LUND UNIVERSITY
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Master's Programme in Economic Development and Growth

Democracy and Socio-Economic Development in Argentina

by

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Abstract: The goal of this paper is to examine the relationship between democracy and socio-economic development in Argentina. Argentina was chosen due to its dynamic political history, and because economically it is a unique country, having faced strong economic decline last century. The literature on democracy shows that the level of democracy should not matter for economic development, whereas the durability of democracy, the amount of years a country has been a democracy, does matter. For human capital development, both factors should have a significant effect. To test these hypotheses, a time series analysis on Argentina for the time period 1951-2018 was performed, with as the main dependent variables Argentina's growth rates of GDP, a human capital index representing education, and life expectancy, compared to the average growth rates of Argentina's neighbouring countries. After performing VAR's with a one year time lag, the results showed that neither the level nor the durability of democracy significantly affect compared GDP performance. The level of democracy has a negative impact on the human capital index growth rate, whereas durability of democracy has a positive effect on the compared life expectancy growth rate. Granger causality tests confirm the causal relationships. The complexity of the relationship between political institutions, economic development and human capital will be discussed afterwards. This study therefore helps to provide some insight in the causes of the "Argentinian puzzle".

Key words: *Argentina, political regimes, democracy, regime durability, socioeconomic development*

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1. Introduction

This thesis will provide insight on the effect of political factors regarding democracy on socio-economic factors like GDP, health and education in Argentina. In an economic sense, Argentina is very unique, due to its dramatic reversal in relative development. While the country was one of the richest per capita in 1900 and considered developed, it was classified as developing in 2000 (Campos, Karanasos & Tan, 2012). Since the industrial revolution this has not happened to any other country, and is called "The Argentinian puzzle". The term "puzzle" is used because in the literature there is disagreement over why this occurred. While many studies argue that Argentina's long-run economic decline was in part due to political factors, this has not been examined quantitatively often (Campos et al., 2012). Doucouliagos and Ulubaşoğlu (2008) argue that in South America democracy has a stronger direct positive relationship with economic growth than other parts of the world, because of which Argentina's economic performance might be a result of its unstable democracy. Argentina's political history is marked by frequent switches between regime types, which make it unique. In 1912 the country became a democracy, but in 1930 the country became a dictatorship again. In 1946 democracy was re-established, to end in 1955 already. Although democracy was reinstated, this was undermined soon in 1976. In 1983 the country became a democracy again, which has lasted until now (Acemoglu & Robinson, 2006). These frequent changes make Argentina interesting to consider, if one wants to examine the effect of democracy and regime stability. According to the literature, it is not the level of democracy which causes economic growth, but rather how long a country has been a democracy, because in democracies experience matters (Gerring, Bond, Brandt & Moreno, 2005; Pinto & Timmons, 2005). If this is the case for Argentina, that would mean that in the long-term, regime stability in the country will cause the reversal of its past economic decline. Human capital is taken into account as an important indicator of development, which might have a different relationship with democracy than economic development. It is influenced by democracy, can influence economic development, and provides a wider perspective compared to studies which only focus on economic development itself (Gerring et al., 2005; Doucouliagos & Ulubaşoğlu, 2008).

1.1 Development in general

To understand the relationship between regime type and economic development, it is essential to first discuss other determinants of economic growth. For a long time economists have aimed to find the determinants of economic growth. One of the first theoretical frameworks exploring this, the Harrod-Domar model (Harrod, 1939; Domar, 1946) states that an increase in investments will cause current and future increases in outputs. Growth rates then depend on investments, which in turn are related to the tendency to save, and the level of productivity of capital. Solow's Neoclassical Growth Theory (1956) extended on this model but did not assume anymore that capital is the only driver of growth. In a situation with flexible labour and capital inputs, and diminishing returns to capital, the creation of capital

and depreciation of existing capital cause a steady-state productivity situation, which can only be overcome through technological change, although the model does not account for this. Romer's model (1990) does include technological change as a factor, in addition to human capital, capital and labour. He argues that technological change is the most important driver of growth, but that it can only be realized when people promote it; a statement which opens the way for other possible determinants of growth.

Although technological change is the most important driver of economic growth according to Romer (1990), it is partly driven by human capital because it increases both labour productivity and the rate of innovation. Since human capital factors such as education involve costs and benefits they have been included in mainstream economic research since the 1950's (Mincer, 1984). Many studies have shown that human capital is an important determinant of economic growth, for the reasons explained by Romer (Pelinescu, 2014). Osiobe (2019) argues that human capital is important because it determines the capacity of an economy to manage the other production factors. Therefore, countries will not see long-term economic growth without large investments in human capital. In a sense, human capital is both a consequence and a prerequisite of economic growth, reflecting their ambiguous causal relationship (Mincer, 1984). Several studies have found a bidirectional causality between measures of economic growth and human capital. Human capital definitely increases economic development, but a higher level of development enables the establishment and funding of education programs. The problem for developing economies is that they are often unable to start this cycle (Osiobe, 2019). h

1.2 Theoretical framework

Another category of factors that could influence economic progress, apart from those related to factor accumulation, are institutions. North (1989, p.1321) identifies institutions as *"rules, enforcement characteristics of rules, and norms of behavior that structure repeated human interaction."* These interactions can be political, economic or social and structuring them helps reduce the uncertainty in exchanges (North, 1991). Political institutions that stimulate secure property rights and rule of law reduce uncertainty of market exchanges and therefore lower costs (North, 1989). Acemoglu, Johnson and Robinson (2005) differentiate between economic and political institutions and assign them different roles. They believe that economic institutions directly impact economic growth, as well as future distribution of resources, and that differences in economic institutions cause differences in economic prosperity. In turn, placement of political power determines economic institutions. This power differs due to conflicts of interest regarding the distribution of resources (Acemoglu et al., 2005). Political power can be divided in de jure political power and de facto political power. De jure political power is determined by political institutions in a country. Apart from that there are other actors in society who can influence the decision-making process. This de facto political power tends to be the result of

accumulation of economic resources. Lastly, both political powers can shape future political institutions (Acemoglu et al., 2005).

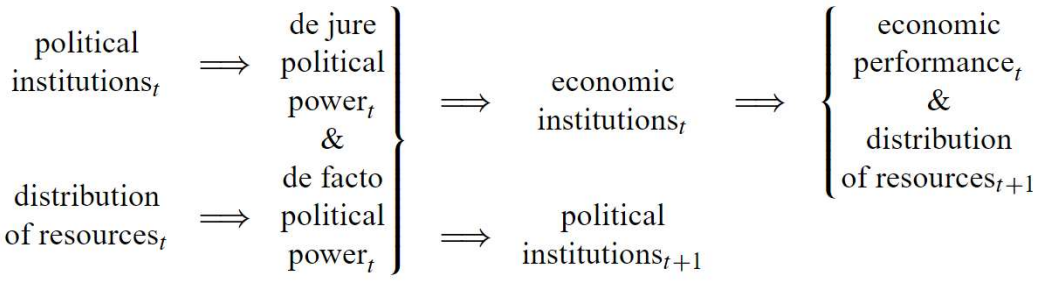

Figure 1. Theoretical framework. Source: Acemoglu, Robinson & Johnson (2005)

Similar to human capital, the causal relationship between institutions and economic growth is possibly bidirectional. It has been argued that economic growth leads to social mobilization, in the form of creating new social classes with new ideas regarding the structure of society. On the other hand, democracies might be more stable and better at protecting the rule of law (Heo & Tan, 2001). Chong and Calderón (2000) found that although institutions tend to influence economic growth, reverse causality is present to a degree. These findings are supported by Law, Lim and Ismail (2013), who also found bidirectional causality in a panel of 60 countries. Moreover, they found that in richer countries institutional quality increases economic growth, while in developing countries economic progress tends to improve institutional quality. Studies on the causal relationship between democracy and economic development also report this bidirectionality. After performing a Granger causality test on 32 developing countries, Heo and Tan (2001) found that the causal relationship might differ per country. In 11 countries economic growth led to democratization, but in 10 countries the level of democracy caused economic growth. Then there were those countries where both directions were insignificant, among them Argentina. They conclude that growth is as likely to lead to democratization as vice versa.

For the last 60 years the effect of political factors on economic growth has been a topic of debate (Doucouliagos & Ulubaşoğlu, 2008), but often the debate in the literature within political economy comes back to the type of regime; democratic or authoritarian (Pinto & Timmons, 2005). Although democracy and authoritarianism are non-binary variables, which can be measured with indices such as those in the Polity IV database, in theory they are often treated as binary. Regarding government forms, there is ambiguity in the empirical literature on whether they cause economic growth, although they have a large influence on the economy (Doucouliagos & Ulubaşoğlu, 2008). Whether the political landscape is competitive or not influences how the economy is managed and how the factors of production are supplied (Pinto & Timmons, 2005). A deciding factor in economic growth is often the extent to which property rights are protected (Acemoglu et al., 2005), but it is unclear whether democratic or authoritarian regimes are better at doing so. The idea that property rights are better protected in democracies does not have to be true. Apart from the state, property rights can be threatened by unions and by those with voting power who do not own much land or property (Przeworski &

Limongi, 1995). When considering the relationship between democracy and economic growth it is important not to ignore the role of human capital, as it is an important determinant of economic growth (Doucouliagos & Ulubaşoğlu, 2008). Democracy, in turn, has a large influence on the development of human capital, which can be seen in improvements in health and education, and higher life expectancy (Gerring et al., 2005). In conclusion, there are many determinants of economic development, one of which is human capital. Both of these, in turn, are influenced by political institutions. Moreover, none of these relationships are unidirectional, resulting in a situation where all three factors affect each other. The objective of this paper is to shed some light on the interaction of these variables in Argentina, with the main focus on the effect of political institutions on economic and human capital development.

The rest of this paper is structured as follows: First the relationship between democracy and economic growth and human capital in the literature will be explored, which will lead to several hypotheses. Next, the data that will be used for the analysis will be presented, after which the methods used to analyse the data are explained. Thereafter the results are presented, to be discussed in the next section, before leading to the conclusion.

2. Literature review

The following literature review will provide more insight into the relationship between democracy and the socio-economic factors under study. First, the theoretical relationships between both democracy and autocracy, and economic growth, as found in the literature, will be summarised. This will be followed by a summary on the empirical evidence found in earlier research. Next, the link between regime type and human capital growth will be discussed, as well as the relevance of including the durability of democracy. Lastly, the choice of Argentina will be elaborated on by going through Argentina's economic history and the possible causes of its economic decline.

2.1 Democracy and economic growth

An argument for why democracy leads to higher economic growth is that this system limits the ability of the state to prey on its citizens, creating credibility. This is based on the idea that all rulers have a possible propensity to loot from the general population (Pinto & Timmons, 2005; Doucouliagos & Ulubaşoğlu, 2008). Instead, democracies create a competitive political playing field where rulers have to fight for the support of citizens. To gain this support they have to provide benefits for the population, which inhibits them from enacting policy for solely their own gain. Therefore, policy in democracies is more likely to benefit the overall population rather than small groups in society (Pinto & Timmons, 2005). Furthermore, this competition incentivizes the improvement of living standards for the disadvantaged, something that is not as necessary in authoritarian regimes (Gerring et al., 2005).

According to some scholars, an environment of political liberty and unrestricted information flows supports the efficient allocation of resources, motivates people to work and invest, and to pursue profit-

maximising activities, given that property rights are protected. In this way democracies can stimulate stable long-term growth, with limited state intervention (Doucouliagos & Ulubaşoğlu, 2008). Doucouliagos and Ulubaşoğlu (2008) found that democracy has a significant, robust, positive relationship with economic growth through important factors such as lower inflation, more economic freedom and higher political stability. They argue that political stability is built over time and is therefore a long-term process. Moreover, democracies tend to face less economic volatility and do not get caught up as often in military conflict, increasing economic prosperity. Because consensus needs to be reached for decision making, these processes are more structured in democracies, making them more institutionalised (Gerring, Thacker & Alfaro, 2012). Overall, it seems therefore that democracy enables the establishment of institutions that support economic growth (Doucouliagos & Ulubaşoğlu, 2008).

Apart from the positive effects democracy can have on the economy, the literature has also uncovered some major issues which might prevent democracy from creating long-run economic prosperity. Mainly, due to the ever-changing nature of democratic governments, there is pressure for immediate consumption rather than long-term investment, which holds back structural development. This is mainly due to the competitive aspect. When elections are approaching, politicians in democracies are incentivized to abandon policy promoting long-term growth in favour of short-term fiscal and monetary spending which benefit rent-seekers (Przeworski & Limongi, 1995; Pinto & Timmons, 2005; Doucouliagos & Ulubaşoğlu, 2008). This pressure tends to come from parties in favour of redistribution activities for lower-income groups. These activities tend to involve immediate unproductive consumption and take away the opportunity to invest (Pinto & Timmons, 2005; Doucouliagos & Ulubaşoğlu, 2008). Furthermore, an argument against democracy is its lack of agility. Democracies cannot mobilise resources as quickly as autocracies, and are vulnerable to internal conflict because of ethnic or social tensions, since the government often lacks the resources to swiftly solve these issues, which makes democracies weaker and more fragile than authoritarian states (Doucouliagos & Ulubaşoğlu, 2008).

2.2 Authoritarianism and economic growth

A major advantage authoritarian regimes have is that they can more easily implement long-term policy, because they do not face the same political competition as democracies, which makes them more stable (Pinto & Timmons, 2005). The pressure coming from trade unions and individual firms is lower, giving authoritarian countries more state autonomy. This in turn causes the state to be able to form policies which stimulate long-term economic growth, assuming that this is the goal of the state (Przeworksi & Limongi, 1995). Overall, they do not have any incentive to enact fiscal and monetary policies that cause long-term economic degradation. Unless there are conflicts which threaten the survival of the regime, they are the main claimant of the output residual. The elite in autocracies tends to be involved in the economy through their investment in state companies and property in the country. Therefore

authoritarian regimes will attempt to allocate resources and budgets efficiently and strategically (Pinto & Timmons, 2005). Due to the lack of outside pressure, authoritarian states can more easily implement policy that enables economic growth, even when this comes at the cost of distributional forces such as the lower-income groups. Moreover, religious, ethnic and class conflict can more easily be repressed than in democracies, making authoritarian regimes more efficient (Doucouliagos & Ulubaşoğlu, 2008). Although many countries that are rich nowadays are democracies, they often accumulated this wealth as authoritarian states (Gerring et al., 2005). Recent examples are the East Asian tigers which rapidly developed last century. Being authoritarian, their regimes managed to plan long-term economic development. Through industrial policies and export promotion they achieved economic success, something that might have been less certain under a more volatile democratic regime (Pinto & Timmons, 2005). Therefore, it has been hypothesised that countries need to achieve a certain level of development before democracy can function efficiently (Doucouliagos & Ulubaşoğlu, 2008).

The idea that authoritarian rulers will do what is best for the economy because they benefit from it themselves is not a given, however. North (1990) argues that the state has a tendency to prey on its citizens which threats only a democracy can overcome. When rulers are able to impose any economic policy without repercussion, it is not unlikely this policy will maximise the wellbeing of the rulers and some small elite groups, rather than all of society and the overall economy. In practice authoritarian states have the tendency to be corrupt, to waste resources and to lack consistent economic policy. While they are able to achieve economic growth, this is often volatile and short-lived (Pinto & Timmons, 2005; Doucouliagos & Ulubaşoğlu, 2008).

2.3 Empirical relationship

Apart from theoretical links, it is important to take into account the results of previous studies. Gerring et al. (2005) used the polity IV database to study the effect of democracy on economic growth in most countries in the world starting from 1900 onwards. They conclude that the level of democracy in a country for a given year has no significant effect on the country's economic growth rate in the next year. These results are partially supported by Pinto and Timmons (2005). Using data on 80 countries they found that political competition has a positive effect on human capital accumulation, but a negative effect on factor input mobilisation. The coefficients for this were small, however, indicating that the short-term effect might be insignificant as well. Next, Przeworski and Limongi (1993) performed a meta-analysis on 18 studies and concluded that while political institutions are likely to have an effect on economic growth, regime type is not very relevant in explaining this relationship. Lastly, a study on 17 Latin-American countries came to a similar conclusion. While evidence for a positive relationship between democracy and economic development was not found, the author argues that other political institutions could contribute to economic progress. Potential relevant factors could be the timing of

consolidation of State power, the size of the military and the presence of strong political parties (Landman, 1999).

Country case studies similar to the one in this paper are rare, making them all the more relevant. One such study has been written on Fiji. This time series analysis attempts to uncover the effect the 1987 military coup in Fiji had on economic growth. Data covers the period from 1968 until 1996, and the most important independent variables are democracy and economic freedom. These are represented by an index on civil liberties and political rights, and the economic freedom index. Both of these have a significant, positive, causal relationship with economic growth. Causality was tested with a Granger causality test (Gounder, 2002). Although this goes against the literature, which states that the level of democracy tends not to affect economic growth, this case study shows that the situation might be different in individual countries, due to their country-specific characteristics.

To conclude, the literature is very divided regarding the relationship between regime type and economic growth. There are several examples of developing countries benefiting from being an autocracy, economically speaking, Argentina is not in the same development stage, however. Although democracies tend to create a free environment that stimulates economic growth, their short-term vision and societal pressures cause the implementation of less efficient policies. While authoritarian regimes are free from these caveats, their volatile nature means that economic progress is not a given. *Therefore, the causal effect of democracy on economic factors is likely to be inconclusive.*

2.4 Regime type and human capital

Contrary to economic development, in the literature on the effect of democracy on human capital the ambiguity regarding its relationship with regime type is largely missing. Human capital in this context usually refers to qualitative human capital, so education and health rather than the amount of labour. While political competition makes long-term planning of economic policy harder, it tends to have a positive effect on human capital. This competition incentivizes investment in public goods, like healthcare and education, to bind voters. Under the assumption that there is universal demand for education and healthcare, citizens in democracies tend to vote for parties that promote these factors, increasing human capital in the long run. When everyone in society is allowed to participate in the political process, including the poor, they will vote for parties that take their interests more into account. In this sense, the distributional pressure from unions and lower-income groups has a positive effect (Pinto & Timmons, 2005; Doucouliagos & Ulubaşoğlu, 2008; Gerring et al., 2012). It makes democracies better at providing public goods, like education and healthcare, as empirically proven by Deacon (2003). Using a panel of 130 countries for the period 1980-1996, he showed that democracies are much better at providing public schooling, and factors regarding health, such as public sanitation, pollution control and safe water.

Human capital also plays a role by being an instrument through which democracy affects economic growth. Democracy has a positive effect on human capital and human capital has a positive effect on economic growth, therefore democracy has an indirect, positive effect on economic development through human capital accumulation (Doucouliagos & Ulubaşoğlu, 2008). This indirect effect is presented by Doucouliagos and Ulubaşoğlu (2008), using a meta-regression analysis, of 84 studies on the relationship between democracy and economic growth. They found that studies that include human capital as an independent variable show lower coefficients for democracy. This indicates that most of the positive effect of democracy on growth is indirect and through human capital. Therefore it makes sense to hypothesise that *democracy will have a positive effect on human capital and that when human capital is included in regressions between democracy and economic growth, it will have a positive impact.*

2.5 Durability of democratic regimes

While a country simply being a democracy may not have a significant effect on economic growth, its democratic experience may have an impact. Therefore the accumulated stock of democracy in a country might be more important than its level of democracy. The positive institutional effects of democracy take a while to develop and are uncovered over time. Both democracy and authoritarianism leave deep legacies and are not rebuilt every year. Therefore they leave their institutional marks (Gerring et al., 2005). Clague et al. (1999) found in their research on the effect of democracy on property rights that long-standing regimes have much stronger property rights than new regimes. Gerring et al. (2005), however, argue that this liability of newness is a larger barrier for democratic regimes, because experience matters more here. The democratic policy-making apparatus contains more actors which means more learning can be done compared to an authoritarian state with a small ruling elite. A democratic group learning-process is therefore able to enhance efficiency and quality more. Moreover, new democratic regimes tend to focus on short-term goals to satisfy the public, and because new democracies tend to be fragile, which makes long-term planning more of a risk. The citizenry in established democracies, however, is less susceptible to populist demands which allows policy makers to follow more long-term development. Moreover, when policy-makers themselves have more faith in the continuation of the regime, long-term policy is less of a risk (Gerring et al., 2005; Gerring et al., 2012).

The need for consensus in democratic regimes means that conflict solving is highly regulated. This need stimulates the establishment of political parties, extra-governmental organisations and bureaucratic procedures. This institutionalisation comes with time and is largely absent in authoritarian regimes, since there is less need for these procedures (Gerring et al., 2005). Instead, power in autocracies tends to be personalised, which makes the continuation of these procedures difficult when regimes change. While one ruler can standardise bureaucratic processes to a degree, their successor may not continue these,

creating a period of uncertainty (Gerring et al., 2012). Therefore, when democracies make it past their fragile starts, with many actors fighting over influence at the detriment of the economy, they will support economic growth more than authoritarian states. In their analysis containing up to 187 countries, Gerring et al. (2005), indeed found that while the level of democracy does not have an effect on economic development, a country's accumulated stock of democracy over the twentieth century does have a significant positive effect. Pinto and Timmons (2005) agree with this and argue that economic growth is a long-term incremental process, which cannot be measured easily in the short-term. Measuring regime durability would allow you to better capture these long-term effects.

As mentioned before, democracy tends to have an unambiguous positive effect on the development of human capital. Because improvements in human capital have a long-lasting effect, sustained democracy is likely to positively influence human capital. Although the literature largely argues in favour of a positive relationship between the level of democracy and human capital development, this stance is not completely without resistance. As a counter argument, improvements in human capital can be achieved in autocracies as well, which happened in the Asian tigers, and several communist countries. Simultaneously, many democracies face high levels of wealth inequality and poverty (Gerring et al., 2012). While these individual cases do not disprove the positive effect of democracy on human capital, it can also not be the case that, when a country shifts from authoritarianism to democracy, its human capital levels improve instantly. Instead, similar to economic development, the positive effect of democracy on human capital might be dependent on the durability of the democratic regime, since it takes time before the effect is noticeable. New democracies might face problems that come with regime transition while established democracies have governance of higher quality (Gerring et al., 2012). In their research, Gerring et al. (2012) considered the effect of democracy, and its durability, on infant mortality rate in at least 149 countries over 40 years, using the polity IV dataset. They found that while there is limited evidence that democracy in itself improves infant mortality rates, the stock of democracy does have a significant impact. This indicates that apart from the level of democracy, the stock of democracy should be included to determine its relationship with human capital levels in Argentina.

Therefore the hypothesis is that the durability of democracy has a positive effect on both economic development and the development of human capital.

2.6 Argentina

The aforementioned hypotheses will be tested through a case study on Argentina. Politically and economically speaking, Argentina is a unique country. The country has faced many regime changes from full democracy to full autocracy, and although it was one of the richer countries at the beginning of the 20th century, it is just average performing one hundred years later (Acemoglu & Robinson, 2006; Taylor, 2018). In the earlier 20th century Argentina belonged to the 5 countries with the highest per capita incomes, this being higher in Argentina than in all of Europe except for the UK. The relative

performance of the Argentinian economy peaked in 1913 and was due to rapid accumulation of labour and capital, and its diversified and adaptive export sector (Diaz-Alejandro, 1982; Taylor, 1992; Taylor, 2018). Until approximately 1929 Argentina continued to belong to the group of richest countries, after which it started to slowly decline to just an average per capita income level, 60% lower than that of Western European countries (Taylor, 2018).

This unique economic performance gave rise to the term "Argentinian puzzle". Several researchers have attempted to find an explanation but have been unable to find a single factor as the main contributor to Argentina's economic decline. What makes the Argentinian case interesting is that common explanations for lack of economic growth do not work on Argentina. The country has a temperate climate, was settled by Europeans, always had high levels of literacy, and has a legal system with aspects from both common and civil law (Taylor, 2018). If we see current economic performance as the result of the quality of historical institutions (Acemoglu et al., 2005), Argentina's economic decline does not make sense, since by 1900 it had a functioning democracy, decent rule of law, an adequate educational system and relatively high levels of human capital (Taylor, 2018). Since deep determinants cannot be the cause of the country's economic decline, the answer could be found in events that occurred throughout the 20th century.

Argentina's economy was at its zenith in 1913, right before the outbreak of the First World War. The economic consequences of this war were a worldwide problem, but were larger in countries like Argentina which were heavily dependent on capital from other countries, especially the UK. Great Britain's capital markets were destroyed in WW1 and while the US attempted to fill the gap, it did so slowly (Taylor, 1992). From 1916 until 1930 the Argentine government was controlled by the Radical party. While growth was export-led, these governments tended to oppose industrialisation. Compared to an earlier laissez-faire policy regarding exports, these were more controlled in the 1920's. Argentina's export sector became more specialised and revolved around primary products, as agriculture was preferred over industry (Schumacher, 1983). This made the country very vulnerable during the Great Depression in which the economy suffered greatly (Diaz-Alejandro, 1982). The Second World War also had a detrimental effect on the Argentine economy. Major European markets were not accessible anymore, which negatively affected exports and imports. While other countries also faced these issues, Argentina was more affected due to the country's relatively friendly relationship with Nazi Germany, because of which it missed out on flows of civilian goods and armaments, as well as favourable trade terms with the US (Diaz-Alejandro, 1982).

After WW2, trade did not fully recover under president Perón. For the rest of the 20th century trade levels in Argentina remained low, relative to the beginning of the 20th century, but also compared to other countries. Although trade barriers like in Argentina were common in developing countries, they were not to this extent present in richer countries. Protectionist policies in the country have caused trade

costs to be high, which caused especially capital products to be expensive in the country (Taylor, 2018). This is a direct result of the earlier bias against industrialization, because of which Argentina needed to import most of its machinery, equipment and manufactured goods (Diaz-Alejandro, 1982).

Taylor (2018) sees demographic burdens as an important cause of the decline of Argentina's economy. Many migrants in Argentina were Southern European. There were large wage gaps between the two, making Argentina an attractive destination. Unlike in the US, migrants in Argentina were not selected based on skill level (Diaz-Alejandro, 1982) and often it were the poorest that migrated. Because of this, Argentina has a high dependency ratio (Taylor, 2018). This high dependency rate impeded the ability to accumulate savings, and a low savings rate lowered the rate of capital accumulation. Consequently, Argentina resorted to protectionism and an inward-looking import policy (Taylor, 2018).

Lastly, political instability and quick regime changes might have had a detrimental effect on the Argentinian economy as well. Schumacher (1983) argues that the authoritarian military regimes did not promote economic growth. They often followed nationalist and protectionist policies, and their human rights abuses made them unfavourable trade partners. When Argentina became a democracy in 1983, its then leading party, the Radical party, believed that the country becoming a democracy would be enough in itself to turn the economic tide, but this is wishful thinking, given the bad economic situation the new democratic regime had to deal with. This indicates that regime type in itself might not affect the economic performance in Argentina. From 1955 until 1973 Argentina faced large amounts of political instability. Military regimes and weak civilian governments succeeded one another, as well as economy ministers (Diaz-Alejandro, 1982). These governments alternated between protectionist and liberal economic policies, and each economic crisis caused a reversal of former economic policies. Not only did this significantly lower trust in the government, but it made long-term economic planning very difficult (Veigel, 2010). This supports the hypothesis that it is regime durability, rather than regime type which causes economic development.

3. Data and Methodology

This section will discuss the variables that will be used for the analysis, where the data comes from and which methods will be used to analyse the data. Explanations will be provided on how the data was transformed and which steps were taken to arrive at the results.

3.1 Dependent variables

Regarding dependent variables, this analysis will use several measures to reflect social and economic development, as the analysis is on the relationship between measures of democracy and socio-economic factors. Economic growth was the main dependent variable in all 84 studies that were included in the meta-analysis by Doucouliagos and Ulubaşoğlu (2008). An obvious determinant of economic growth is the change in GDP per capita growth, which was also used by Gounder (2002). Information for this is

available from the Penn World Tables (Feenstra, Inklaar & Timmer, 2015) version 10.1, for the years 1950-2019. The variable chosen for GDP is rgdpo, which represents output-side real GDP at chained PPP's in 2017 US dollars. Real GDP is chosen, because it accounts for inflation. This variable is next divided by population, which is also provided by PWT 10.1 to create the per capita values as a way to account for population growth. The yearly percentage change will be used rather than the absolute values because the overall trend is increasing while differences between democratic and authoritarian regimes might be better reflected in yearly change. Since data recordings start in 1950, the data for yearly GDP per capita growth is available from 1951 onwards. Apart from domestic causes, socio-economic outcomes can also be the result of international events. It is safe to say that Argentina's economic decline during, for example, the Great Depression was the result of the international collapse of financial systems rather than whether the country was a democracy or not. To account for this, GDP per capita growth will not be analysed in itself, but compared to similar countries. To do this the average yearly GDP per capita growth was calculated for Argentina's neighbours; Chile, Bolivia, Paraguay, Brazil and Uruguay. This average growth rate is assumed to be the benchmark. Next, this benchmark was subtracted from Argentina's actual growth, creating Argentina's GDP per capita growth compared to its neighbours. In this case a negative value does not necessarily indicate negative growth, but rather lower growth than Argentina's five neighbouring countries.

Next, possible variables for social development revolve around factors such as healthcare and education. Both are important non-economic measurements of national well-being, and measure different aspects. Therefore both will be included in the analysis. Pinto and Timmons (2005) used secondary school enrolment rates, but this data is hard to get by for the full time period in Argentina. PWT 10.1 does, however, contain a human capital index based on average years of education and return to education, with values ranging between roughly 1 and 4 (Feenstra et al., 2015). Again, this data is available for Argentina between 1950 and 2019. Regarding healthcare, data on life expectancy is available from the United Nations database on demographic indicators (United Nations, 2022). Gerring et al. (2012) used infant mortality rate, which is also included in the UN database. In the end, life expectancy was chosen as it is a similar measure, and it is an essential component of the HDI index, indicating that it is a relevant measure for human capital (UNDP, 2023) For both the human capital index and life expectancy the yearly percentage change compared to Argentina's neighbours will be taken, computed in a similar manner as GDP per capita growth.

A major constraint for the human capital index is that there were periods where the value was calculated once every five years for Argentina, or its neighbouring countries. Missing values were interpolated, meaning that the growth rate is the same for several years, with a maximum of five years. The years where at least three succeeding years have the same comparative growth rates are 1952-1970, 1976-1985, 1993-2000 and 2012-2015. Although this might present slightly biased results, which should be interpreted with caution, the choice was made to leave the human capital index in as a dependent variable

for several reasons. Firstly, the human capital index measures the level of education which is an important human capital factor to include in the analysis, because of its possible effect on economic growth, which is likely to be more significant than life expectancy. Secondly, coincidentally most of the periods with similar compared growth rates fall within one regime, taking away a good amount of bias. Finally, growth rates for human capital tend to be quite low, making large differences from one year to the next unlikely to begin with.

3.2 Main independent variables

The main independent variables are a measure for the level of democracy and a measure for the longevity of democratic regimes. Both come from the polity project database Polity 5 (Center for Systematic Peace, n.d.). This database is commonly used for studies involving democracy (Gerring et al., 2005; Doucouliagos and Ulubaşoğlu, 2008; Gerring et al., 2012) Regarding democracy, this database contains the variable Polity2, which measures both the level of democracy and the level of authoritarianism in a country on a scale from 0-10. Next, the authoritarianism score is subtracted from the democracy score, resulting in a value between -10 and 10. It is also possible to use dichotomous data like a dummy variable, and these often report higher coefficients, but democracy is not a binary, and continuous measures tend to be more valid and reliable (Doucouliagos and Ulubaşoğlu, 2008). The Polity data is available for Argentina over the period 1825-2018. From the same database, the variable durable is used to measure the longevity of a certain regime, starting at 0 and increasing by 1 for each year that the regime lasts. This data can be adjusted to exclude the durability of autocracies by turning the values of years with a polity2 score lower than 5 into 0. Technically, a country is regarded as a democracy if it has a score of 6 or higher, but while Argentina has a several years with a score of 6 or 5, the next lower score after 5 is 2, making the divide between 2 and 5 more natural than one between 5 and 6.

3.3 Control variables

Regarding control variables, the aforementioned human capital index should be included in the estimations on economic development, as human capital has a significant influence. Data availability presented some constraints on the control variables that could be included, as complete data starting in 1950 is often not available. Therefore, the number of control variables is deliberately kept small, as well as to not overcomplicate the regressions. Most of the measures for control variables can be taken from PWT 10.1, due to its complete data structure.

According to growth theory as written by Solow (1956), the factor inputs capital and labour might be of importance in explaining economic growth, and should therefore be included. Capital stock is an important explanatory factor of economic growth, as it provides a source of investment (Santiago, Koengkan, Fuinhas & Cardoso Marques, 2020). In this way, according to Kendrick (1994), it captures the forward-looking vision of an economy and can explain the long-term economic growth rate. Santiago

et al. (2020) argued that most of the literature shows a positive relationship between capital levels and economic growth. They themselves, using a panel of 30 Latin American and Caribbean countries, also found that capital stock has a positive effect on long-term economic growth. As investment, capital stock can be essential for human capital development as well. Jung and Thorbecke (2003), found that investments in education led to higher human capital levels in Tanzania and Zambia. The measure used, as defined by PWT 10.1, is capital stock at current PPPs in million 2017 US dollars growth rate (Feenstra et al., 2015).

While human capital measures the quality of labour, it is important to include a variable which represents quantity of labour as well. Gounder (2002) added the annual growth rate of the effective labour force to account for labour input. This turned out to have a positive effect on economic growth in Fiji. The measure that will be used in this analysis is the annual growth rate of the number of people engaged in the economy, ergo the size of the labour force, taken from the PWT 10.1 (Feenstra et al., 2015). The only caveat for this measure is that until 1970 the number of people engaged in the economy was only measured once every five years. Feenstra et al. (2015) then interpolated the missing values, but this causes the growth rate of persons engaged in the economy to be equal for five years at a time. Although this might slightly bias the results for this control variable, the five year periods roughly correspond to different regimes in Argentina, limiting the bias. Therefore, the variable is still included.

Next, it is essential to take trade openness into account, due to its relationship with economic growth. In the literature there is some ambiguity on whether this relationship is positive or negative. When trade barriers are lowered, transaction costs fall which can increase trade and support economic growth. Moreover, free trade encourages the absorption of foreign technologies. On the other hand, especially for emerging markets, some young or strategic industries can benefit from protectionism (Busse & Königer, 2012). Nevertheless, many studies found a positive relationship between the two factors. Singh (2010) found that on a macroeconomic level trade has an unambiguously positive effect on economic growth, although this is more nuanced on a microeconomic level. Gounder (2002) included the economic freedom index, which had a positive effect on long-run economic growth in his time series analysis on Fiji. Lastly, Busse and Königer (2012) used the volume of imports and exports as a share of lagged GDP to measure trade openness, and this has a positive effect on economic growth in both developed and developing countries, indicating that trade openness is likely to have a positive effect on economic growth in Argentina. The measure that is used to approximate trade openness is total imports and exports as a percentage of GDP, with data provided by the PWT 10.1 table (Feenstra et al., 2015).

Government consumption is likely to have some effect on economic growth, but the sign of this direction is even more ambiguous than for trade openness. Those who argue that government spending has a positive effect on economic growth argue that it is a form of investment which causes higher output (Loizides & Vamvoukas, 2005). In their analysis on the UK, Greece and Cyprus, Loizides and

Vamvoukas (2005) found that in all these countries government consumption has a positive effect on economic growth. Quang Dao (2014) also found that public expenditure can cause output growth. He performed an analysis on middle-income countries, to which Argentina belongs as well, and concluded that governments should spend more to ensure economic development. The counterargument tends to be based on neoliberal theory and states that a big government hampers innovation and private investment which lower economic growth (Landau, 1983). Studies have found that government consumption expenditure as a percentage of GDP has a negative impact on the economic growth rate, in high-income, middle-income and low-income countries, and no matter which control variables are used (Landau, 1983; Ghourchian & Yilmazkuday, 2020). However, Landau (1983) argues that government consumption can still improve economic welfare while lowering GDP growth. This would be through other channels such as improving education and health care. The relationship between democracy and human capital is not completely unambiguous either, though. Landau, fourteen years after his earlier research, found that government expenditure only has a low impact on gains in the education and health sectors (Landau, 1997). A case study on Namibia between 1980 and 2015 found that in this country government spending did not significantly raise life expectancy at birth, although it did have a significant positive impact on school enrolment rates (Shafude & De, 2020). A case study on the Czech Republic between 1995 and 2018 did find a positive impact of government spending on the development of human capital (Linhartová, 2020). Therefore, this measure is still relevant to include in the models as a control variable. The PWT 10.1 variable that can be used to measure government consumption is government consumption as a share of GDP at current PPP's (Feenstra et al., 2015).

Lastly, a dummy variable will be added for years where there was a regime change. Regime changes are a sign of formal political instability, which has a negative effect on the economy through creating volatility, as confirmed by Campos et al. (2012) in their case study on Argentina. On the other hand, Jong-A-Pin and De Haan (2007) found that regime changes can cause short periods of accelerated economic growth, possibly because leaders focus on short-term rather than long-term plans due to the vulnerability of being a new regime. Either way, the variable is relevant to include, for both the economic and the social dependent variables. In a cross sectional study on 100 countries, Klomp and De Haan (2013) found that regime instability negatively affects both basic and advanced measures of human capital. Furthermore, a paper on 18 Latin American countries found that political instability has a negative impact on human capital formation through inhibiting investment (Gyimah-Brempong & Muñoz de Camacho, 1998). Data on regime changes comes from the durability variable in the Polity5 database (Center for Systematic Peace, n.d.). The value "0" indicates a year in which there was a regime change.

3.4 Time lag

Due to the nature of the analysis, a few issues arise in need of resolving. As mentioned in the literature, the main dependent and independent variables have an ambiguous causal relationship. While it is possible that democracies are better at promoting economic growth, higher economic development might have a positive effect on the democratisation process (Heo & Tan, 2001). Moreover, even when we assume unidirectional causality from democracy to economic growth, a simple OLS without alterations might not accurately reflect this relationship. As a government enacts policy, the results will not be visible immediately. It takes time before statistics on economy and human capital are significantly altered to reflect the effect. This time frame might differ per policy. When trade barriers are removed, the economy could benefit the same year, but when investments are made in a certain industry, the effect will be visible years later. Likewise, in human capital, lowering tuition fees for primary education could immediately cause higher enrolment rates, while introducing, for example, programming as a high school course, causes an increase of human capital in the IT sector years later. To solve the aforementioned causality issues and to reflect the lagging effect of policy, a time lag between the independent and dependent variables can be introduced. This enables us to examine the effects of a certain regime more accurately.

Choosing a good lag is important yet difficult, as there is no hard rule on how to do it. Too few lags do not effectively reflect the lagged relationship between the dependent and independent variables, but too many lags lead to a loss of degrees of freedom, as well as endogeneity issues like multicollinearity and serial correlation. Therefore, when using annual data, more than a few lags is uncommon (Adeleye, 2018). A statistical test can be used to determine the optimal amount of lags in an analysis or for a singular variable. The tables in appendix I present the results for multiple separate lag-order selection tests performed on the three main models in the analysis; the likelihood ratio (LR), Akaike's final prediction error (FPE), Akaike information criterion (AIC), Schwarz-Bayesian information criterion (SBIC) and Hannan-Quinn information criterion (HQIC). As can be inferred from the test results, four out of five tests for the models with human capital and life expectancy argue that a one year lag is optimal while the LR prefers a four year lag. Although four tests in favour of a one year lag is quite conclusive evidence, in such a case, the optimal lag can also be chosen by looking at the lowest value (Adeleye, 2018). The value for the FPE is the lowest while the value for the LR is the highest, which provides quite compelling evidence to use a one year lag. For the tests with the model containing GDP three out of five tests say that the optimal lag is one year, while the LR and AIC argue that it should be four. Using the previous method, a one year lag should be the optimal one. In conclusion, all independent and control variables in the three main models will be lagged one year to account for the lagged effect policy has on socioeconomic outcomes.

3.5 Sample

Overall, consistent data for all main variables is available for Argentina for the time period 1950-2018. Because annual growth rates are used, 1950 itself cannot be included, reducing the dataset to the years 1951-2018. Moreover, since a one year time lag is used, the sample effectively covers the period 1952-2018, or 67 years. This time frame is more than twice as long as the one used by Gounder (2002), so the sample is large enough to draw conclusions from. When assembling the data, the goal was to have no missing data points, which was achieved in part by choosing control variables on the basis of their data availability. Adding more control variables or extending the analysis further back in time would be difficult due to increasing data scarcity. The sample includes several regime changes, and periods of autocracy and democracy, so although analysis further back in time would be interesting for future research, it is not essential to be able to establish relationships. The table below summarises the variables used in the analysis.

Indicator	Measurement	Abbreviation	Source
GDP growth	Annual change minus average annual change of neighbouring countries	gdp	PWT 10.1
Human capital index growth	Annual change minus average annual change of neighbouring countries	hc	PWT 10.1
Life expectancy growth	Annual change minus average annual change of neighbouring countries	le	United Nations
Democracy	Index between -10 and 10	dem	Polity 5
Durability of democracy	Years since regime change to democracy	dur	Polity 5
Capital stock growth	Ln of annual capital stock growth	lncs	PWT 10.1
Labour growth	Annual growth of people engaged in economy	emp	PWT 10.1
Trade openness	Export + import as % of GDP	trade	PWT 10.1
Government expenditure	Ln of government consumption as % of GDP	lngovexp	PWT 10.1
Regime change	Dummy for years where the regime changed	regchange	Polity 5

Table 1. Summary of indicators

3.6 Model specifications

Three models are employed to examine the effect democracy has on the Argentinian socio-economic environment. Of the three dependent variables, one represents an economic factor (GDP), while two concern human capital. With life expectancy to represent health, and the human capital index reflecting

education. The choice to have three dependent variables was made to see from different perspectives what the effect of democracy is. While a lot of literature in the field only takes GDP into account, there is more to development than economic progress. Below, the three full main models are written out, including all the dependent and control variables that will be included. While performing the analysis, these control variables are not all included at once, but added in sections. A few characteristics are shared by all models. They all include a one year lag of the dependent variable as an explanatory factor, the reason for this will be discussed further in the section on methodology. Furthermore, all independent and control variables are also lagged one year as explained before. There are some differences as well, mainly between the models including GDP and those including the variables representing human capital.

There are 16 models explaining the relationship between democracy and GDP growth. The first three only include the main independent variables. There is one with the Polity 5 democracy index, one with the durability of democracy and one including both. This format is a recurring theme for the coming models. Next, these models are replicated, but this time including the human capital index, as it might be an important control variable. The next three models follow the same structure regarding democracy and durability, but now with all control variables, yet without the human capital index. Lastly, there are the models with all control variables, as well as the human capital index. Because the correlation analysis will find a high multicollinearity between durability of democracy and government consumption, the models with both of these measures included might be biased. Therefore every model including both *dur* and *lngovexp* is replicated without government expenditure. In this way government expenditure can still be included in the analysis while a possible bias will be identified by the models without the variable.

(1) $gdp_t = \beta_0 + \beta_1 * gdp_{t-1} + \beta_2 * dem_{t-1} + \beta_3 * dur_{t-1} + \beta_4 * hc_{t-1} + \beta_5 * lncs_{t-1} + \beta_6 * emp_{t-1} + \beta_7 * trade_{t-1} + \beta_8 * lngovexp_{t-1} + \beta_9 * regchange_{t-1} + \epsilon_t$

(2) $hc_t = \beta_0 + \beta_1 * hc_{t-1} + \beta_2 * dem_{t-1} + \beta_3 * dur_{t-1} + \beta_4 * lncs_{t-1} + \beta_5 * lngovexp_{t-1} + \beta_6 * regchange_{t-1} + \epsilon_t$

(3) $le_t = \beta_0 + \beta_1 * le_{t-1} + \beta_2 * dem_{t-1} + \beta_3 * dur_{t-1} + \beta_4 * lncs_{t-1} + \beta_5 * lngovexp_{t-1} + \beta_6 * regchange_{t-1} + \epsilon_t$

For both the human capital index and life expectancy there are only eight models which follow the same structure for both dependent variables. First there are again the three models with just a main independent variable or a combination of both. Then there are these three models expanded with all control variables included for the human capital models; *lncs, lngovexp* and *regchange*. Again, there are extra models without *lngovexp* when this is included in the same model as durability. What is missing

are the models with human capital, as this will of course not be included as a control variable when a human capital measure is already the dependent variable.

3.7 Descriptive statistics

First, the trends that the main dependent and independent variables show will be discussed. The first three figures in appendix II show the annual growth rates for GDP, the human capital index and life expectancy. Each figure shows Argentina's growth rate, as well as the growth rate compared to its immediate neighbouring countries. Several things can be noted. While annual growth rates for GDP are often larger than 10%, these tend not to exceed 1.5% for human capital and life expectancy, indicating that these factors have a much lower growth than economic factors. Secondly, while GDP and life expectancy have a high volatility in their growth rates, these are quite stable for the human capital index. This is in part due to the nature of data for human capital, which has unchanging growth rates for several time intervals. Nonetheless, this is not the case for the whole period. Moreover, while the compared growth rates for GDP and life expectancy tend to alternate between being above and below 0%, the rate for the human capital index is mostly below 0%, meaning that between 1951 and 2018, Argentina had a lower growth rate than its neighbouring countries, even though the growth rate in itself was always positive. Lastly, there is the figure showing the development of the democracy index values for Argentina between 1951 and 2018. This figure manages to reflect the many regime changes Argentina has faced over the last century, and also that the country often alternated between a complete dictatorship or a full democracy, with little room in the middle for semi-democratic or semi-authoritarianism regimes. For 19 out of 68 years in the sample, Argentina was an autocracy, for 47 years it was a democracy, and for the remaining two years, it was somewhere in the middle.

Before starting the analysis the normality of distribution was tested for all variables included in the analysis. Accordingly, some of these were turned into natural logarithms to deal with normality issues. The properties of the included variables can be viewed in table 2. A mean of 0.008 for *gdp* indicates that on average, the annual Argentine GDP growth rate was 0.8% higher than the average growth rate of the country's neighbours. Simultaneously, the growth rates for the human capital index and life expectancy were on average 0.2% lower than the average growth rates in neighbouring countries. An average score of 2.6 for the democracy index from Polity 5 indicates that Argentina spent more years as a democracy than as an autocracy, which is supported by a mean value of 7. Lastly, a mean of 0.12 for regime change indicates that Argentina faces a regime change approximately every 9 years on average.

Although some values were transformed in natural logarithms, namely *lncs* and *lngovexp,* there are still several which violate the assumption of normality. Note that coefficients of logarithmic variables should be interpreted as a 1% change in the variable causing x change in the dependent variable. When using Stata, a normal distribution is defined as having a skewness value of 0 and a kurtosis value of 3. The

range of normality tends to range from -1 to 1 for skewness and from 2 to 4 for kurtosis. Regarding skewness, *lngovexp* has a value slightly above 1, and *regchange* has a value of 2.37, but this is a dummy variable. Therefore these values are not seen as issues. The kurtosis values pose a larger challenge, however, with six out of eleven variables having a value that indicates abnormality. After attempting to turn all of the variables without a normal distribution into natural logarithms, the new table of descriptive statistics resulted in even more abnormal kurtosis values. This was the case for *gdp* and *emp*. This might be due to the small sample, which makes creating a normal distribution harder. Moreover, the variables often reflect growth rates, which are harder to interpret as logarithms. Therefore, these variables were included as they are. Although turning capital stock into a logarithm improved its normality, it remained leptokurtic. As mentioned before, the variable for the democracy index tends to have high or low values, with values in the middle being rare, which makes a normal distribution for this variable unlikely. Moreover, it benefits the interpretation of the results to not turn *dem* into a logarithm. Lastly, as a dummy variable, *regchange* did not have to be transformed.

Variable	Mean	Median	SD	Min.	Max.	Skewness	Kurtosis	N
gdp	.008	.004	0.064	-.197	.205	.067	4.247	68
hc	-.002	-.002	0.003	-.006	.004	.19	2.617	68
le	-.002	-.001	0.004	-.011	.007	-.133	2.379	68
dem	2.603	7	7.300	-9	9	-.868	1.874	68
dur	9.721	4.5	11.349	0	35	.86	2.305	68
lncs	-1.88	-1.885	0.362	-3.161	-1.089	-.493	4.758	68
emp	.017	.013	0.016	-.047	.066	-.064	6.694	68
trade	.186	.185	0.047	.081	.277	.022	2.508	68
lngovexp	-2.256	-2.49	0.430	-2.855	-1.24	1.001	2.741	68
regchange	.118	0	0.325	0	1	2.373	6.633	68

Table 2. Descriptive statistics

3.8 Correlation analysis

A correlation analysis was conducted next to check for multicollinearity between the main independent variables and the control variables. When multicollinearity can be established between two variables it is going to be harder to separate their individual impacts on the dependent variable. A Pearson correlation analysis was performed for which the possible values are between -1 and 1. The closer a value is between 1 or -1, the likelier the presence of multicollinearity is.

As can be inferred from table 3, there are some variables that show signs of multicollinearity, due to having a score higher than 0.700. The measures for durability of democracy (*dur*) and government consumption (*lngovexp*) are correlated with each other. The identified value of 0.899 can be regarded as quite high. This indicates that the longer a democracy lasts, the more its government spends as a percentage of GDP. A second test that can be tested to be certain of the presence of multicollinearity is

calculating the variance inflation factors (VIF). If a variable has a VIF higher than 10, multicollinearity is definitely present. The results, which can be found in appendix III indicate that there are no serious multicollinearity issues, as none of the variables have a value higher than 10. If one wants to use a conservative threshold, a score of 5 can be taken. Both *dur* and *lngovexp* do have a VIF value higher than 5. It can therefore be argued that some multicollinearity is present. Due to the tests not being entirely conclusive, it is still possible to include both variables at the same time. Statistical tests will also be performed with only one or the other variable present in the model, to account for this possible multicollinearity.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) hc	1.000						
(2) dem	-0.218	1.000					
(3) dur	-0.442	0.635	1.000				
(4) lncs	0.049	-0.038	-0.293	1.000			
(5) emp	-0.103	0.187	0.156	-0.017	1.000		
(6) trade	-0.466	0.314	0.591	-0.088	0.174	1.000	
(7) lngovexp	-0.464	0.538	*0.899*	-0.338	0.012	0.538	1.000
(8) regchange	0.190	-0.163	-0.315	-0.038	-0.067	-0.362	-0.267

Table 3. Matrix of correlations with values >0.700 underlined and in italic.

3.9 Autocorrelation, heteroskedasticity and stationarity

Before an appropriate test can be chosen for the analysis, some other tests need to be performed to determine the properties of the dataset. An issue which is commonly present in time-series data is autocorrelation (Gerring et al., 2005). Autocorrelation refers to the correlation of the error terms of a variable with its past and future values. Therefore, autocorrelation violates the assumption that variables' errors are independent. As a result, regression coefficients might be wrong and results could become biased (Becketti, 2013). The test used is Durbin's alternative test for autocorrelation with the null hypothesis that there is no first-order autocorrelation. The test was performed for the three main models with the independent variables GDP, human capital and life expectancy. As the results show, which can be found in appendix IV, there is no autocorrelation for GDP, but the null hypothesis can be rejected for the human capital index and life expectancy. This is not surprising as it is time-series data. The issue of autocorrelation will be dealt with soon in the section on methodology.

First, however, heteroskedasticity will be considered. Heteroskedasticity is another violation of a classical assumption, namely that the variance of the error terms of a regression is constant for different values of the independent variable (Sajwan & Chetty, 2018). When heteroskedasticity is present, a graph of the residual errors of a regression shows a larger distribution around the regression line with increasing values of the independent variable. When the residual errors follow a constant pattern, it is called homoskedasticity, which is assumed. A violation of this assumption can bias regression coefficients and result in lower validity of the model. To test for heteroskedasticity, a Breusch–

Pagan/Cook–Weisberg test for heteroskedasticity was performed (Sajwan & Chetty, 2018). The null hypothesis for this test is that there is a constant variance for the error terms. The results, as shown in appendix V, indicate that none of the models can reject the null hypothesis, so they are all homoskedastic.

Lastly, an important factor regarding time-series analysis is stationarity. Stationary time series have the same distribution, for example the same mean and autocovariances, at any point in time. Basically, a time series is stationary if its probability distribution is not dependent on the time variable. Stationarity is related to autocorrelation, which is present in two of the three main models. With autocorrelation, the random disturbance error ϵ_t is not random, but a product of earlier errors of disturbance $\epsilon_t = \rho\epsilon_{t-1} + \eta_t$, with ρ indicating the factor to which ϵ_{t-1} influences ϵ_t. If ρ > 1, values further back in time influence ϵ_t more than closer values. Stationarity can only exist when ρ < 1 (Becketti, 2013). There are two ways to check for stationarity. First, stationarity can be tested through a graph of autocorrelations. If the autocorrelations for different lags quickly go to zero, the variable is stationary. The autocorrelations for a nonstationary, on the other hand, do not die out. Instead they decline slowly and linearly. The autocorrelation graphs in appendix VI clearly collapse to zero fast, indicating that the variables are stationary. This is as expected, because growth rates are used instead of the nominal values, which tend to have more of a trend, indicative of non-stationarity (Becketti, 2013). Secondly, a test can be performed to test for stationarity. This is a Dickey-Fuller test with the null hypothesis that the variable has a random walk with or without drift, or in other words, that it is nonstationary. As the test results in appendix VII show, GDP and life expectance are stationary at a 99% confidence interval, while this is only the case for the human capital index at a 90% confidence interval. Although this would already indicate stationarity, to avoid ambiguity an amplified Dickey-Fuller test was performed on the first lag of human capital, which was significant on a 5% level. Taking this into account, as well as the graph of autocorrelations means that stationarity can be assumed for all independent variables.

3.10 Methodology

Many of the properties of the time-series data that will be used in this analysis have been specified already. The models that will be analysed are homoscedastic and stationary, but there are some autocorrelation issues which need to be solved. While many models for time series focus on forecasting, the main focus of this analysis is the causal relationship between democracy and socio-economic outcomes. The method that was chosen for this analysis is the vector autoregression (VAR). This regression allows for the examination of the interaction of several endogenous time series, by regressing each included variable against each other at a predetermined lag. This means that when five variables are included, the VAR provides five different estimation results where each variable has the role of dependent variable once. For this analysis, only the socio-economic indicators are of importance and only those will be reported. Using a VAR has two main advantages. It allows an easy inclusion of lags

for independent and control variables into the model, as an integral part of the regression model. Moreover, a one year lag for the dependent variable will also be added automatically. This is a common cure for serial autocorrelation, and has also been done by other studies (Gerring et al., 2005). Although we can establish relationships using the VAR, these relationships might be due to random disturbances, which could become apparent at different moments in time for different variables. Therefore, a Granger causality test will be used to see whether this is the case and whether a variable can predict another, holding lags into account (Becketti, 2013). Granger causality tests are a common way to determine causality and have been used in causality analyses on the relationship between democracy or institutions and economic growth (Heo & Tan, 2001; Law et al., 2013).

4. Results

After performing the vector autoregressions for the 32 models as discussed before, the following results emerged (Tables 4-7). The main results will be presented by dependent variable, after which the causality will be examined. Lastly, the robustness of these results will be checked through further testing.

4.1 GDP

The models below contain compared GDP growth as their main dependent variable. While democracy has a positive coefficient, it is never significant, which is as expected. Pinto and Timmons (2005) also used a one year lag for democracy and found insignificant results. According to the theory, the level of democracy in itself does not cause economic growth. Durability of democracy has a negative coefficient for the models without control variables, or with just human capital, which would indicate that the longer Argentina is a democracy, the lower its annual economic growth would be compared to its neighbouring countries. Although in the models with control variables the coefficient for durability has become positive, none of the coefficients are significant on a 10% level. This does not match the expectations and would mean that durability of democracy also does not have an effect on GDP growth in Argentina.

VAR GDP 1/2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Compared GDP growth				
gdp								
L.gdp	0.159	0.159	0.144	0.160	0.165	0.152	0.113	0.119
	(0.121)	(0.119)	(0.123)	(0.121)	(0.119)	(0.123)	(0.139)	(0.137)
L.dem	0.0000531		0.000669	0.000272		0.000547	0.000596	
	(0.00106)		(0.00139)	(0.00108)		(0.00139)	(0.00123)	
L.dur		-0.000339	-0.000622		-0.0000640	-0.000313		0.000827
		(0.000692)	(0.000907)		(0.000779)	(0.00100)		(0.00166)
L.hc				2.644	2.370	2.216		
				(2.829)	(3.121)	(3.142)		
L.lncs							0.0384	0.0400
							(0.0246)	(0.0245)

L.emp							-0.819	-0.854*
							(0.502)	(0.517)
L.trade							-0.0896	-0.116
							(0.196)	(0.202)
L.lngovexp							0.00401	-0.00735
							(0.0253)	(0.0410)
L.regchange							0.0000872	0.00133
							(0.0243)	(0.0245)
Constant	0.00755	0.0109	0.0119	0.0120	0.0127	0.0135	0.118	0.0944
	(0.00803)	(0.0100)	(0.0102)	(0.00927)	(0.0103)	(0.0104)	(0.105)	(0.128)
r2	0.0262	0.0297	0.0330	0.0388	0.0380	0.0402	0.1217	0.1219
N	67	67	67	67	67	67	67	67

Table 4. VAR results for gdp (1/2). Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

VAR GDP 2/2

	(9)	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**
				Compared GDP growth				
gdp								
L.gdp	0.118	0.113	0.112	0.119	0.124	0.124	0.120	0.120
	(0.137)	(0.138)	(0.138)	(0.138)	(0.137)	(0.137)	(0.138)	(0.138)
L.dem		0.000416	0.000426	0.000508			0.000317	0.000318
		(0.00134)	(0.00134)	(0.00123)			(0.00134)	(0.00134)
L.dur	0.000578	0.000603	0.000368		0.000808	0.000762	0.000638	0.000599
	(0.000896)	(0.00181)	(0.00111)		(0.00165)	(0.000921)	(0.00180)	(0.00115)
L.hc				2.335	2.436	2.456	2.363	2.379
				(3.152)	(3.136)	(3.082)	(3.150)	(3.098)
L.lncs	0.0408*	0.0391	0.0398	0.0398	0.0413*	0.0414*	0.0405	0.0406*
	(0.0241)	(0.0247)	(0.0243)	(0.0246)	(0.0245)	(0.0240)	(0.0247)	(0.0242)
L.emp	-0.825*	-0.861*	-0.835*	-0.802	-0.840	-0.834*	-0.846	-0.841*
	(0.491)	(0.517)	(0.492)	(0.501)	(0.515)	(0.489)	(0.515)	(0.490)
L.trade	-0.118	-0.108	-0.110	-0.0517	-0.0754	-0.0755	-0.0709	-0.0710
	(0.202)	(0.203)	(0.203)	(0.202)	(0.208)	(0.208)	(0.209)	(0.209)
L.lngovexp		-0.00678		0.0102	-0.00140		-0.00115	
		(0.0410)		(0.0265)	(0.0415)		(0.0415)	
L.regchange	0.00125	0.00105	0.000972	0.000144	0.00138	0.00137	0.00116	0.00115
	(0.0245)	(0.0245)	(0.0245)	(0.0242)	(0.0244)	(0.0244)	(0.0244)	(0.0244)
Constant	0.115**	0.0938	0.113*	0.132	0.107	0.111*	0.106	0.110*
	(0.0579)	(0.128)	(0.0582)	(0.106)	(0.128)	(0.0578)	(0.128)	(0.0581)
r2	0.1215	0.1231	0.1228	0.1288	0.1297	0.1297	0.1305	0.1304
N	67	67	67	67	67	67	67	67

Table 5. VAR results for gdp (2/2). Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

For the control variables, the stock of capital has a positive significant impact on GDP growth in four models, conform the literature. Growth of employed persons, on the other hand, has a significant negative effect on GDP growth in six models, meaning that in years where the number of people engaged in labour rose, Argentina's GDP growth compared to its neighbours fell the year afterwards. This goes

against the literature as extra labour is supposed to stimulate the economy (Solow, 1956). All the other control variables were insignificant. Although especially the human capital index was expected to influence economic growth, this was not the case, but that could be related to the following, surprising, results.

4.2 Human capital index

For the models containing the compared annual growth of the human capital index all the coefficients for democracy are significant, but negative. This indicates that Argentina has a lower growth rate for human capital compared to its neighbouring countries when it is a democracy, which is counterintuitive. When Argentina improves its democracy index score by one, its annual growth rate of the human capital index minus the growth of its neighbouring countries will be between 0.00614 and 0.0071 percentage point lower the next year. Only in the sixth model is the coefficient for durability significant. This one is negative as well, meaning the longer Argentina stays a democracy, the lower its compared human capital index growth will be. If Argentina manages to remain a democracy for an extra year, the expected compared human capital index will be 0.00376 percentage point lower the next year. While there is some significance in the main independent variables, although with an unexpected sign, none can be found in the control variables.

VAR Human capital index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Compared hc growth				
hc								
L.hc	0.726***	0.717***	0.734***	0.734***	0.714***	0.706***	0.730***	0.724***
	(0.0753)	(0.0853)	(0.0833)	(0.0838)	(0.0855)	(0.0843)	(0.0843)	(0.0832)
L.dem	-0.000066**		-0.000071**	-0.000069**			-0.0000614*	-0.0000621*
	(0.0000283)		(0.0000358)	(0.0000328)			(0.0000365)	(0.0000364)
L.dur		-0.0000261	0.00000589		-0.0000546	-0.0000376*	-0.0000207	-0.00000651
		(0.0000213)	(0.0000262)		(0.0000423)	(0.0000229)	(0.0000461)	(0.0000289)
L.lncs				-0.000604	-0.000842	-0.000897	-0.000630	-0.000672
				(0.000604)	(0.000605)	(0.000594)	(0.000606)	(0.000597)
L.lngovexp				0.0000491	0.000529		0.000431	
				(0.000683)	(0.00111)		(0.00109)	
L.regchange				-0.0000762	-0.000226	-0.000218	-0.000133	-0.000126
				(0.000642)	(0.000665)	(0.000666)	(0.000653)	(0.000654)
Constant	-0.000393	-0.000333	-0.000421	-0.00139	-0.000426	-0.00190*	-0.000392	-0.00159
	(0.000246)	(0.000279)	(0.000275)	(0.00235)	(0.00329)	(0.00109)	(0.00322)	(0.00109)
r2	0.6301	0.6085	0.6304	0.6370	0.6228	0.6215	0.6381	0.6372
N	67	67	67	67	67	67	67	67

Table 6. VAR results for hc. Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.3 Life expectancy

For the last dependent variable, life expectancy, the signs of the coefficients for democracy are mixed, and never significant, indicating that the level of democracy at any given point does not influence life expectancy growth the next year. This is not as expected, since the hypothesis was that the level of democracy would have a positive influence on life expectancy change. This is, however, the case for durability of democracy, which is positive and significant in three models. These coefficients mean that when Argentina stays a democracy for one more year, its annual life expectancy growth compared to its neighbours the next year will see an increase of between 0.00903 and 0.0196 percentage points. While durability is insignificant in model (5), it becomes significant in model (6). The only difference between these models is that in model (6), *lngovexp* is omitted. This indicates that the high correlation between durability of democracy and government consumption might bias the results a bit by lowering the significance of the coefficient for durability.

Regarding control variables, only the stock of capital has a positive and significant impact on compared life expectancy growth, as expected. When the stock of capital grows, this could potentially be invested in the health care sector, increasing Argentina's life expectancy growth rate compared to its neighbours the next year. All the other control variables have insignificant coefficients, however.

VAR Life expectancy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Compared le growth				
le								
L.le	-0.349***	-0.360***	-0.361***	-0.375***	-0.397***	-0.392***	-0.404***	-0.397***
	(0.114)	(0.113)	(0.113)	(0.114)	(0.112)	(0.113)	(0.112)	(0.113)
L.dem	0.0000447		-0.0000245	0.00000222			-0.0000647	-0.0000588
	(0.0000668)		(0.0000853)	(0.0000787)			(0.0000853)	(0.0000856)
L.dur		0.0000626	0.0000729		0.000160	0.0000903*	0.000196*	0.000118*
		(0.0000441)	(0.0000569)		(0.0000982)	(0.0000482)	(0.000109)	(0.0000628)
L.lncs				0.00212	0.00215	0.00234*	0.00237*	0.00255*
				(0.00146)	(0.00140)	(0.00139)	(0.00143)	(0.00142)
L.lngovexp				0.00152	-0.00207		-0.00222	
				(0.00149)	(0.00253)		(0.00253)	
L.regchange				0.000100	0.000578	0.000549	0.000688	0.000648
				(0.00154)	(0.00154)	(0.00155)	(0.00154)	(0.00155)
Constant	-0.00265***	-0.00314***	-0.00318***	0.00480	-0.00484	0.000864	-0.00497	0.00113
	(0.000558)	(0.000678)	(0.000690)	(0.00516)	(0.00742)	(0.00251)	(0.00739)	(0.00253)
r2	0.1260	0.1458	0.1469	0.1564	0.1886	0.1805	0.1955	0.1863
N	67	67	67	67	67	67	67	67

Table 7. VAR results for le. Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.4 Overall models

To examine the explanatory power of the models together, one can consider the R^2. This fraction shows how much of the change in the dependent variable can be explained by changes in the independent variables. The R^2's for the models containing compared GDP per capita growth are between 0.0262 and 0.1305, indicating that between 2.62% and 13.05% of the change in compared GDP per capita can be explained by the models. This is quite low, but makes sense since not many of the included variables have significant coefficients. The R^2 for the models containing compared human capital index growth, are extremely high, indicating that the explanatory power is between 60% and 64%. Although most coefficients are not significant, this high R^2 could be due to a high significance for the first lag of the human capital index, which is included as an independent variable. The models on compared life expectancy growth show that between 12% and 20% of the change in the dependent variable can be explained by changes in the independent variables. The R^2's are on average higher for the models where durability of democracy is significant.

4.5 Causality

Although a one year lag was used to deal with some issues of causality, to be certain that unidirectional causality was there, Granger causality tests were performed for each model. These tests follow a Chi^2 distribution and have the null hypothesis that there is no causal relationship between x and y going from x to y. Appendix VIII reports the Chi^2 values of democracy and durability of democracy on the dependent variables. The results show that for all coefficients that were insignificant, there is also no causal relationship. This makes sense since a significant relationship is a prerequisite for a causal relationship. For the coefficients which did show a significant relationship, all Granger tests show that there is a unidirectional relationship between the independent and dependent variables. The most important take-aways from this causality analysis are that the level of democracy influences compared human capital index growth, and the durability of democracy affects compared life expectancy growth.

4.6 Robustness check

When performing the lag-order tests, the majority of the results provided evidence that a one year lag should be used in the analysis. For all three main models, there was some support for the use of a four year lag, however. For all three models the likelihood ratio indicated that the optimal lag should be four years. There are some disadvantages to using a four year lag, which is rather large for annual data. Larger lags cause a loss in the degrees of freedom, and using too many lags increases the chance of encountering issues regarding multicollinearity. This can bias the estimation (Adeleye, 2018). Notwithstanding that there are some caveats, the same analysis will be performed with a four year lag instead of a one year lag to see if there are some changes or whether the main analysis provides robust results. The results for the robustness tests for the three main dependent variables can be found in appendix IX.

In the models with GDP growth as the dependent variable, the main analysis provided insignificant coefficients for both the level of democracy and durability of democracy. Using four lags, however, limited evidence was found that the level of democracy has a positive impact on GDP growth, since three out of eleven models showed a positive coefficient in the 4th lag, significant on a 10% level. This might indicate that the level of democracy has an effect, contrary to what the literature believes, but that this effect takes time to develop. For the 3rd lag, one model showed a significant, negative coefficient, however, nuancing the previous findings. Overall, there is no conclusive evidence which shows that the level of democracy has an impact on compared GDP growth. The same goes for durability of democracy, which was again insignificant for all lags in all models but one. While the control variables had more significant coefficients than in the main analysis, the results were sometimes quite mixed. While the 3rd lag of the human capital index had positive, significant coefficients in the 3rd lag, these were negative and significant for the 4th lag. Similar mixed results were found for government consumption, regime change and trade. Although trade had more positive coefficients in the 2nd lag than negative coefficients in the 1st. Still, these variables were not able to provide unambiguous evidence on their relationship with GDP growth, which corresponds to their insignificant coefficients in the main analysis. Although capital stock was mostly positive in the main analysis, its coefficients are insignificant in the robustness checks, indicating that the earlier findings are not robust. The opposite is the case for the growth rate of people employed. This variable has a significant negative impact in the main analysis, and in the robustness tests, again a negative effect was found, with evidence from the 1st, the 4th, and in some cases the 3rd lags. Overall, the results from the main analysis were mostly insignificant, which has been confirmed due to the extremely mixed results found in the robustness check. The mixed results do demonstrate that future research should focus on analyses with longer lags, as interesting results could be found. Only for *lncs* is it safe to say that the results are not robust.

The main analysis for the models with compared growth of the human capital index as the dependent variable showed that there is a negative relationship between the level of democracy and the human capital index, while the durability of democracy was largely insignificant. The robustness tests also show a significant negative coefficient for the level of democracy, but for the 3rd lag. For the 4th lag, three out of five coefficients were significantly positive, however, creating some ambiguity regarding the relationship. For the 4th lag, durability of democracy is negative for half the models, and for the 3rd lag it is positive for one coefficient, and negative for another. Overall this would indicate that the longer Argentina is a democracy, the lower its compared human capital index growth rate will be. Regarding control variables, the 3rd lag of capital stock growth has a negative impact while this is positive for the 2nd lag of government consumption. The dummy for regime change only has a few significant coefficients, which have mixed signs. For comparison, the control variables in the main analysis were all insignificant. The robustness test found more significant coefficients than the main analysis, but caused more ambiguity for the only variable which was significant in the main analysis; the level of

democracy. Therefore, the results with the human capital index as the dependent variable are not very robust. However, just because the robustness tests uncovered more significant coefficients does not mean it is better. It is possible that the results of government expenditure take two years to become visible, and that the negative effects of increasing capital stock become apparent after three years, but the lag selection criteria provided more evidence for a one year lag, and using more lags can trigger statistical issues (Adeleye, 2018).

Lastly there are the models with compared life expectancy growth as the main dependent variable, for which the main analysis found that this growth was caused by the durability of democracy, rather than the level of democracy. After performing the robustness tests, mixed results were found for the level of democracy. The 1st lag contained two significant negative coefficients, but the 2nd showed one positive one, so strong conclusions cannot be drawn from this, in accordance with the results of the main analysis. Durability of democracy, however, showed some positive coefficients for the first lag, just like in the main analysis, confirming these results. Regarding the control variables, capital stock growth showed significant positive coefficients for the 1st lag, like in the main analysis, but a few negative ones for the 2nd lag. Government consumption has all positive coefficients for the 2nd lag, while the regime change dummy shows some mixed results. It could be the case that it takes government expenditure two years, instead of one, before significantly affecting the growth rate of life expectancy. Overall, the results seem to be robust, as the main results regarding durability of democracy remain significant for the first lag.

5. Discussion

The discussion consists of three main parts. The discussion of the results, where possible causes are discussed for the results which divert from the hypotheses, the limitations of this study, and lastly, the contribution of this paper to the existing literature.

5.1 Discussion of the results

Regarding the relationship between democracy and economic growth, Pinto and Timmons (2005), using a one year time lag as well, already argued that the level of democracy in itself does not matter for economic growth. This has been proven for Argentina, given that the coefficients for democracy are all insignificant. Instead, what should matter is the durability of democracy, since democracy is a learning process where experience matters. This does not seem to be the case for Argentina, because although the country has been a democracy for 40 years, this has not caused higher economic growth. On the contrary, while the economy suffered during the rule of the unstable military juntas, it has continued to do so under a stable democratic regime. The country still faces economic decline, high government debt, a budget deficit and extreme inflation (Abal Medina, 2020). In this sense, Argentina does not follow the theory. The economic situation that the new democratic regime inherited in 1983 was already dire, and lacking stability. In the 40 years before that, there had been 46 economics ministers. Cumulative

inflation between 1976 and 1983 was 259,400%, and the Argentine peso was worth close to nothing. This caused people's confidence in the government and the economy to be at a historic low point (Schumacher, 1984). Forty years of democracy have not been able to reverse the country's economic downfall. The only years with economic growth were 1991-1997 and 2003-2011. Both of these periods followed years of heavy economic recessions (Abal Medina, 2020). From 1988 to 1990 there was a major recession with hyperinflation, and the period from 1998 until 2002 is referred to as the Argentine Great Depression (Taylor, 2018). Both in 2015 and 2019 the political parties of the incumbent presidents lost re-election due to the economic state of the country. Under Christina Fernández de Kirchner (2007-2015) there was high inflation, stagnation of the economy, a rise in poverty and capital flight which led her to restrict trade and tighten exchange-rate controls to deal with rapidly diminishing central bank reserves (Murillo & Zarazaga, 2020). In 2015, the new president, Mauricio Macri, was not able to reverse this negative trend. During his mandate, which lasted until 2019, GDP shrunk by 3%, cumulative inflation was 240% and poverty levels continued to increase (Murillo & Zarazaga, 2020).

Following these statistics it makes sense that the analysis failed to show a positive relationship between durability of democracy and economic growth in Argentina. Although it is difficult to pinpoint the exact cause of the negative trend that overshadows Argentina's economy, there are some political factors in which the situation in Argentina diverts from the literature. According to several scholars, new democratic governments tend to be more populist, and focus more on short-term goals to appease the electorate. In countries that have been a democracy for longer, people are less likely to follow populist rhetoric, because of which the focus is more on long-term development (Gerring et al., 2005; Gerring et al., 2012). This is however not the case in Argentina. One of the most important political parties follows the Peronist ideology, which is classified as populist (Alejandro-Díaz, 1982; Schumacher 1984; Murillo & Zarazaga, 2020). Between 1983 and 2019, Argentina was under Peronist rule for 24 years, or 68% of the time. Moreover, 6 out of 9 presidential elections since 1983 were won by Peronists (Abal Medina, 2020). The choice to keep electing populists might be because of the low faith the Argentine people have in the country's economy, which makes them more susceptible to populist rhetoric (Gerring et al., 2005). Moreover, both of the periods of economic growth were under Peronist rule, which influences voting behaviour as well. Kaufman and Stallings (1991) argue that in Argentina the popularity of populism is due to the inequality between the urban population and the wealthy landowners that produce for the export sector. The problem might be that Peronist governments focus too much on short-term solutions for the economy, since they have not been able to achieve sustained growth. A study on 51 populist governments showed that after 15 years of populist rule, GDP is 10% lower than it would have been with a non-populist government (Funke, Schularick & Trebesch, 2020). Another area in which Argentina does not follow the literature is institutionalisation. According to the literature, decision making in democracies requires consensus, resulting in a more structured process and therefore higher institutionalisation (Gerring et al., 2012). Institutionalisation is reflected by political parties, non-

governmental organisations and regulated bureaucratic procedures, all of which are not present to the same degree in autocracies (Gerring et al., 2005). Under Perón already, the party's institutionalisation was low, with a badly defined party identity, leading to internal divisions (Schumacher, 1984). The heterogeneity of the Peronist party is still there. The Peronists have no formal procedures to deal with conflict and reach consensus, as the literature argues democracies should have. Instead, internal tensions are dealt with on an informal case-to-case basis, causing instability (Murillo & Zarazaga, 2020). Lastly, North (1990) argued that only democracies can overcome the propensity of rulers to take advantage of their citizens, but this does not seem to be a solved issue in the Argentine democracy. The administration of, for example, Christina Fernández de Kirchner faced several corruption scandals (Murillo & Zarazaga, 2020).

Overall, the Argentine puzzle is a multifaceted issue where many factors play a role. Although it is incredibly difficult to pinpoint the exact cause of Argentina's periods of economic growth and economic decline, it is safe to state that based on this analysis, both the political regime and the durability of said regime do not play a significant role. Instead, future research should focus on the nature of the Argentine democracy, with analyses on how populism shaped the economic environment, and vice versa.

The negative relationship between the level of democracy and the human capital index seems counterintuitive at first. In theory, democracy should have a positive impact on measures of human capital. As a way to gain votes, political parties in democracies prioritise investment in institutions for which there is widespread demand, such as health and educational facilities. Due to this demand, especially those with limited access to these facilities will vote for parties which vow to improve this access (Pinto & Timmons, 2005; Doucouliagos & Ulubaşoğlu, 2008; Gerring et al., 2012). In Argentina, however, a higher level of democracy indicates that the next year, their score in the human capital index will grow less, compared to its neighbours. It should be noted that under democratic regimes, there is no decrease in the human capital index score. From 1983 until 2018, the score keeps increasing, but under democracy it increases at a lower rate, compared to neighbouring countries, than under autocratic regimes. The human capital index is an index based on average years of schooling and Mincerian rates of return to education (Feenstra et al., 2015). Therefore it measures education. The negative outcome that was found can be explained both with educational policies and the economic state of the country. Firstly, the literature underestimates the importance of education in autocracies. Although dictators do not need to invest in education to gain more votes, education can still be of importance. The authoritarian Juan Perón (the namesake of the aforementioned ideology), president from 1946 until 1958, invested heavily in the improvement of education. New schools were opened all over the country, and pupils were attracted with scholarships and free meals. One of the main goals of these major improvements was to spread the Peronist ideology under children, a form of indoctrination (Rein, 1998). In the years thereafter, education remained an important point of focus for following regimes, as anti-Peronist governments tried to undo what Perón did, and tried to indoctrinate students with their own ideologies

instead (Rein, 1998). Similar evidence comes from other countries as well. One of the major contributing factors to the economic gains of China were the increases in human capital, all while the country was an autocracy (Yanovskiy & Maslov, 2013).

Although this disproves the idea that authoritarian regimes should have lower comparative growth rates for the human capital index, it does not explain why this is the case for democratic regimes. The answer might be economic. Since Argentina has been a democracy for the last 35 years in the dataset, this time period is essential in understanding why a higher level of democracy causes lower comparative human capital index growth rates. In this period poverty in the country increased tremendously. At the end of 2019, 40.8% of the population lived in poverty, and 8.9% lived below sustenance level, even though 48.6% of the government budget is spent on social care. Moreover, for the first time in years, unemployment rates have exceeded 10% (Abal Medina, 2020). Increasing levels of poverty impede education through worse health and a lack of resources to ensure proper education, lowering the average year of schooling (Van der Berg, 2008). This is when human capital is seen as a consequence of economic growth. At the same time, human capital can be a prerequisite for growth, indicating that Argentina could be in a vicious cycle (Miner, 1984). Still, there does not seem to be a relationship between the human capital index and GDP growth when the former was included as a control variable.

The Argentine economy also performed badly under authoritarian regimes, so further research should look into why education seemed to suffer more under democracy. The problem might also be the measurement of the human capital index, as it relies heavily on average years of schooling. People cannot remain in school for their entire lives so at a certain point the growth rate for average years of schooling is bound to decrease. Furthermore, another issue might be the comparison with neighbouring countries. If Argentina is much richer than its neighbours and developed earlier, then this might show through higher comparative growth rates at the beginning of the dataset, when Argentina was more likely to be an autocracy. On the other hand, lower comparative growth rates at the end of the time period, when Argentina was a democracy, might simply reflect a catching-up process by its neighbours. Still, this explanation does not hold when looking at the results for life expectancy.

The results for the models containing compared life expectancy growth rates might be the closest to what was expected. Although the level of democracy did not have a significant effect on the compared growth rate for life expectancy, the durability of democracy was positive and significant. For this variable the hypotheses for GDP growth might fit better. Namely that only the durability of democracy matters, and not the level of democracy in itself, because the positive institutional consequences of democracy can only be noticed after a while as they take time to develop (Gerring et al., 2005). The liability of newness is more of an issue for democracies, because experience matters more for these regimes. The learning process for democracies leads to higher efficiency and quality of policy than in autocracies. Furthermore, established democracies are more stable and tend to focus more on long-term

planning than new democracies (Gerring et al., 2005). All of which is applicable to health outcomes as well. The findings are very much in line with what Gerring et al. (2012) found in their study on infant mortality rate, another health outcome. In their study on over 149 countries, they found that it is not the level of democracy which affects infant mortality rate, but the durability of democracy. They used the Polity IV dataset which makes the results very comparable.

5.2 Limitations

No analysis or research is free from limitations, and this one is no exception. Although an attempt was made to deal with all possible issues that arose in this paper, it is important to be aware of the caveats, since not every problem can be completely solved. The first issue this analysis might suffer from is omitted variable bias. Socio-economic indicators such as GDP, education and life expectancy are affected by many factors, so it can be hard to control for all possible actors. Moreover, due to data constraints, the choice for controls was limited, increasing the chance for omitted variable bias. While data was available for the main dependent and independent variables from 1950 onwards, this was not the case for all possible control variables. Therefore, the choice had to be made between including as many control variables as possible, or as many years as possible. Because the coverage of a long time period increases explanatory power, this was the main focus. Although sufficient, and important, control variables had available data, it is possible that other explanatory factors were omitted, either due to data constraints or because they stayed under the radar. Regarding the variables that were included, not all of them had a normal distribution, due to the limited number of observations. Logarithms could not solve this issue in all cases, but because the distributions represent real data they were still included in the analysis. A slight bias in the results because of this could be present, however.

Another issue this paper might suffer from is multicollinearity. The correlation analysis showed that there is a high degree of multicollinearity between the variables for the durability of democracy and government expenditure as a share of GDP. There are several models which include both variables, but this issue was solved by also adding models with the same variables except for government expenditure, which was excluded. The models with or without government expenditure do not show wildly different results but those including the variables with multicollinearity might still be biased. Furthermore, multicollinearity might be present in the robustness tests, due to the inclusion of four different lags, and because according to most lag-order tests this is a suboptimal amount of lags.

Next, there might be some problems with the data on the human capital index, since in some cases it has a stationary compared growth rate for up to five years. Human capital is a slowly changing variable, so it is unlikely that the growth rate changes drastically from one year to the next, which is why the variable was included without alterations. It is still important to realise, however, that the data might slightly differ from the real situation, which can still cause biases in the results, however small. This problem is somewhat solved by the next issue, which is that the models for the human capital index are not very

robust. The robustness check did not show the same results as the main analysis, which therefore lack validity, meaning that strong conclusions cannot be drawn from these results. Further research is needed to determine the exact relationship between democracy and education.

Lastly, a limitation of this paper is that the results have low generalisability. This is always the case with case studies, because they only consider a very specific situation which might not be representative of the rest of the world, but this is even more so the case in this paper, due to the topic of research being Argentina. So far it has been established that economically Argentina is a very unique country. Since it is such an outlier, this paper cannot add much to the literature of the worldwide effect of democracy on socio-economic factors.

5.3 Contribution

There are, however, several ways in which this paper does add to the literature. Firstly, it expands the literature on the "Argentinian puzzle", or the mystery of Argentina's economic decline. Although no significant relationship was found between democracy and Argentinian GDP growth, this is still valuable evidence. The Argentinian puzzle is called a puzzle due to the complex nature of its causes, indicating that the ability to exclude a possible cause is useful information. Furthermore, this paper combines two aspects of democracy which might both be relevant for development, namely the level and the durability of democracy. This allows for the comparison of their respective impacts, through the separation of their individual effects, but also by examining their combined relationship on socio-economic outcomes. The wider perspective on the independent variable side is extended to the dependent variables as well, through the inclusion of measures of human capital. Limiting the analysis to GDP provides merely a one-sided perspective of the relationship between democracy and development. As the results have shown, democracy has a different effect on education and health outcomes than on GDP growth, which makes their inclusion relevant. The way in which the dependent variables were measured is quite new. While many time series analyses focus on growth rates, this paper compared the Argentine growth rates to those of its neighbours to account for worldwide irregularities, such as, for example, the COVID-19 pandemic, although those years are outside the scope of this analysis. Another way in which this paper contributes to the literature is by being a case study. Not many case studies were found on this topic, except for Gounder (2002), and no similar studies were found on Argentina, even though they can be helpful to understand the causes of development for individual countries. Especially in countries like Argentina, which have swung between democracy and authoritarianism, case studies can help uncover the impact of democracy on development. Lastly, this paper adds to the literature by providing evidence on Granger causality in the relationship between democracy and socio-economic outcomes, which is essential in understanding the link between the two.

6. Conclusion

The objective of this paper is to examine the effect of the level of democracy, as well as the durability of democracy, on socio-economic factors in Argentina. The ways in which democracy affects development have been researched before, but this paper is different from the existing literature in several ways. This paper distinguishes between the level and the durability of democracy because these two factors might have separate effects on development. What is sometimes not taken into account is that democracy is a learning process where institutions are slowly built up, which takes time. Therefore, only considering the level of democracy often presents an insignificant effect on economic development. New democracies have a high level of democracy, but are relatively unstable and focus less on long-term planning, inhibiting economic growth. Furthermore, apart from simply focusing on economic growth, in this paper human capital is taken into account as an essential part of development. While regime stability might be the most important for economic growth, the level of democracy can still positively influence human capital factors, because when given the choice, the electorate will vote for institutions that benefit them, such as good education and healthcare. Lastly, this analysis provides a case study, which has not often been done in this area, even though Argentina makes for an interesting subject. Through the decades, the country has fluctuated between a democracy and an autocracy. Moreover, economically, Argentina is an outlier, in the sense that it faced a unique decline in relative wealth. The causes of this decline are unknown and often called the "Argentinian puzzle". This analysis can provide a puzzle piece which can help solve the mystery.

The main dependent variables in this analysis are the compared growth rates of several socio-economic factors; GDP, a human capital index which measures education, and life expectancy. The growth rates are comparative in the sense that the average growth rate for these factors of Argentina's five neighbouring countries are subtracted from Argentina's growth rates to account for exogenous global factors which might influence Argentina in certain years, unrelated to what is being measured. The main independent variables are the level of democracy and the durability of democracy, and the time period under study is 1951-2018. After determining that the main models are stationary, vector autoregressions (VAR) were performed. A one year lag was included for all independent variables, as well as the dependent variable, to deal with issues regarding autocorrelation and reverse causality. To be certain of a causal relationship, Granger causality tests were performed.

The results showed that both the level of democracy and the durability of democracy do not have a significant effect on compared GDP growth, indicating that regime type is not in any way related to the performance of the Argentine economy. After performing the same VAR with a four year lag as a robustness check, these results were deemed robust. Next, the level of democracy turned out to have a negative, significant, causal effect on compared human capital index growth, meaning that the compared growth rate of education was lower under democracy, which is surprising. This result is not robust,

however, as the results could not be recreated with a four year lag. Lastly, while the level of democracy does not have a significant effect on compared life expectancy growth, the durability of democracy does have a significant, positive effect. The Granger tests show a causal relationship and the robustness tests confirmed this positive impact.

In many cases, the results found for Argentina differ from the literature. Although it is unexpected that the durability of democracy does not affect the Argentine economy, that might be due to the nature of the Argentine economy. When in 1983 Argentina became a democracy, the new regime took over the economic problems from the previous rulers, and confidence in the government and economy remained extremely low amongst the people. This might have led them to vote for populist parties with low levels of institutionalisation, which have failed to ensure long-term growth, even though Argentina has remained a democracy for four decades. This could be the result of the deep legacy that authoritarianism left. Argentina's politically unstable past left its marks, which might still be felt today (Gerring et al., 2005). This would show a strong interconnection between the regime types a country has had throughout history. This interconnection is also present between economic and social factors. The analysis showed no significant effect of human capital on GDP growth, but the negative relationship between democracy and education could be explained through the performance of the Argentine economy. Bad economic performance increased poverty, which in turn negatively affected education levels. Lastly, the positive, expected, impact of the durability of democracy on the life expectancy growth rate shows the relevance of separating different kinds of human capital, as they might not all have the same relationship with democracy.

In conclusion, this analysis attempted to shed some light on the multi-dynamic relationship between democracy, economic factors and human capital. All of these factors, to some degree, have the power to explain change in the others, but this explanatory power can be extremely case specific. This study adds to the existing literature by isolating the effect of democracy on socio-economic outcomes. Although it does not solve the "Argentinian puzzle", it includes valuable information on what did, or did not, cause the relative decline of Argentina. Using different measures for dependent and independent variables, many perspectives were taken into account. Case studies in the field are relatively uncommon, making the study of a politically interesting country like Argentina relevant.

Future research should focus more on country case studies, since the relationships in individual countries might differ from what is found on a global level. Especially since there might be different impacts for developing and developed countries, because it has been hypothesised that before democracy can positively impact the economy, countries need a certain degree of development already (Doucouliagos & Ulubaşoğlu, 2008). For Argentina specifically, the relationship between democracy and education should be looked into, as the results found in this analysis were surprising, yet not robust. Moreover, possibilities with longer time lags should be explored, as there might be long-term effects at play, given

that historic institutions have a long lasting effect (Acemoglu et al., 2005). Lastly, while for GDP, both the level and the durability of democracy did not have a significant effect, it might be relevant to consider the nature of democracy in a country. Two countries with the same democracy score might still be vastly different in development levels due to other factors, such as the level of institutionalisation or the level of political stability. Just because countries have been a democracy for a long time does not mean that the presence of these factors can be assumed. Future research should therefore look at their interplay with democracy and authoritarianism. Other political factors could be more significant causes of development, such as when state power was consolidated, how large the military is, and how strong political parties are (Landman, 1999). For Argentina, the relation between populism and the economy is also interesting to consider, as these factors could influence each other. In this way, piece by piece, the Argentinian puzzle can be solved.

7. References

Abal Medina, J. M. (2020). Peronism back in power in Argentina: Economic crisis and political stability. *Latin American Policy*, vol. 11, no. 1, pp. 148-153.

Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. *Handbook of economic growth*, vol. 1, pp. 385-472.

Acemoglu, D., Robinson, J. (2006). Economic Origins of Dictatorship and Democracy. Cambridge: Cambridge University Press

Adeleye, B. N. (2018). Time Series Analysis (Lecture 2): Choosing Optimal Lags in Stata, Available online: http://cruncheconometrix.blogspot.com/2018/02/time-series-analysis-lecture-2-choosing_14.html [Accessed 11 May 2023]

Becketti, S. (2013). Introduction to time series using Stata. College Station, TX: Stata Press.

Busse, M., & Königer, J. (2012). Trade and economic growth: A re-examination of the empirical evidence, SSRN paper, 2009939.

Campos, N. F., Karanasos, M. G., & Tan, B. (2012). Two to tangle: Financial development, political instability and economic growth in Argentina. *Journal of Banking & Finance*, vol. 36, no. 1, pp. 290-304.

Center for Systematic Peace. (n.d.). Polity Project, Available online: https://www.systemicpeace.org/polityproject.html [Accessed 31 March 2023]

Chong, A., & Calderon, C. (2000). Causality and feedback between institutional measures and economic growth. *Economics & Politics*, vol. 12, no. 1, pp. 69-81.

Clague, C., Keefer, P., Knack, S., & Olson, M. (1999). Contract-intensive money: Contract enforcement, property rights, and economic performance. *Journal of Economic Growth*, vol. 4, pp. 185-211.

Dao, M. Q. (2014). Exports, imports, government consumption and economic growth in upper-middle income countries. *Progress in Development Studies*, vol. 14, no. 2, pp. 197-204.

Deacon, R. (2003). Dictatorship, Democracy, and the Provision of Public Goods. Departmental working papers, UC Santa Barbara: Department of Economics.

Diaz-Alejandro, C. F. (1982). No Less Than One Hundred Years of Argentine Economic History, Plus Some Comparisons, Yale EG Center Discussion Papers, 400.

Domar, E. D. (1946). Capital Expansion, Rate of Growth, and Employment. *Econometrica,* vol. 14, pp. 137-147.

Doucouliagos, H., & Ulubaşoğlu, M. A. (2008). Democracy and economic growth: a meta-analysis. *American journal of political science*, vol. 52, no. 1, pp. 61-83.

Feenstra, R. C., Inklaar, R. & Timmer, M. P. (2015). The Next Generation of the Penn World Table, *American Economic Review*, vol. 105, no. 10, pp. 3150-3182

Funke, M., Schularick, M., & Trebesch, C. (2020). Populist leaders and the economy. CEPR Discussion Paper No. DP15405.

Gerring, J., Bond, P., Barndt, W. T., & Moreno, C. (2005). Democracy and economic growth: A historical perspective. *World politics*, vol. 57, no. 3, pp. 323-364.

Gerring, J., Thacker, S. C., & Alfaro, R. (2012). Democracy and human development. *The journal of politics*, vol. 74, no. 1, pp. 1-17.

Ghourchian, S., & Yilmazkuday, H. (2020). Government consumption, government debt and economic growth. *Review of Development Economics*, vol. 24, no. 2, pp. 589-605.

Gounder, R. (2002). Political and economic freedom, fiscal policy, and growth nexus: some empirical results for Fiji. *Contemporary Economic Policy*, vol. 20, no. 3, pp. 234-245.

Gyimah-Brempong, K., & Muñoz de Camacho, S. (1998). Political instability, human capital, and economic growth in Latin America. *The Journal of Developing Areas*, vol. 32, no. 4, pp. 449-466.

Harrod, R. (1939). An Essay in Dynamic Theory. *Economic Journal,* vol. 49, pp. 137-147.

Heo, U., & Tan, A. C. (2001). Democracy and economic growth: A causal analysis. *Comparative politics*, pp. 463-473.

Jong-A-Pin, R., & De Haan, J. (2007). Political regime change, economic reform and growth accelerations. CESifo Working Paper Series, no. 1905.

Jung, H. S., & Thorbecke, E. (2003). The impact of public education expenditure on human capital, growth, and poverty in Tanzania and Zambia: a general equilibrium approach. *Journal of Policy Modeling*, vol. 25, no. 8, pp. 701-725.

Kaufman, R. R., & Stallings, B. (1991). The political economy of Latin American populism, in R. Dornbusch & S. Edwards (eds), *The macroeconomics of populism in Latin America*. University of Chicago Press, pp. 15-43

Kendrick, J. W. (1994). Total capital and economic growth. *Atlantic Economic Journal*, vol. 22, pp. 1-18.

Klomp, J., & de Haan, J. (2013). Political regime and human capital: a cross-country analysis. *Social indicators research*, vol. 111, pp. 45-73.

Landau, D. L. (1983). Government expenditure and economic growth: a cross-country study. *Southern economic journal*, pp. 783-792.

Landau, D. L. (1997). Government expenditure, human capital creation and economic growth. *Journal of Public Budgeting, Accounting & Financial Management*, vol. 9, no. 3, pp. 467-487.

Landman, T. (1999). Economic development and democracy: the view from Latin America. *Political Studies*, vol. 47, no. 4, pp. 607-626.

Law, S. H., Lim, T. C., & Ismail, N. W. (2013). Institutions and economic development: A Granger causality analysis of panel data evidence. *Economic Systems*, vol. 37, no. 4, pp. 610-624.

Linhartová, V. (2020). The effect of government expenditure on human capital in the Czech Republic. *Scientific Papers of the University of Pardubice-Series D, Faculty of Economics and Administration,* vol 28, no. 2, pp. 1-11.

Loizides, J., & Vamvoukas, G. (2005). Government expenditure and economic growth: Evidence from trivariate causality testing. *Journal of Applied Economics*, vol. 8, no. 1, pp. 125-152.

Mincer, J. (1984). Human capital and economic growth. *Economics of education review*, vol. 3, no. 3, pp. 195-205.

Murillo, M. V., & Zarazaga, S. R. (2020). Argentina: Peronism Returns. *Journal of Democracy*, vol. 31, no. 2, pp. 125-136.

North, D. C. (1989). Institutions and economic growth: An historical introduction. *World development*, vol. 17, no. 9, pp. 1319-1332.

North, D. C. (1990). Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press

North, D. C. (1991). Institutions. *Journal of economic perspectives*, vol. 5, no. 1, pp. 97-112.

Osiobe, E. U. (2019). A literature review of human capital and economic growth. *Business and Economic Research*, vol. 9, no. 4, pp. 179-196.

Pelinescu, E. (2015). The impact of human capital on economic growth. *Procedia Economics and Finance*, vol. 22, pp. 184-190.

Pinto, P. M., & Timmons, J. F. (2005). The political determinants of economic performance: Political competition and the sources of growth. *Comparative Political Studies*, vol. 38, no. 1, pp. 26-50.

Przeworski, & Limongi. (1995). Political Regimes, in A. K. Bagchi (ed), *Democracy and Development*, New York: Palgrave Macmillan, pp. 3-24.

Rein, M. E. (1998). Politics and Education in Argentina, 1946-1962. New York: Routledge.

Romer, P. M. (1990). Endogenous Technological Change. *Journal of Political Economy,* vol. 98, no. 5, pp. 71–102.

Sajwan, R. & Chetty, P. (2018). How to perform Heteroscedasticity test in STATA for time series data?, Available online: https://www.projectguru.in/heteroscedasticity-test-stata/ [Accessed 3 May 2023]

Santiago, R., Koengkan, M., Fuinhas, J. A., & Marques, A. C. (2020). The relationship between public capital stock, private capital stock and economic growth in the Latin American and Caribbean countries. *International Review of Economics*, vol. 67, pp. 293-317.

Schumacher, E. (1984). Argentina and democracy. *Foreign Affairs*, vol. 62, no. 5, pp. 1070-1095.

Shafuda, C. P., & De, U. K. (2020). Government expenditure on human capital and growth in Namibia: a time series analysis. *Journal of Economic Structures*, vol. 9, pp. 1-14.

Singh, T. (2010). Does international trade cause economic growth? A survey. *The World Economy*, vol. 33, no. 11, pp. 1517-1564.

Solow, R. (1956). A Contribution to the Theory of Growth. *Quarterly Journal of Economics,* vol. 70, no. 1, pp. 65-94.

Taylor, A. M. (1992). External dependence, demographic burdens, and Argentine economic decline after the Belle Epoque. *The Journal of Economic History*, vol. 52, no. 4, pp. 907-936.

Taylor, A. M. (2018). The Argentina Paradox: microexplanations and macropuzzles. *Latin American economic review*, vol. 27, no. 1, pp. 1-17.

United Nations Development Programme. (2023). Human Development Index (HDI), available online: https://hdr.undp.org/data-center/human-development-index#/indicies/HDI [Accessed 3 May 2023]

United Nations, Department of Economic and Social Affairs, Population Division. (2022). World Population Prospects 2022, Available online: https://population.un.org/wpp/Download/Standard/MostUsed/ [Accessed 31 March 2023]

Van der Berg, S. (2008). Poverty and education. *Education policy series*, vol. 10, no. 28, pp. 1-28.

Veigel, K. F. (2010). Dictatorship, democracy, and globalization: Argentina and the cost of paralysis, 1973-2001. Philadelphia: Penn State Press.

Yanovskiy, K., & Maslov, D. (2013). Authoritarianism and Chinese" success story. Gaidar Institute for Economic Policy Working paper No. 0062.

8. Appendices

Appendix I: Lag-order selection tests

Lag-order selection criteria
Sample: 1955 thru 2018 Number of obs = 64

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	234.765				0.000	-7.055	-6.936	-6.752
1	633.469	797.410	81	0.000	3.5e-19*	-16.983	-15.7874*	-13.9475*
2	695.641	124.340	81	0.001	0.000	-16.395	-14.123	-10.627
3	794.889	198.500	81	0.000	0.000	-16.965	-13.617	-8.465
4	896.738	203.7*	81	0.000	0.000	-17.6168*	-13.192	-6.384

Table I.A. Lag order selection criteria gdp
** optimal lag*
Endogenous: gdp dem dur hc lncs emp trade lngovexp regchange
Exogenous: _cons

Lag-order selection criteria
Sample: 1955 thru 2018 Number of obs = 64

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-168.094				0.000	5.440	5.520	5.643
1	168.367	672.920	36	0.000	7.8e-10*	-3.94898*	-3.39084*	-2.53221*
2	189.412	42.089	36	0.224	0.000	-3.482	-2.445	-0.850
3	216.466	54.109	36	0.027	0.000	-3.202	-1.687	0.643
4	244.865	56.797*	36	0.015	0.000	-2.965	-0.971	2.095

Table I.B. Lag order selection criteria hc
** optimal lag*
Endogenous: hc dem dur lncs lngovexp regchange
Exogenous: _cons

Lag-order selection criteria
Sample: 1955 thru 2018 Number of obs = 64

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-204.749				0.000	6.586	6.666	6.788
1	106.455	622.410	36	0.000	5.4e-09*	-2.01423*	-1.45609*	-.597464*
2	130.572	48.233	36	0.084	0.000	-1.643	-0.606	0.988
3	143.546	25.949	36	0.892	0.000	-0.923	0.592	2.922
4	174.373	61.655*	36	0.005	0.000	-0.762	1.232	4.298

Table I.C. Lag order selection criteria le
** optimal lag*
Endogenous: le dem dur lncs lngovexp regchange
Exogenous: _cons

Appendix II: Descriptive statistics

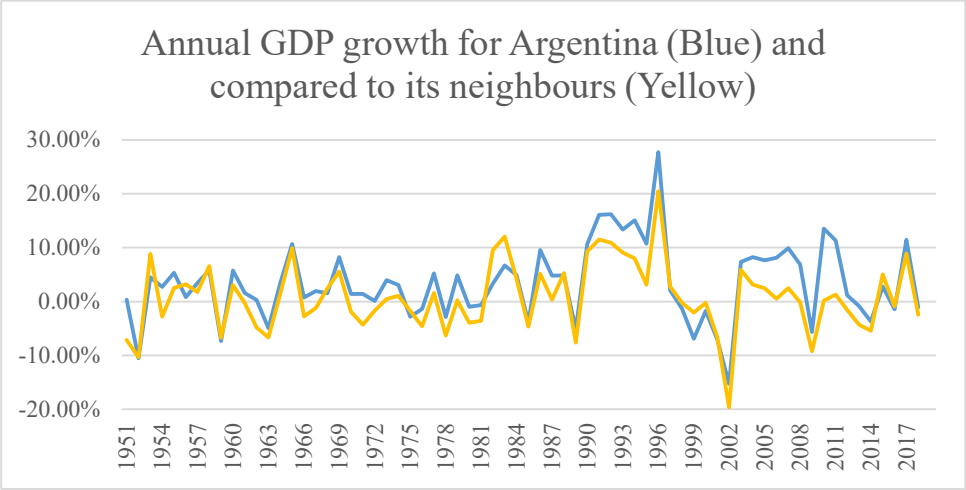

Figure II.A. Annual development of GDP change

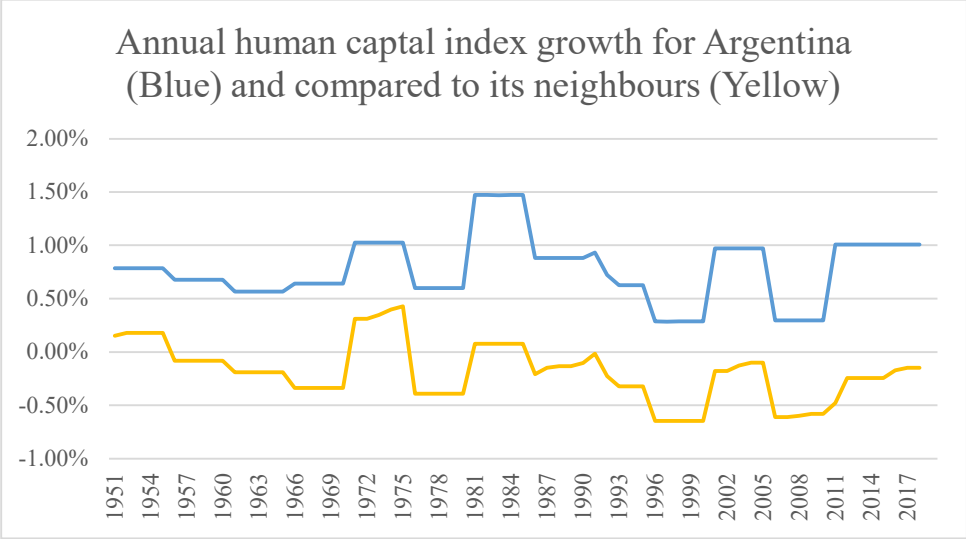

Figure II.B. Annual development of human capital index change

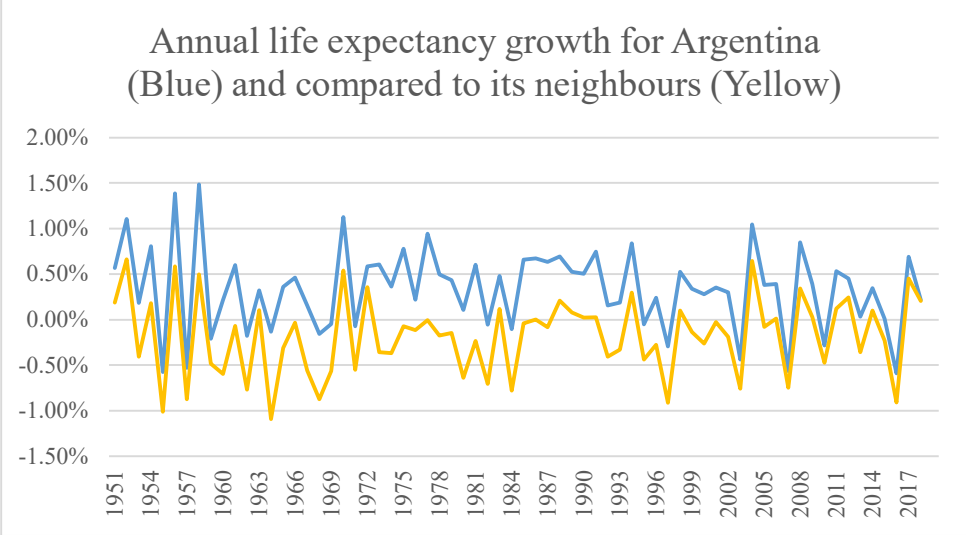

Figure II.C. Annual development of life expectancy change

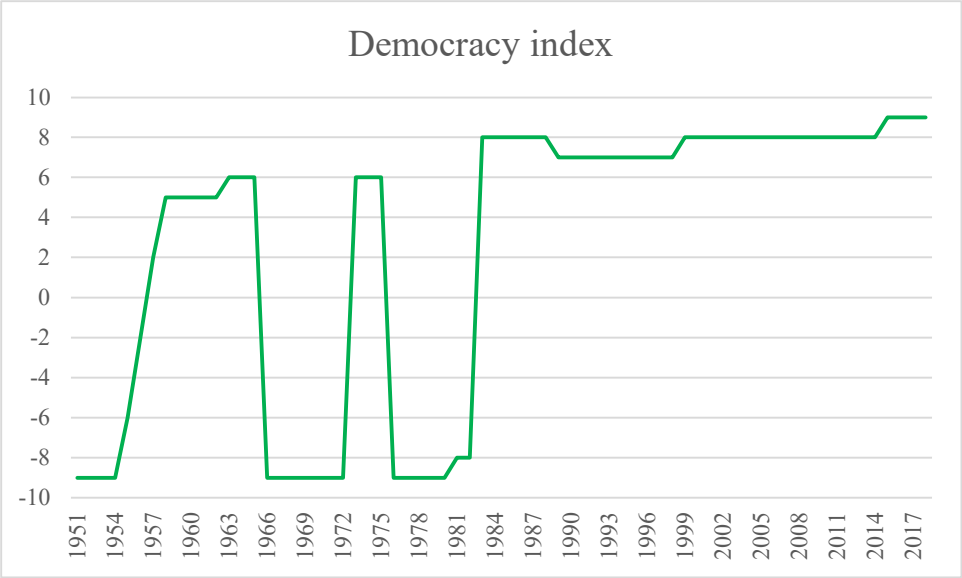

Figure II.D. Annual development of Polity 5 polity2 score for Argentina

Appendix III: Variance inflation factors (VIF)

Variance inflation factor

	VIF	1/VIF
dur	7.581	.132
lngovexp	6.157	.162
dem	1.84	.544
trade	1.795	.557
hc	1.443	.693
lncs	1.276	.784
regchange	1.205	.83
emp	1.166	.858
le	1.076	.93
Mean VIF	2.615	.

Table III.A. Variance inflation factors gdp

Variance inflation factor

	VIF	1/VIF
dur	6.507	.154
lngovexp	5.387	.186
dem	1.765	.567
lncs	1.199	.834
regchange	1.142	.876
Mean VIF	3.2	.

Table III.B. Variance inflation factors hc & le

Appendix IV: Autocorrelation analysis

Dep. variable	Lags (p)	Chi2	Df	Prob > chi2
gdp	1	0.662	1	0.4157
hc	1	73.931	1	0.0000
le	1	11.212	1	0.0008

Table IV. Durbin's alternative test for autocorrelation
H0: no serial correlation

Appendix V: Heteroskedasticity tests

Dep. Variable	Chi2 (1)	Prob > chi2
Gdp	0.00	0.9779
Hc	0.11	0.7383
Le	0.30	0.5842

Table V. Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: Normal error terms
H0: Constant variance

Appendix VI: Autocorrelation graphs dependent variables

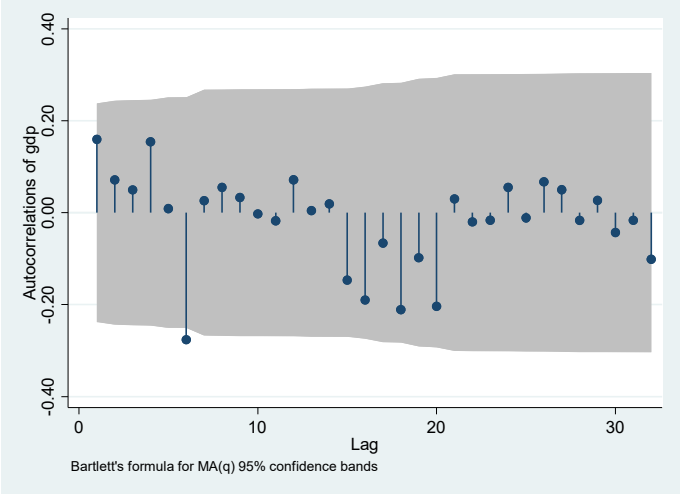

figure VI.A. Autocorrelations of gdp

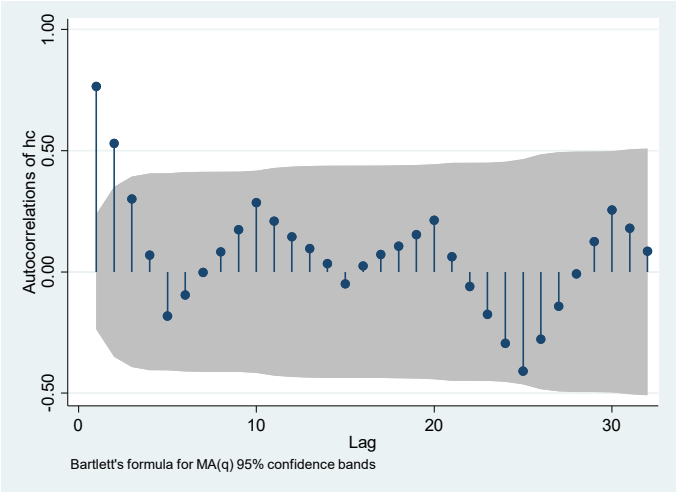

Figure VI.B. Autocorrelations of hc

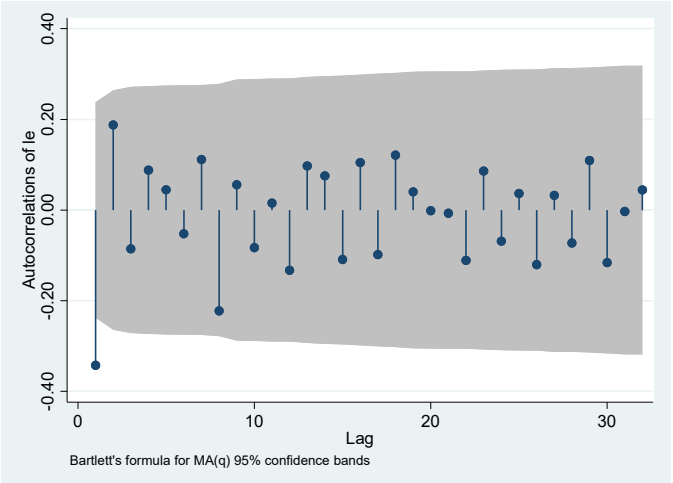

Figure VI.C. Autocorrelations of le

Appendix VII: Dickey-Fuller tests

Dep. Variable	Obs.	Lags	Z(t)	Prob > Z(t)
Gdp	67	0	-6.869	0.0000
Hc	67	0	-3.216	0.0813
Hc	66	1	-3.497	0.0397
Le	67	0	-11.712	0.0000

Table VII. Dickey-Fuller tests for unit root
H0: Random walk with or without drift

Appendix VIII: Granger causality tests

GDP model	dem	dur
1	0.0025	
2		0.2402
3	0.2329	0.4714
4	0.0636	
5		0.0068
6	0.1542	0.0974
7	0.2341	
8		0.2497
9		0.4157
10	0.0960	0.1115
11	0.1008	0.1093
12	0.1701	
13		0.2403
14		0.6840
15	0.0556	0.1257
16	0.0560	0.2726

Table VIII.A. Chi^2 values for causality of democracy and durability of democracy on GDP from Granger causality tests. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

HC model	dem	dur
1	5.4949**	
2		1.5053
3	3.9554**	0.0505
4	4.3550**	
5		1.6656
6		2.7126*
7	2.8345*	0.2024
8	2.9071*	0.0508

Table VIII.B. Chi^2 values for causality of democracy and durability of democracy on the human capital index from Granger causality tests. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

LE model	dem	dur
1	0.4478	
2		2.0159
3	0.0826	1.6423
4	0.0008	
5		2.6625
6		3.5122*
7	0.5748	3.2593*
8	0.4721	3.5361*

Table VIII.C. Chi^2 values for causality of democracy and durability of democracy on life expectancy from Granger causality tests. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Appendix IX: Robustness tests

	(1) Compared GDP growth	(2) Compared GDP growth	(3) Compared GDP growth	(4) Compared GDP growth	(5) Compared GDP growth	(6) Compared GDP growth	(7) Compared GDP growth	(8) Compared GDP growth
gdp								
L.gdp	0.165	0.168	0.154	0.120	0.132	0.112	-0.00846	-0.0821
	(0.127)	(0.125)	(0.128)	(0.122)	(0.124)	(0.121)	(0.162)	(0.163)
L2.gdp	0.0575	0.0413	0.0519	0.150	0.0971	0.178	-0.0328	0.0567
	(0.127)	(0.127)	(0.130)	(0.122)	(0.125)	(0.125)	(0.164)	(0.168)
L3.gdp	0.00798	-0.00607	0.0108	0.109	0.0406	0.132	-0.343**	-0.373**
	(0.125)	(0.124)	(0.128)	(0.119)	(0.121)	(0.123)	(0.173)	(0.173)
L4.gdp	0.147	0.138	0.118	0.225*	0.196	0.216*	0.343**	0.428***
	(0.121)	(0.123)	(0.129)	(0.116)	(0.132)	(0.130)	(0.151)	(0.152)
L.dem	0.000230		0.000430	-0.000624		-0.00224	0.000191	
	(0.00211)		(0.00276)	(0.00217)		(0.00282)	(0.00203)	
L2.dem	-0.000781		-0.00146	-0.00151		-0.00163	0.000132	
	(0.00282)		(0.00337)	(0.00288)		(0.00336)	(0.00245)	
L3.dem	-0.000767		-0.000126	-0.00162		-0.00139	0.00183	
	(0.00281)		(0.00337)	(0.00279)		(0.00322)	(0.00262)	
L4.dem	0.00113		0.00145	0.00501**		0.00518**	-0.00126	
	(0.00205)		(0.00236)	(0.00226)		(0.00245)	(0.00196)	
L.dur		0.000726	0.000918		0.00155	0.00800		0.00770
		(0.00734)	(0.00954)		(0.00745)	(0.00926)		(0.00765)
L2.dur		0.000737	0.00299		-0.00258	-0.00198		-0.0100
		(0.0108)	(0.0129)		(0.0109)	(0.0123)		(0.0118)
L3.dur		-0.00416	-0.00544		-0.00310	-0.00513		0.0111
		(0.0107)	(0.0128)		(0.0108)	(0.0118)		(0.0117)
L4.dur		0.00233	0.000851		0.00449	-0.000727		-0.00554
		(0.00746)	(0.00941)		(0.00741)	(0.00878)		(0.00772)
L.hc				4.732	-0.312	4.736		
				(4.980)	(4.937)	(5.116)		
L2.hc				8.788	8.358	8.854		
				(5.600)	(5.678)	(5.588)		
L3.hc				2.281	1.166	3.979		
				(5.886)	(5.764)	(6.075)		
L4.hc				-6.923	-4.853	-7.929		
				(4.500)	(4.571)	(4.862)		
L.lncs							0.0877*	0.0814
							(0.0505)	(0.0507)
L2.lncs							-0.0190	-0.0354
							(0.0738)	(0.0720)
L3.lncs							0.0966	0.114
							(0.0766)	(0.0756)
L4.lncs							-0.0805	-0.0759
							(0.0536)	(0.0535)
L.emp							-1.041**	-1.084**
							(0.519)	(0.503)
L2.emp							0.0325	-0.298
							(0.668)	(0.671)
L3.emp							-0.782	-0.560
							(0.712)	(0.694)
L4.emp							-2.017***	-2.496***
							(0.652)	(0.690)
L.trade							-0.517	-0.402
							(0.335)	(0.312)
L2.trade							0.868**	0.674**
							(0.378)	(0.342)

L3.trade							0.199	0.285
							(0.321)	(0.306)
L4.trade							-0.288	-0.249
							(0.307)	(0.278)
L.lngovexp							-0.0493	-0.101
							(0.0569)	(0.0666)
L2.lngovexp							0.0581	0.0637
							(0.0824)	(0.0810)
L3.lngovexp							-0.144*	-0.164**
							(0.0828)	(0.0821)
L4.lngovexp							0.153**	0.141**
							(0.0678)	(0.0664)
L.regchange							0.00260	0.0206
							(0.0243)	(0.0279)
L2.regchange							0.00886	-0.00711
							(0.0227)	(0.0273)
L3.regchange							0.0310	0.0462
							(0.0242)	(0.0299)
L4.regchange							-0.0700***	-0.0619**
							(0.0232)	(0.0241)
Constant	0.00771	0.0104	0.0109	0.0227**	0.0142	0.0190*	0.233	0.0212
	(0.00825)	(0.0104)	(0.0114)	(0.0100)	(0.0106)	(0.0109)	(0.153)	(0.208)
r2	0.0690	0.0681	0.0778	0.2228	0.1512	0.2365	0.4380	0.4574
N	64	64	64	64	64	64	64	64

Table IX.A. VAR results for gdp robustness check (1/2)
Standard errors in parentheses
** p < 0.1, ** p < 0.05, *** p < 0.01*

	(9) **Compared GDP growth**	**(10)** **Compared GDP growth**	**(11)** **Compared GDP growth**	**(12)** **Compared GDP growth**	**(13)** **Compared GDP growth**	**(14)** **Compared GDP growth**	**(15)** **Compared GDP growth**	**(16)** **Compared GDP growth**
gdp								
L.gdp	0.0641	-0.0970	0.0498	-0.0140	-0.0478	0.101	-0.0670	0.103
	(0.158)	(0.163)	(0.160)	(0.145)	(0.147)	(0.142)	(0.145)	(0.141)
L2.gdp	-0.0369	0.0764	-0.0208	-0.197	-0.124	-0.173	-0.119	-0.118
	(0.164)	(0.169)	(0.164)	(0.158)	(0.159)	(0.153)	(0.164)	(0.156)
L3.gdp	-0.231	-0.416**	-0.278*	-0.0582	-0.143	-0.0675	-0.127	-0.0329
	(0.162)	(0.176)	(0.167)	(0.169)	(0.169)	(0.151)	(0.174)	(0.158)
L4.gdp	0.233*	0.476***	0.252*	0.212	0.306*	0.0793	0.488***	0.225
	(0.142)	(0.161)	(0.150)	(0.149)	(0.164)	(0.144)	(0.177)	(0.161)
L.dur	0.00438	0.0203	0.0124		0.00128	-0.00150	0.0158	0.00940
	(0.00793)	(0.0137)	(0.0139)		(0.00725)	(0.00757)	(0.0134)	(0.0135)
L2.dur	-0.00768	-0.0326	-0.0275		0.000335	0.00218	-0.0237	-0.0153
	(0.0124)	(0.0210)	(0.0221)		(0.0111)	(0.0116)	(0.0198)	(0.0210)
L3.dur	0.0108	0.0212	0.0220		0.000233	0.00222	0.0306	0.0278
	(0.0122)	(0.0210)	(0.0222)		(0.0109)	(0.0112)	(0.0192)	(0.0206)
L4.dur	-0.00711	-0.00525	-0.00671		0.00154	-0.00267	-0.0168	-0.0215*
	(0.00797)	(0.0125)	(0.0132)		(0.00720)	(0.00729)	(0.0119)	(0.0126)
L.lncs	0.0775	0.0793	0.0800	0.0613	0.0357	0.0567	0.0115	0.0449
	(0.0483)	(0.0520)	(0.0487)	(0.0489)	(0.0523)	(0.0465)	(0.0530)	(0.0463)
L2.lncs	-0.0119	-0.0294	-0.0130	0.0863	0.0530	0.0344	0.0921	0.0598
	(0.0681)	(0.0718)	(0.0678)	(0.0716)	(0.0693)	(0.0637)	(0.0684)	(0.0636)
L3.lncs	0.0461	0.121	0.0480	0.0120	0.0548	-0.00240	0.0435	-0.0204
	(0.0759)	(0.0751)	(0.0756)	(0.0721)	(0.0727)	(0.0696)	(0.0715)	(0.0687)
L4.lncs	-0.0581	-0.0822	-0.0601	-0.0544	-0.0467	-0.0225	-0.0498	-0.0252
	(0.0529)	(0.0528)	(0.0527)	(0.0483)	(0.0483)	(0.0480)	(0.0468)	(0.0471)
L.emp	-1.035**	-1.036**	-1.034**	-1.371***	-1.391***	-1.303***	-1.389***	-1.228**
	(0.518)	(0.503)	(0.520)	(0.477)	(0.473)	(0.488)	(0.456)	(0.481)
L2.emp	0.0573	-0.388	-0.0324	0.300	0.0875	0.731	-0.174	0.528
	(0.648)	(0.685)	(0.668)	(0.596)	(0.619)	(0.605)	(0.619)	(0.622)
L3.emp	-0.391	-0.572	-0.351	-1.626**	-1.300*	-1.190*	-1.106	-0.783
	(0.644)	(0.710)	(0.654)	(0.724)	(0.674)	(0.625)	(0.756)	(0.669)

L4.emp	-1.679***	-2.628***	-1.785***	-1.406**	-1.972***	-1.162*	-2.459***	-1.415**
	(0.630)	(0.696)	(0.642)	(0.617)	(0.710)	(0.595)	(0.728)	(0.612)
L.trade	-0.562*	-0.367	-0.478	-0.452	-0.422	-0.659**	-0.261	-0.306
	(0.310)	(0.347)	(0.355)	(0.361)	(0.294)	(0.295)	(0.364)	(0.387)
L2.trade	0.706**	0.506	0.564	1.010***	0.932***	1.062***	0.514	0.574
	(0.352)	(0.413)	(0.427)	(0.370)	(0.325)	(0.333)	(0.426)	(0.434)
L3.trade	0.287	0.505	0.478	0.112	0.154	0.130	0.483	0.337
	(0.319)	(0.358)	(0.376)	(0.291)	(0.293)	(0.301)	(0.326)	(0.339)
L4.trade	-0.339	-0.269	-0.424	-0.308	-0.166	-0.352	-0.117	-0.302
	(0.282)	(0.361)	(0.353)	(0.283)	(0.267)	(0.258)	(0.334)	(0.318)
L.regchange	0.00457	0.0557	0.0328	-0.0405	-0.0335	-0.0508*	0.00138	-0.0141
	(0.0285)	(0.0397)	(0.0411)	(0.0254)	(0.0286)	(0.0292)	(0.0431)	(0.0450)
L2. regchange	-0.00915	-0.0385	-0.0403	0.0125	0.00875	0.0161	-0.0476	-0.0180
	(0.0289)	(0.0425)	(0.0450)	(0.0225)	(0.0280)	(0.0285)	(0.0417)	(0.0436)
L3. regchange	0.0479	0.0533	0.0539	0.0633***	0.0529*	0.0645**	0.103***	0.109***
	(0.0314)	(0.0372)	(0.0396)	(0.0239)	(0.0284)	(0.0293)	(0.0358)	(0.0380)
L4. regchange	-0.0703***	-0.0657***	-0.0738***	-0.0811***	-0.0656***	-0.0838***	-0.0644***	-0.0791***
	(0.0240)	(0.0240)	(0.0241)	(0.0234)	(0.0249)	(0.0233)	(0.0243)	(0.0239)
L.dem		-0.00398	-0.00232	-0.000633			-0.00524	-0.00422
		(0.00362)	(0.00372)	(0.00203)			(0.00392)	(0.00397)
L2.dem		0.00557	0.00491	0.00177			0.00711	0.00472
		(0.00433)	(0.00456)	(0.00242)			(0.00433)	(0.00459)
L3.dem		-0.00136	-0.00202	-0.00218			-0.00797*	-0.00771
		(0.00449)	(0.00471)	(0.00265)			(0.00444)	(0.00472)
L4.dem		-0.000734	0.000129	0.000496			0.00276	0.00564*
		(0.00248)	(0.00262)	(0.00259)			(0.00338)	(0.00335)
L.lngovexp		-0.116*		-0.0938*	-0.137**		-0.179***	
		(0.0669)		(0.0517)	(0.0624)		(0.0634)	
L2.lngovexp		0.0660		0.0376	0.0389		0.0308	
		(0.0802)		(0.0737)	(0.0729)		(0.0713)	
L3.lngovexp		-0.166**		-0.0218	-0.0699		-0.0646	
		(0.0811)		(0.0789)	(0.0797)		(0.0777)	
L4.lngovexp		0.149**		0.119*	0.113*		0.120*	
		(0.0664)		(0.0649)	(0.0609)		(0.0644)	
L.hc				-10.97*	-7.755	-9.418**	-5.557	-4.178
				(5.835)	(4.773)	(4.646)	(6.131)	(6.022)
L2.hc				8.492	6.269	9.698*	1.231	7.254
				(5.355)	(5.404)	(5.165)	(5.975)	(5.653)
L3.hc				17.26***	15.50***	12.89**	22.89***	17.65***
				(5.834)	(5.367)	(5.437)	(5.965)	(5.947)
L4.hc				-13.84***	-9.798**	-12.37***	-12.30**	-16.70***
				(4.934)	(4.883)	(4.575)	(5.376)	(5.129)
Constant	0.143**	0.00155	0.141**	0.322**	0.0425	0.158***	-0.0784	0.113
	(0.0648)	(0.229)	(0.0714)	(0.145)	(0.213)	(0.0597)	(0.232)	(0.0692)
r2	0.3891	0.4757	0.4014	0.5609	0.5670	0.5134	0.6039	0.5396
N	64	64	64	64	64	64	64	64

Table IX.B. VAR results for gdp robustness check 2/2
Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01

	(1) Compared hc growth	(2) Compared hc growth	(3) Compared hc growth	(4) Compared hc growth	(5) Compared hc growth	(6) Compared hc growth	(7) Compared hc growth	(8) Compared hc growth
hc								
L.hc	0.688***	0.737***	0.698***	0.671***	0.704***	0.742***	0.640***	0.661***
	(0.123)	(0.124)	(0.117)	(0.131)	(0.124)	(0.123)	(0.126)	(0.126)
L2.hc	-0.0704	-0.00266	-0.0610	-0.00738	0.0472	-0.00888	0.0572	0.00917
	(0.147)	(0.156)	(0.140)	(0.150)	(0.151)	(0.150)	(0.149)	(0.151)
L3.hc	0.184	-0.00206	0.151	0.0936	-0.120	-0.101	0.125	0.121
	(0.153)	(0.156)	(0.151)	(0.166)	(0.155)	(0.156)	(0.169)	(0.170)
L4.hc	-0.300***	-0.262**	-0.298**	-0.294**	-0.246*	-0.204	-0.426***	-0.348**
	(0.115)	(0.122)	(0.119)	(0.141)	(0.133)	(0.132)	(0.151)	(0.149)
L.dem	-0.0000347		-0.0000404	-0.0000380			-0.0000578	-0.0000330
	(0.000055)		(0.000069)	(0.000055)			(0.000089)	(0.000091)
L2.dem	0.0000766		0.000111	0.0000759			0.0000666	0.0000443
	(0.000075)		(0.000084)	(0.000071)			(0.000110)	(0.000113)
L3.dem	-0.000216***		-0.000316***	-0.000196***			-0.000293***	-0.000281***
	(0.000071)		(0.000077)	(0.000067)			(0.00011)	(0.00011)
L4.dem	0.0000662		0.000128**	0.0000552			0.000159**	0.000139*
	(0.000056)		(0.000059)	(0.000055)			(0.000071)	(0.000072)
L.dur		-0.000101	0.0000747		-0.000148	-0.0000759	-0.0000347	-0.0000408
		(0.000193)	(0.000226)		(0.000218)	(0.000221)	(0.000334)	(0.000345)
L2.dur		-0.0000713	-0.000243		0.000261	0.000243	0.000118	0.000190
		(0.000290)	(0.000302)		(0.000331)	(0.000340)	(0.000494)	(0.000509)
L3.dur		0.000119	0.000663**		-0.000540*	-0.000532	0.000427	0.000409
		(0.000290)	(0.000293)		(0.000327)	(0.000336)	(0.000488)	(0.000505)
L4.dur		0.00000472	-0.000517**		0.000282	0.000306	-0.000629*	-0.000586*
		(0.000202)	(0.000216)		(0.000219)	(0.000222)	(0.000339)	(0.000348)
L.lncs				0.000607	0.00171	0.000857	0.00171	0.000890
				(0.00110)	(0.00127)	(0.00114)	(0.00118)	(0.00106)
L2.lncs				0.000718	0.000415	-0.000243	0.000836	0.00000248
				(0.00157)	(0.00162)	(0.00155)	(0.00151)	(0.00144)
L3.lncs				-0.00279*	-0.00309*	-0.00241	-0.00334**	-0.00264*
				(0.00162)	(0.00168)	(0.00168)	(0.00156)	(0.00157)
L4.lncs				0.00177	0.000861	0.00155	0.000991	0.00174
				(0.00113)	(0.00127)	(0.00118)	(0.00118)	(0.00110)
L.lngovexp				-0.00207	-0.000414		-0.000665	
				(0.00146)	(0.00165)		(0.00156)	
L2.lngovexp				0.00297	0.00346*		0.00349*	
				(0.00198)	(0.00207)		(0.00191)	
L3.lngovexp				-0.00107	-0.00104		-0.000743	
				(0.00200)	(0.00208)		(0.00192)	
L4.lngovexp				0.0000349	0.000396		0.000362	
				(0.00157)	(0.00166)		(0.00153)	
L.regchange				-0.000110	0.000235	0.000237	-0.000280	-0.000474
				(0.000653)	(0.000785)	(0.000805)	(0.000995)	(0.00102)
L2. regchange				0.00105	0.00194**	0.00177**	0.00135	0.00116
				(0.000642)	(0.000793)	(0.000810)	(0.000991)	(0.00102)
L3. regchange				-0.000944	-0.00204***	-0.00217***	0.000421	0.000154
				(0.000664)	(0.000780)	(0.000793)	(0.00104)	(0.00106)
L4. regchange				0.0000225	-0.000286	0.0000845	-0.000655	-0.000238
				(0.000602)	(0.000671)	(0.000661)	(0.000653)	(0.000641)
Constant	-0.000752***	-0.000519*	-0.000757***	-0.000570	0.00545	-0.00100	0.00568	-0.000967
	(0.000261)	(0.000288)	(0.000274)	(0.00304)	(0.00512)	(0.00125)	(0.00477)	(0.00115)
r2	0.6970	0.6373	0.7268	0.7431	0.7232	0.7049	0.7664	0.7487
N	64	64	64	64	64	64	64	64

Table IX.C. VAR results for hc robustness check
Standard errors in parentheses
$^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

	(1) Compared le growth	(2) Compared le growth	(3) Compared le growth	(4) Compared le growth	(5) Compared le growth	(6) Compared le growth	(7) Compared le growth	(8) Compared le growth
le								
L.le	-0.405***	-0.449***	-0.436***	-0.459***	-0.505***	-0.475***	-0.489***	-0.463***
	(0.126)	(0.126)	(0.125)	(0.123)	(0.123)	(0.123)	(0.118)	(0.119)
L2.le	-0.00100	-0.0322	-0.00920	0.0973	0.0291	-0.0108	0.000465	-0.0327
	(0.137)	(0.134)	(0.134)	(0.134)	(0.134)	(0.136)	(0.130)	(0.133)
L3.le	0.00443	-0.0522	-0.0644	-0.0372	-0.0519	-0.116	-0.119	-0.182
	(0.131)	(0.133)	(0.132)	(0.117)	(0.121)	(0.124)	(0.115)	(0.119)
L4.le	0.0477	-0.0292	-0.0361	-0.0786	-0.0773	-0.0700	-0.0956	-0.0942
	(0.121)	(0.123)	(0.123)	(0.114)	(0.116)	(0.122)	(0.113)	(0.119)
L.dem	-0.0000563		-0.000199	-0.000172			-	-
	(0.000128)		(0.000160)	(0.000114)			0.000497***	0.000495***
							(0.000168)	(0.000179)
L2.dem	0.000203		0.0000988	0.000288*			0.000324	0.000293
	(0.000172)		(0.000200)	(0.000147)			(0.000219)	(0.000233)
L3.dem	0.0000567		0.0000894	0.0000156			-0.0000602	-0.0000737
	(0.000174)		(0.000199)	(0.000147)			(0.000217)	(0.000229)
L4.dem	-0.000101		-0.000130	-0.000171			-0.0000166	-
	(0.000126)		(0.000140)	(0.000113)			(0.000141)	0.00000352
								(0.000147)
L.dur		0.000213	0.000664		0.0000579	0.000305	0.00172**	0.00194**
		(0.000450)	(0.000579)		(0.000484)	(0.000500)	(0.000728)	(0.000769)
L2.dur		0.000665	0.000381		0.000737	0.000578	-0.000783	-0.000808
		(0.000670)	(0.000802)		(0.000738)	(0.000780)	(0.00112)	(0.00119)
L3.dur		-0.000357	-0.000551		-0.000183	-0.000107	0.000105	0.000205
		(0.000665)	(0.000785)		(0.000735)	(0.000775)	(0.00110)	(0.00116)
L4.dur		-0.000489	-0.000426		-0.000732	-0.000724	-0.00110	-0.00123
		(0.000464)	(0.000570)		(0.000489)	(0.000512)	(0.000736)	(0.000777)
L.lncs				0.00986***	0.00974***	0.00853***	0.0103***	0.00939***
				(0.00257)	(0.00264)	(0.00254)	(0.00247)	(0.00241)
L2.lncs				-0.00453	-0.00461	-0.00743**	-0.00506	-0.00799**
				(0.00371)	(0.00366)	(0.00356)	(0.00345)	(0.00336)
L3.lncs				-0.00363	-0.00283	-0.000570	-0.00259	-0.000693
				(0.00426)	(0.00423)	(0.00436)	(0.00401)	(0.00418)
L4.lncs				0.000439	-0.00117	0.000375	-0.000882	0.000672
				(0.00298)	(0.00320)	(0.00311)	(0.00309)	(0.00299)
L.lngovexp				-0.00585*	-0.00406		-0.00457	
				(0.00323)	(0.00360)		(0.00343)	
L2.lngovexp				0.0120***	0.0112**		0.0109**	
				(0.00458)	(0.00456)		(0.00426)	
L3.lngovexp				-0.00103	-0.000899		-0.00102	
				(0.00473)	(0.00468)		(0.00438)	
L4.lngovexp				-0.00142	-0.00107		-0.000381	
				(0.00368)	(0.00372)		(0.00348)	
L.regchange				0.00164	0.00134	0.00130	0.00438**	0.00420**
				(0.00135)	(0.00155)	(0.00164)	(0.00191)	(0.00203)
L2. regchange				-0.00160	-0.0000875	-0.000289	-0.000545	-0.000590
				(0.00137)	(0.00162)	(0.00172)	(0.00201)	(0.00214)
L3. regchange				0.000900	0.00167	0.00163	0.00265	0.00282
				(0.00133)	(0.00159)	(0.00168)	(0.00198)	(0.00210)
L4. regchange				-0.00139	-0.00176	-0.00112	-0.00280**	-0.00224
				(0.00132)	(0.00134)	(0.00139)	(0.00134)	(0.00139)
Constant	-0.00307***	-0.00427***	-0.00444***	0.00969	0.0107	-0.00328	0.0101	-0.00375
	(0.000844)	(0.000977)	(0.00100)	(0.00698)	(0.0113)	(0.00272)	(0.0106)	(0.00267)
r2	0.2098	0.2532	0.2790	0.4560	0.4675	0.3986	0.5377	0.4743
N	64	64	64	64	64	64	64	64

Table IX.D. VAR results for le robustness check
Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01