as the number of people increases in a household, the amount invested per person is reduced (Easterlin 1967, Kriekhaus 2006). We further investigate the effect of democracy level on economic development by using the system GMM estimation.

Before looking at how democracy level affects economic development, our results in Table 9 show that higher government spending significantly negatively contributes to economic development in all models. At first glance, government spending is expected to help enhance GDP growth. However, as the government increases its budget, it may lead to an increase in the marginal tax to finance an increase in government spending. Higher tax leads to less consumption and lower savings rate (Barro 1990). Also, if the government needs to borrow money to finance its budget, it may lead to higher interest rates. Higher interest rates then negatively impact investment. Landau (1983) and Barro (1990) conclude government spending has a negative and significant impact on growth. Nevertheless, government spending is still important especially for public goods (*i.e.* public transportation, education, and health care) (Barro 1990). However, spending policies should be balanced and well thought out to positively contribute to economic growth.

Table 9. Results of GMM Arellano Bond Estimation

VARIABLES	H1	H2	H3.1	H3.2	H3
	Log of GDP per Capita				
Lag of Log GDP per Capita	0.993000*** (0.001270)	0.989000*** (0.001200)	0.989000*** (0.001210)	0.989000*** (0.001220)	0.989000*** (0.001230)
Political Rating	0.000632*** (0.000102)	0.000475*** (0.000100)	0.000420*** (0.000102)	0.000502*** (0.000096)	0.000384*** (0.000104)
Lag of Population Growth	-0.006870*** (0.000520)	-0.008300*** (0.000643)	-0.008340*** (0.000647)	-0.009370*** (0.000875)	-0.008090*** (0.000958)
Log of Trade	0.014900*** (0.001920)	0.020500*** (0.002050)	0.019800*** (0.002060)	0.021800*** (0.002070)	0.020000*** (0.002050)
Government Spending	-0.002290*** (0.000250)	-0.002440*** (0.000217)	-0.002400***	-0.002400*** (0.000212)	-0.002310*** (0.000219)
Democracy High		0.010100*** (0.002230)			
Democracy Low		0.006050*** (0.001990)			
Political Rating * Democracy High			0.000130*** (0.000032)		0.000106*** (0.000037)
Political Rating * Democracy Low			0.000082** (0.000033)		0.000172*** (0.000045)
Democracy	0.024200** (0.009460)				
Lag of Population Growth * Democracy High				0.003770*** (0.001190)	0.002450* (0.001380)
Lag of Population Growth * Democracy Low				-0.000262 (0.000851)	-0.00320*** (0.001150)
Autocracy	0.030800*** (0.010000)				
Constant		0.048100*** (0.010400)	0.054500*** (0.010800)	0.041400*** (0.010600)	0.053900*** (0.010900)
Observations	3,029	2,411	2,411	2,411	2,411
Number of Countries	125	105	105	105	105

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Sargan's test of over-identification (p-value) = 0.000000.

The log of trade, on the other hand, has a significant positive contribution to economic development. GDP is highly influenced by trade and is an indicator of a country's economic liberalization policy (Acemoglu *et al.* 2019, Heo and Hahm 2015). Now we look at the impact of democracy level on economic development as follows.

### H1: Democracy leads to economic development

We find that democracy does lead to economic development although we find autocracy also leads to economic development. As previous literature has found (Acemoglu *et al.* 2019, Heo and Hahm 2015, Gerring *et al.* 2005, Lipset 1959) democracy does indeed positively impact economic development. Kriekhaus (2006) argues that the most important aspect of democracy is that if a leader's performance is not satisfactory, the people can change the leader without economic turbulence. Referring to Feng (1997) and Persson and Tabellini (2006), democracy has government change and not regime change. Government change is a result of the constitution and leads to economic growth by 1% (Persson and Tabellini 2006). While regime change is always preceded by strife and violence (Feng 1997). Decision making is based on the voices of the many as opposed to the few which in turn leads to clearer and well-tuned policies (Gerring *et al.* 2015). The transition to democracy is generally followed by economic liberalization. The positive impact of economic liberalization is reflected through variable trade which is positive and significant at 1% throughout the findings. Therefore our result confirms that democracy leads to economic development.

### H2: Higher democracy level impacts economic development more than a lower democracy level

We find a high democracy level has a significantly positive impact on economic development with low and mid democracy levels also having a positive impact albeit with a lower impact. In other words, we find a high democracy level positively affects economic development more than the low and mid democracy level. According to Persson and Tabellini (2006), not all democratic countries are the same. Geography and political history have a huge impact on current governments (Acemoglu *et al.* 2019). For example, British democracy was centuries in the making, with the signing of the Magna Carta (1215) limiting the King's authority and followed by the first representative parliament in 1265. Whereas, the United States of America was able to start with a clean slate as a democratic country in 1776. The high-level democracies are mostly comprised of western liberal democracies. Thus, certain countries have been democratic for a long time.

As per Acemoglu *et al.* (2019) the amount of time a country has been democratic plays a major role in its economic development. As such the results here have shown that high-level democracies or the more mature democracies have a positive impact and are significant at 1%. Low and mid-level democracies, while statistically significant at 1%, positively affects economic development at a lower level. Delving further into the fundamental differences between high-level and low-level democracies, there is a great gap in the democratic and bureaucratic institutions. Implementing policies effectively has always been an issue for low-level democracies (Keefer and Knack 1997, Henisz 2000). Another major issue is corruption and accountability (Mauro 1995). The issue with corruption leads to the state of the judicial system. A strong and fair judicial system is an important foundation for economic development (Heo and Hahm 2015). A strong marker for the judicial system is property rights (Feng 1997, Leblang 1997).

Strong property rights encourage citizens to invest in economic activities as opposed to becoming rent-seekers. Without strong property rights, people are afraid of losing their property. Therefore, rent-seeking activities are a way of safeguarding the property and increasing income without engaging in risky business activities. In low-level democracies leaders often over-promise and under-deliver (Gerring *et al.* 2005). It could be the fault of an unrealistic timeframe or poor execution by the bureaucracy. Therefore, a high democracy level positively impacts economic development more compared to the lower level of democracy.

### H3: Higher political rating (lower political risk) positively impacts the Economic Development of high-level democracies more and Population Growth negatively impacts the Economic Development more in low-level democracies

#### H3.1: Positive contribution of Political Rating on Economic Development should be higher for high-level democracies.

We find that higher political rating (lower political risk) significantly and positively affects economic development overall. The results are similar to the conclusion reached by Feng (1997) and Henisz (2000). High political rating is an indicator of political stability which in turn increases economic growth (Henisz 2000).

We find both high and low democracy level further contributes to the positive relationship between lower political risk and economic development. Jensen (2008) has found there is a clear link between high-quality democratic institutions and low political risk. Thus, the democracy level, regardless of high and low, helps enhance the positive effect of lower political risk and economic development. This may be one channel that the democracy level leads to economic development through the effect of political stability regardless of the level of democracy.

To investigate further whether the results are true for all economies, we investigate further by separate our sample into developed and less developed economies. The results in Table 9 show that the effect of democracy level on the relationship between political risk and economic development is stronger for developing economies compared to developed economies. We find both high and low democracy levels significantly help enhance the positive effect of lower political risk on economic development of developing economies while low democracy level weakly enhances the positive effect of lower political risk on economic development of developed economies. The high democracy level in a developed nation does not significantly contribute to the positive relationship between lower political risk and economic development. Thus, the channel through which democracy level affects economic development through lower political risk seems to be stronger in developing economies compared to developed economies. Therefore, the democracy level seems to matter more for developing economies compared to developed economies given the results. In our sample, the developed nations are high-level democracies and most developing nations in our sample are either mid or low-level democracies.

### *H3.2: Negative contribution of Population Growth on Economic Development should be higher for low-level democracies.*

We find that, overall, high population growth negatively contributes to economic development significantly. In other words, higher population growth results in lower economic development. To investigate how democracy level impacts the relationship between population growth and economic development, we find that a high democracy level helps mitigate the negative effect of higher population growth and economic development. On the other hand, we find that a low democracy level further enhances the negative effect of population growth and economic development. As high-level democracies in our sample are mostly more developed economies, these countries might benefit from higher population growth through increasing returns and rapid accumulation of knowledge and human capital as argued by Becker *et al.* (1999).

While low-level democracies in our sample are mostly less developed economies and households in less developed countries are generally financially stretched. An increase in the number of people in a household will reduce the amount of money invested per head (Kriekhaus 2006) and lowers the rate of the income level of output per head (Easterlin 1967). Poor households might be better off with a small number of people per household. This will help to remove the financial burden from the main breadwinner and leave some money on the table for emergencies, saving, or future consumption. A high population also puts a strain on the federal government as it may imply there is a large portion of the population who are below the working age. Therefore, high population growth in low democracy level countries that usually lower-income economies results in lower economic development further. Thus, the democracy level does matter for the relationship between population growth and economic development.

To confirm whether the democracy level matters more for developed or less developed economies in terms of the effect of population growth on economic development, we further investigate by separating our sample into developed and developing economies. The result in Table 9 shows that a high democracy level weakly mitigates the negative effect of high population growth and economic development of developed economies. On the other hand, a low democracy level significantly enhances the negative effect of high population growth on economic development in developing economies. Therefore, the democracy level seems to matter more for developing economies. Over the long-term, poorer countries are better off focusing on controlling their population growth so investment per person in a household does not decrease as well as strengthen the democracy level of the countries to help enhance the countries' economic development.

Table 10. Robustness – Developed and Developing Countries

VARIABLES	Developed Countries		Developing Countries	
	H2	H3	H2	H3
	Log of GDP per Capita			
Lag of Log GDP per Capita	0.971000*** (0.002590)	0.970000*** (0.002580)	0.991000*** (0.001520)	0.991000*** (0.001540)
Political Rating	0.000849*** (0.000138)	0.000902*** (0.000178)	0.000452*** (0.000134)	0.000341** (0.000134)
Lag of Population Growth	-0.003950*** (0.001000)	-0.009580* (0.005040)	-0.008730*** (0.001010)	-0.008100*** (0.001220)
Log of Trade	0.010700*** (0.001460)	0.010600*** (0.001470)	0.0081600*** (0.002440)	0.007850*** (0.002450)
Government Spending	-0.001450*** (0.000201)	-0.001350*** (0.000206)	-0.001600*** (0.000234)	-0.001600*** (0.000235)
Democracy High	-0.009240 (0.008170)		0.011000*** (0.002930)	
Democracy Low	0.004020 (0.009380)		0.008020*** (0.002350)	
Political Rating*Democracy High		-0.000154 (0.000118)		0.000125** (0.000053)
Political Rating*Democracy Low		0.000254* (0.000144)		0.000201*** (0.000054)
Lag of Population Growth*Democracy High		0.008470* (0.005140)		0.002380 (0.002110)
Lag of Population Growth*Democracy Low		0.000167 (0.005130)		-0.003310** (0.001400)
Constant	0.247000*** (0.021100)	0.247000*** (0.021100)	0.074400*** (0.016600)	0.082100*** (0.016900)
Observations	899	899	1,388	1,388
Number of Countries	37	37	62	62

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Sargan's test of over-identification (p-value) = 0.000000.

## Conclusion

Democracy can provide economic and political stability and more. The results here have shown that democracy has a positive impact on the economy. Applying the GMM estimation by Arellano-Bond estimator, we find democracy has increased economic development measuring by the log of real GDP per capita. Democracy has embraced the inevitable change which is an inherent process safeguarded by the constitution (Feng 1997). It is argued that a democratic process if strong will not only lead to economic and political stability but ethnic and civil stability also. Even though we find democracy leads to higher economic development in general, we believe not all democracies are the same.

By separating low-level democracies from high-level democracies, we find a different level of democracy affects economic development differently. We find a high democracy level positively impacts economic development more than mid and low-level democracies. This may imply that democratic institutions in lower level democracies have room for further improvements.

We believe the country's democracy level does matter for the relationship between political risk and economic development as well as the relationship between population growth and economic development. Previous literature suggests that political rating plays a significant role in economic development and democratic institutions but does not concentrate on investigating how democracy level impacts the relationship between them. We find democracy level, regardless of high and low, further enhances the positive contribution of higher political rating (lower political risk) on economic development. Therefore, in general, the democracy level regardless of high and low helps enhance the positive effect of lower political risk on economic development. We find this result is stronger when looking at developing

economies. Thus, this confirms the channel through which democracy helps enhance economic development via political stability.

We also find high population growth negatively contributes to economic development in overall and find low democracy level further enhances the negative effects of high population growth on economic development. The result is stronger when looking at developing economies. Thus, to enhance economic growth, developing economies should focus on controlling the population growth and strengthen the democratic level of the country. Overall, we find democracy level does matter for economic development.

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Appendix 1. List of countries divided by development status

Developed Nations			Developing Nations			
<i>Democracy Level</i>			<i>Democracy Level</i>			
High	Mid	Low	High	Mid	Low	
Australia	Estonia (1991-94)	Kuwait	Argentina	Albania	Armenia	
Austria	Hungary (2006)	Singapore	Botswana	Bolivia	Bangladesh	
Belgium	Korea, South (1990-92)		Bulgaria	Brazil	Burkina Faso	
Canada	Latvia (1991-94)		Costa Rica	Colombia	Congo (DR)	
Chile	Lithuania (1991-92)		Croatia	Ecuador	Cote d'Ivoire	
Czech Republic	Singapore (1990-91)		Dominican Republic	El Salvador	Gabon	
Denmark	Slovakia (1993-97)		Mongolia	Ghana	Guatemala	
Estonia	Slovenia (1991)		Panama	Guyana	Guinea-Bissau	
Finland			South Africa	Honduras	Indonesia	
France				India	Kazakhstan	
Germany				Jamaica	Kenya	
Greece				Madagascar	Lebanon	
Hungary				Malawi	Liberia	
Iceland				Mali	Malaysia	
Ireland				Mexico	Morocco	
Israel				Moldova	Mozambique	
Italy				Namibia	Niger	
Japan				Nicaragua	Nigeria	
Korea, South				Papua New Guinea	Pakistan	
Latvia				Paraguay	Russia	
Lithuania				Peru	Sierra Leone	
Luxembourg				Philippines	Sri Lanka	
Netherlands				Romania	Tanzania	
New Zealand				Senegal	Thailand	
Norway				Turkey	Tunisia	
Poland				Ukraine	Uganda	
Portugal					Venezuela	
Slovakia						
Slovenia						
Spain						
Sweden						
Switzerland						
United Kingdom						
United States						
Uruguay						
Total	35	8	2	9	26	27

Source: World Population Review. This table provides a snapshot of democracy level of developed and developing countries in our sample. Please note that the democracy level of the country is time-varying and we carefully define democracy level based on the actual democracy level of the country each year when we run the models.

Appendix 2. Developed Countries – Arellano Bond Estimates

VARIABLES	H2	H3.1	H3.2	H3
	Log of GDP per Capita			
Lag of Log GDP per Capita	0.971000*** (0.002590)	0.971000*** (0.002580)	0.972000*** (0.002500)	0.970000*** (0.002580)
Political Rating	0.000849*** (0.000138)	0.000941*** (0.000173)	0.000707*** (0.000138)	0.000902*** (0.000178)
Lag of Population Growth	-0.003950*** (0.001000)	-0.003730*** (0.000991)	-0.005430 (0.004560)	-0.009580* (0.005040)
Log of Trade	0.010700*** (0.001460)	0.010800*** (0.001470)	0.012700*** (0.001410)	0.010600*** (0.001470)
Government Spending	-0.001450*** (0.000201)	-0.001450*** (0.000203)	-0.001640*** (0.000195)	-0.001350*** (0.000206)
Democracy High	-0.009240 (0.008170)			
Democracy Low	0.004020 (0.009380)			
Political Rating * Democracy High		-0.000111 (0.000108)		-0.000154 (0.000118)
Political Rating * Democracy Low		0.000037 (0.000122)		0.000254* (0.000144)
Lag of Population Growth * Democracy High			0.003720 (0.004690)	0.008470* (0.005140)
Lag of Population Growth * Democracy Low			0.001910 (0.004640)	0.000167 (0.005130)
Constant	0.247000*** (0.021100)	0.237000*** (0.021000)	0.228000*** (0.020300)	0.247000*** (0.021100)
Observations	899	899	899	899
Number of Countries	37	37	37	37
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				
Sargan's test of over-identification (p-value)	0.000000	0.000000	0.000000	0.000000

Appendix 3. Developing Countries – Arellano-Bond Estimates

VARIABLES	H2	H3.1	H3.2	H3
	Log of GDP per Capita			
Lag of Log GDP per Capita	0.991000*** (0.001520)	0.991000*** (0.001520)	0.991000*** (0.001530)	0.991000*** (0.001540)
Political Rating	0.000452*** (0.000134)	0.000396*** (0.000132)	0.000399*** (0.000132)	0.000341** (0.000134)
Lag of Population Growth	-0.008730*** (0.001010)	-0.008700*** (0.001020)	-0.009120*** (0.001180)	-0.008100*** (0.001220)
Log of Trade	0.008160*** (0.002440)	0.007990*** (0.002450)	0.008620*** (0.002440)	0.007850*** (0.002450)
Government Spending	-0.001600*** (0.000234)	-0.001610*** (0.000234)	-0.001570*** (0.000233)	-0.001600*** (0.000235)
Democracy High	0.011000*** (0.002930)			
Democracy Low	0.008020*** (0.002350)			
Political Rating * Democracy High		0.000161*** (0.000043)		0.000125** (0.000053)
Political Rating * Democracy Low		0.000120*** (0.000040)		0.000201*** (0.000054)
Lag of Population Growth * Democracy High			0.004440*** (0.001700)	0.002380 (0.002110)
Lag of Population Growth * Democracy Low			-0.000135 (0.001050)	-0.003310** (0.001400)
Constant	0.074400*** (0.016600)	0.078900*** (0.016700)	0.076100*** (0.016700)	0.082100*** (0.016900)
Observations	1,388	1,388	1,388	1,388
Number of Countries	62	62	62	62
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				
Sargan's test of over-identification (p-value)	0.000000	0.000000	0.000000	0.000000