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Has Colonial Heritage Affected Export Diversification and thus Economic Growth in Former African Colonies?

by

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Abstract

It has long been suggested that a lack of export diversification is one cause of the slow economic growth and low levels of development in African countries. The purpose of this study is to analyse what implication the colonial heritage has for export diversification and economic growth in 45 African countries over the period 1995-2016. The legal framework left in the country by the colonising power is used as a proxy for the contemporary colonial impact. The empirical part of the study was conducted using a panel data regression model with fixed effects. The results suggest that there is a positive relationship between export diversification and economic growth in the sample group. Furthermore, the impact of export diversification on growth is less pronounced in countries with civil law systems. On the basis of the results of this study, we find indications that former colonies ability to benefit from diversified exports may to some extent depend on what legal system the colonising power left behind.

Keywords: Economic growth, export diversification, Africa, fixed effects, colonial ties, legal framework

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1 Introduction

After the end of the Second World War, a wind of change swept through the African colonies. In 1951, Libya was the first African colony to gain independence. From 1951 up until 1993, the colonial rule of African countries continued to dissolve and formed an independent continent (ThoughtCo, 2018). The end of colonial rule led to major structural changes in the former colonies, and many countries have in the post-independence period struggled to maintain stable economic growth rates (Sachs & Warner, 1997). This can be seen as an indication that colonial heritage still has an impact on African economic development and growth. The colonial powers shaped the local institutions and infrastructure so that African colonies would develop as exporters of primary products and commodities. Slave trade and land grabs also drastically altered the colonial economies which consequently has had long-term effects on the economic structure (Austin, 2010; Heldring & Robinson, 2012). Colonisation of other parts of the world has been different compared to the African colonisation. The colonisation in Asia was much less uniform whereas the colonisation in South and Central America began in the 16th century, which is much earlier than in Africa (Bertocchi & Canova, 2002).

Economic growth can be induced through various channels, and there exists extensive literature on the positive correlation between export diversification and economic growth. When countries diversify their exports they experience less export instability, less volatile export earnings and more knowledge spill-overs from developing new sectors in the economy (Hesse, 2008; Agosin, 2009). The level of export diversification is low in most African countries, and few have managed to advance from commodity production to a more diverse set of manufactures (Mosley, 2018; Mbate, 2015; Alemu, 2016). When countries mostly export natural resource-intensive products, the concentrated production can be associated with some negative aspects such as low rates of investment, low productivity growth, lower rates of accumulation of human capital as well as low degrees of technology spill-overs. These negative effects combined with low diversification of exports imply a disadvantage for economic growth (Kohler & Khumalo, 2015). A majority of the literature agrees on the fact that export diversification has a positive impact on growth. However, there are to our

knowledge few previous studies on the effect of colonial ties through legal framework on export diversification, and the combined effect on economic growth.

Thus, is the pattern of concentrated exports a product of the colonial past? The colonial history has to a large extent shaped the modern structure of African countries through manufacturing, education, health care, government, legal system etc. The African continent is the focus of this study due to the extensive and homogenous colonisation at the beginning of the 19th century which still shapes the continent today. During the colonial era, a large part of the surplus generated in the colonies were extracted by the colonising powers, and did not add much to the capital accumulation process or welfare in the colonies. This process is sometimes referred to as the “drain of wealth” thesis (Bertocchi & Canova, 2002). Historically, the trade structure in African colonies focused on primary resources and commodities as exports, whereas manufactured products were exclusively imported. The general trade structure in African countries has not improved after trade liberalisation processes in the 1980s and 1990s. On the contrary, export concentration has increased and the African countries are to a higher degree dependent on a small number of products (UNCTAD, 2008).

The legal system influences the production patterns and export diversification through several channels, and these differ between the two major systems used in this study. Common law is characterised by lighter government regulation, more independent judicial systems and a greater investor protection than the civil law system. This is considered to prevent corruption, improve the financial development and labour markets along with a strengthening of property rights and contract enforcements (La Porta et. al, 2008; Bonadies, 2016). Features like these are considered to be of great importance for the development of new businesses and sectors in economies, which leads us to hypothesise that the common law system will positively impact export diversification and growth whereas the civil law system will have a negative effect. However, a deeper analysis of exactly what parts of the legal system that have an effect on export diversification will not be considered in this study.

The focus of the study is to examine the effect which the inherited legal system has on export diversification as a driver of economic growth. We will assess whether differences in colonial ties have long-run implications on economic structures and growth. This will be done by investigating whether the positive effect of export diversification on growth differs

between countries with different colonial ties. There exist two extensive strands of literature regarding the topic of this study: the impact of colonial heritage on growth and the impact of export diversification on growth. Our aim is to combine these two through the linkage of the legal framework inherited by the coloniser, export diversification and economic growth.

The underlying assumptions of the data analysis is to limit the number of legal systems to the two largest, civil and common law, as well as to aggregate the colonising powers into France and Great Britain. These assumptions are made in order to utilise the legal system as a proxy for the colonising power, since countries colonised by predominantly French forces inherited the civil law system, and British forces left behind the common law system (CIA Factbook, 2018). We also have a sample group denoted “other” for countries with mixed, customary or no official functioning legal system. Through the proxy variables, we will attempt to find a link between colonising power and export diversification and then investigate how this affects the economic growth in the African countries.

A panel data regression model has been used in order to obtain empirical results. The data in the study cover 45 countries during a time period between 1995 and 2016. The data analysis first and foremost indicates a significant positive relationship between export diversification and economic growth in the African countries included in this study. It also found a significant effect on yearly growth rates from the inherited legal system in the former colony. The civil law system indicated a negative impact whilst the common system to some degree enhances growth through export diversification. These findings confirm our initial expectations.

This study will be structured as follows: in the next section a thematic overview of economic growth, export diversification and colonial legal heritage will be presented. Thereafter, the dataset and methodology will be described. The following section presents the results of the study and a discussion thereof, and the final section concludes the findings.

2 Background and Literature Review

This section will provide a thematic background of economic growth and development in Africa, export diversification and the colonial heritage. Furthermore, it will explain how the different strands of literature are connected and relevant in relation to each other and this study.

Economic growth in Africa is a widely studied subject, where the aim often is to determine the cause of the slow economic growth which still limits the continent. The colonial rule and the decolonisation encompassed 47 out of 49 mainland African countries (CIA Factbook, 2018). These two can thus be identified as some of the contributing factors to how the continent has progressed and developed after the Second World War. The colonial rule shaped the countries in fundamental aspects, where the legal system was an important part. The legal policy affects countries in several ways, such as the treatment of property rights, industrialisation and other factors which may encourage or discourage innovation, production, and diversification.

2.1 Economic Growth and Export Diversification

The underlying framework of the study is the positive relationship between export diversification and sustainable economic growth as countries evolve from resource-rich exports to manufactured goods exports (Chenery, 1979; Syrquin, 1989).

It has been suggested that one of the fundamental reasons for the slow economic growth in Africa is the lack of export diversification. In fact, Africa as a continent has the highest concentrated exports in the world (Alemu, 2016). The dependency on a few export sectors, mainly focused on primary commodities and resource-based manufactures, is considered to be detrimental to further development. Theory proposes that primary commodities are subject to low prices as well as low income elasticity of demand, which makes the African markets sensitive to supply and demand changes (Mosley, 2018; Alemu, 2016). The widening of the

product base in a country enables the adaptation of a more diverse set of production methods and the ability to compete in the international market. As the number of products increase, there is a greater chance of establishments of new sectors where the chance of knowledge spill-overs is higher (Agosin, 2009).

The main positive effects of diversification are according to Agosin (2009) drawn from the portfolio effect and the dynamic effect. The portfolio effect implies that a higher degree of diversification in exports gives less volatile earnings, since stable exports are related to lower variance of GDP growth. Thus, countries with diversified exports have a greater ability to smooth consumption when the market fluctuates, relative to non-diversified countries. Compared to other countries in the world, the Sub-Saharan countries are considered to suffer the most from export earnings instability. This is argued to be a contributing factor of the slow development process in the region (Alemu, 2016). Diversified exporting economies also tend to have more stable real exchange rates which encourage investment in tradeable products. The dynamic effect of export diversification highlights the impact of learning in the production of new goods. Knowledge spill-overs allow the economy to produce and export a greater range of goods which contributes to long-run economic growth. The investment into new sectors with higher factor productivity and technology improvements can thus be seen as the underlying source of productivity growth in countries with low diversification (Agosin, 2009).

In a landmark study, Imbs and Wacziarg (2003) found a U-shaped relationship between export diversification and economic growth. These findings were later confirmed in a study by Cadot, Carrère and Strauss-Kahn (2011). The nonlinear relationship indicates that low-income countries may gain more from export diversification, whereas countries that have reached a certain income level will benefit more from export specialisation (Hesse, 2008). Low-income countries that suffer from concentrated exports could by diversifying become less vulnerable to external shocks. However, later in the development process, a country may re-concentrate its production patterns due to increased trade openness and reduced trade costs (Imbs & Wacziarg, 2003). Considering that not all countries in Africa are at the same development level, this relationship could be an important aspect when the data analysis is performed.

Export diversification can occur in two different ways: intensive margin diversification and extensive margin diversification. Diversification in the intensive margin does not implicate more types of products, but rather that goods with a lower value will grow much quicker than goods with a higher aggregate value. Diversification in the extensive margin, on the other hand, can be explained as more types of products exported (Dennis & Shepherd, 2011). Dennis and Shepherd (2011) further argue that in a development context, it is more important to focus on export diversification in the extensive margin as it indicates a shift from natural resource production and primary commodities to more advanced manufactures.

2.2 Legal Framework and Colonial Heritage

This study will use the country's legal system as a proxy for the colonial ruler to estimate the impact on export diversification as a driver of growth. For the analysis, an assumption has been made to only consider France and Great Britain as colonising powers, and only consider the civil law system in contrast to the common law system. The two systems of law differ to a great extent and thus so does the effect on individuals, firms, and government in the different former colonial economies. The common law system is often found in former British colonies and includes features such as no written constitution, binding judicial decisions and extensive freedom of contract. In general, everything that is not expressly prohibited by law is permitted. This makes the common law system less prescriptive than the civil law system. Civil law is the dominating global system and was imposed in French, Dutch, Spanish, Portuguese and German colonies. It originates from Roman law and is a codified system, with a written constitution. Basic rights and duties are put into law and only legislative enactments are binding for all, with little room for judge-made law in courts (World Bank, 2016). As a result of these fundamental features, countries with a civil law system have weaker investor protection, less developed financial systems, more concentrated ownership due to the limited shareholders' rights, and lower corporate valuation. Countries with the common law system thus tend to experience the opposite economic impact compared to countries with the civil law system (Stacescu & Rostowski, 2006).

The difference between British and French colonies also expanded further beyond legal systems and can be found in consequences from the philosophy of the colonising power. The French colonisers governed with a direct rule, which meant that the laws and regulations of

France were directly transferred onto the colony and governed from Paris. It led to that the native rulers lost their authority except for at village level (Miles, 1987; Grier, 1999). Education was considered a key in the French empire, and was available in the colony but only for very few who were then sent to France to study. Combined with a ban on all vernacular language, the result was a large degree of illiteracy among the indigenous areas. It has a consequence been estimated that up to 95% of the population was illiterate in former French colonies in the late 1960s (Grier, 1999; Corbett, 1972). As France used the centralised rule from the mother country, the forced 'improvements' implemented in the colonies were rather disruptive through forced labour, reallocation of villages and state choice of production of goods (Isnard, 1971).

The British colonisers used indirect rule which was less idealistic and enabled flexible administration of the colonies, and a greater degree of local autonomy and traditional institutions. Great Britain relied on the local legal bodies such as Town Councils etc. (Goldberg, 1986). The use of the common law system was more applicable to local needs and even allowed for the tribal law to hold in fully native cases. This flexibility was not possible in the French system where every piece of law was used throughout the French colonial empire (Stacescu & Rostowski, 2006). Colonies under British imperial rule were more liberal in terms of education. It was given in the vernacular language and they trained locals to become teachers, thus avoiding the alienation of the native culture which occurred under French colonial rule (Grier, 1999).

Additional aspects of the colonies' ability to diversify their exports lie in the relationship to free trade held by the colonising power. As Great Britain was a strong advocate for free trade, the British colonies were exposed to world trade to a larger extent than the French colonies. The British territories were open to the world market and to free trade since 1830, whereas the French colonies were strictly limited to trade through France and the use of French ships. The mercantilist system shaped the French colonies, and thus limited the development of colonial trade (Grier, 1999). As a result, the exports of the British colony Nigeria were five times higher than the combined exports of all French colonies in West Africa in the time period between the World Wars (Stacescu & Rostowski, 2006). Thus, there are several factors of the colonial rule, apart from the legal system, which may have had a great impact on the development of the former colonies and their export diversification. These aspects are

important to take into account since a sole answer to the question of economic impact from colonial rule does not exist.

The preconditions for the different colonies to develop their export diversification once independent have varied greatly due to the profound differences in the legal system. Hayek (1960) argues that from an economic point of view, the common law system is superior to the civil law, due to different views on rights of individuals and of the state. This implies a potential for a relationship between the ex-colonies ability to diversify and the legal system which was imposed during the colonial time.

2.3 Colonial Legal Heritage and Export Diversification

The link between the legal system of a country and its level of export diversification is an area where little published research has been done. Since the legal system influence society throughout many aspects, it will also impact how businesses and production develop and operate. Export diversification is limited by the domestic country's ability to develop and expand its production capabilities. The legal system in the country will form the incentive structure for entrepreneurial effectiveness through the strength of property rights and contract enforcement, etc. Entrepreneurial effectiveness will, in turn, lead to an increase in both the number and the diversification of production capacity, and thus export diversification (Bonadies, 2016).

The ability of the inherited legal system to integrate into the independent public and government institutions is a key feature. Since there are great differences between the civil and the common legal system, the prerequisite for stable institutions and legal power will differ as well. The strengths of property rights and the enforcement of law vary across former colonies, which can result in different levels of transaction costs of doing business. These costs occur due to unstable markets, costly administration of contracts, limited information and unclear or weak regulation. When the transaction cost in an economy increase, distortions in economic transactions increase and the incentives to build official firms fall (Holden & Howell, 2009). As a result, contract enforcement is an essential part of the prerequisite of a competitive market which encourages diversification in products and exports. If the legal system in place offers weak protection, the risks of doing business with new markets and new

customers are too large. Weak contract enforcement also limits the geographic area for economic activity and relies on personal acquaintances. With a strong legal framework for contracts, on the other hand, the system allows for wider negotiations, increased competition and higher economic efficiency (Holden & Howell, 2009).

Property rights are the basis for competitiveness in an economy through the facilitation of invention and trading of goods. With weak enforcement of these rights, transactions of many goods and services will not occur. Consequently, productivity and competitiveness cannot be maximized. Similarly, investments will also be reduced as assets cannot be used to maximise returns and the risk of lost investments increase. With weak protection of property rights, there will be no incentive for economic agents to invest in physical or human capital and firms will therefore not invest in more efficient technologies. Regulations also facilitate resource allocation to the most efficient uses, as they establish where revenues, profits and residual rights of control go. If the gains from trade are misallocated due to weak regulations, they may go unexploited. Thus, the weaker regulations of property rights, the lower the number of investments and entrepreneurs in the economy (Acemoglu, Johnson & Robinson, 2004; Holden & Howell, 2009). With lower economic activity, a lower level of export diversification is expected. Bonadies (2016) also argues, through his study of 109 countries globally, that property rights influence production decisions, creation, as well as the development of new products and industries. These actions, in turn, establish a comparative advantage and the choice of exports of the country. The strength and complexity of the legal institutions in the domestic country are also positively correlated with the level of complexity in exported goods, seen in intensive margin production, as it influences the country's comparative advantage (Berkowitz, Moenius & Pistor, 2006).

The legal system is as seen largely influential on incentives for production and trade, and is consequently important for export diversification. The strict and limiting nature of the civil legal system imposed in a one-fits-all manner by the French is theorised to result in a lower level of growth through export diversification. The more liberal common law system which was implemented with higher flexibility in British colonies is expected to promote a higher level of export diversification. Therefore, these colonies could be associated with increased economic growth relative to colonies with the civil law system. Such results are expected as common law is generally connected with investor protection, lighter government regulation and more independent judicial systems. These aspects are associated with improved financial

development, less corruption and better labour markets, as well as stronger property rights and contract enforcement (La Porta et al., 2008). Given the correlation between the colonial legal heritage, level of export diversification and economic growth, a panel data analysis is used to attempt to find econometric results that may strengthen these arguments.

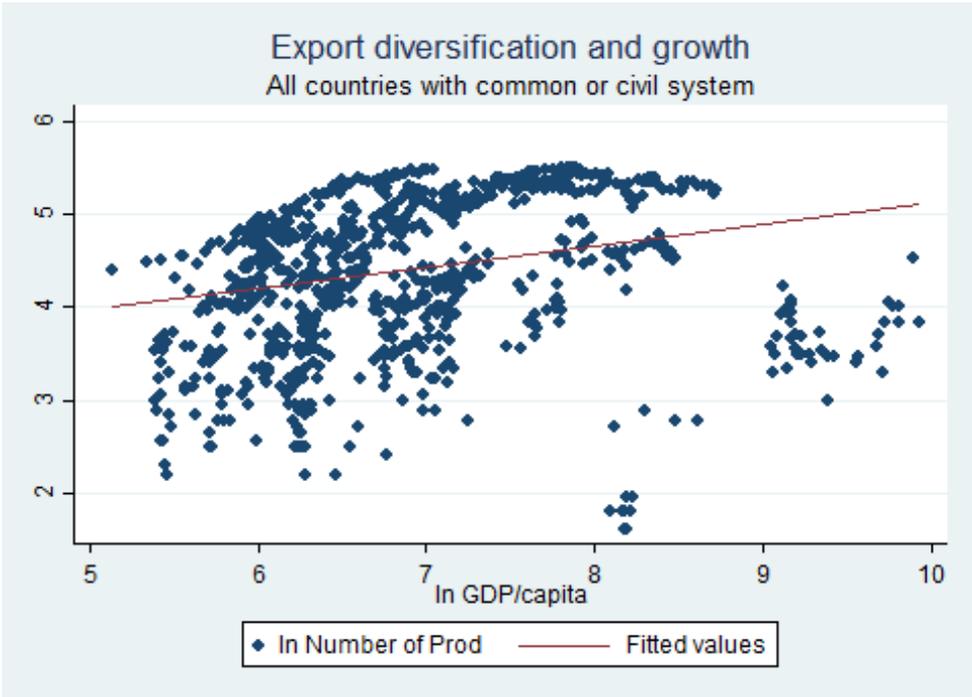
3 Empirical Approach

This chapter will describe the method used in the study. Additionally, the sample will be elaborated and a presentation of the variables will be provided.

3.1 Empirical specification

For the theoretical discussion in the analysis, the Solow growth model is used. This neoclassical growth model explains economic growth through the accumulation of capital, which increases as countries diversify their exports basket by adding more goods to the production. This model of economic growth focuses only on capital accumulation and considers technological growth as exogenous (Aghion & Howitt, 2009). As a result, this study can focus on export diversification as the main driver of growth in the model, without taking country-specific factors into account. The study will use the positive relationship between export diversification and economic growth as an underlying assumption which has been shown in several previous studies, and which is applicable to the African continent (Hesse, 2008; Agosin, 2009; Alemu, 2016). This correlation is supported by our data as seen in graph 1. Given this relationship, the empirical part of this essay aims to find how colonial ties through legal system limits or amplifies this effect.

Graph 1: Relationship between number of products and GDP per capita over our sample



To investigate the relationship between growth, export diversification and colonial ties we use a fixed effects model to estimate the theoretical Solow growth model. The fixed effects model is widely used in order to study the causes of growth and changes within a country (Kreuter & Kohler, 2012). Fixed effects are used in order to focus the analysis exclusively on legal framework and export diversification without taking other factors into account, which may affect growth in each country over time. The estimation controls all time-specific effects between the countries in the sample as well as country-specific effects such as size, landlocked capacities and natural resource abundance. As a result, the estimated coefficients cannot be biased, as the time-invariant characteristics have been omitted. Since the area of estimation is within countries, problems with potential endogeneity are partly reduced through the use of fixed effects (Verbeek, 2012). The study will also take into account growth over one- and five-year periods, to get a better understanding of how the inherited law system affect growth over different time spans. The yearly growth rate is considered as it yields the short term growth and includes a large number of observations in the data sample. The five-year growth rate is used for the data analysis as it limits the effects of short run business cycle fluctuations and indicates longer run growth (Busse & Königer, 2012). Robust standard errors are used to avoid the possible issue of heteroskedastic error terms.

The base specification for this study is:

$$\ln(y_{1\text{ or }5}) - \ln(y_0) = \alpha_i + \lambda_t + \ln(y_0) + \beta(\ln(ED_{it})) + \delta[\ln(ED_{it}) * CT_i]$$

The dependent variable percentage growth is measured in logged GDP per capita (constant 2010 US\$), given by $\ln(y_{1\text{ or }5}) - \ln(y_0)$, α_i shows the individual specific effects, λ_t shows the time-specific effects, ED_{it} represents the level of export diversification through the logged number of exported products and CT_i represents colonial ties through the proxy legal system. *GDP per capita*, as well as the number of exported products, is converted into log values, in order to maintain the linear model used for the regression.

The dependent variable, growth in *GDP per capita*, is used in all models when constructing the yearly or five-year growth rates. Change in GDP per capita is one of the most common measurements of economic growth. It reflects the total wellbeing of a country's population in monetary terms, as it is a relative measurement (World Bank, 2018). The GDP per capita data are forward lagged in one- and five-year intervals to measure growth over time. In order to measure the effect of colonial ties, the countries in the study are categorised as civil, common or other, depending on what legal system is predominantly used. See Appendix A for a full table.

In the regression model, indications regarding convergence will also be briefly analysed by interpreting the logged GDP per capita variable on the right-hand side. Convergence can generally be divided into absolute and conditional convergence. Absolute convergence implies that poor countries will converge with rich countries such that eventually all countries will share the same growth level, although previous research has found little empirical evidence for this theory. Conditional convergence, on the other hand, rests on the assumption that as long as countries have the same technology and fundamental characteristics, they will converge to the same steady state growth rate and to each other (Aghion & Howitt, 2009). Convergence patterns assume there is an inverse relationship between growth rate and initial capital per capita, which implies that a poor country will grow faster than a rich country. For convergence to be present in this sample, a negative sign for the initial level of GDP per capita variable on the right-hand side is expected in the specification (Sala-i-Martin, 1996). Diminishing returns would then imply that a higher initial income has a negative effect on

growth, and that there is convergence in the sample. Since the model controls for country-specific effects through the fixed effects, the fundamental characteristics and technological conditions within countries are controlled for.

3.2 Sample and Data

The data set consists of data from several sources. *GDP per capita* data are gathered from World Development Indicators (WDI) from the World Bank. Data on export diversification are collected from United Nations Conference on Trade and Development (UNCTAD), whereas data on colonial ties and legal framework have been collected from the renowned French research centre d'Etudes Prospectives et d'Informations Internationales (CEPII) and CIA Factbooks.

The data used in the study are collected from reliable international sources. However, the limitations of the data due to unreliable reporting from the domestic institutes have to be acknowledged. In countries with unstable institutions, governance and a limited history of data collecting and recording, the data collected may be biased and errors of omission and commission may be present. Errors of omission are something which still influences African trade data today despite the efforts by international and African trade organisations (Jerven, 2014). With this kept in mind, the results of the data analysis will be discussed with a degree of caution in order to not draw any overconfident conclusions.

A panel data set with 45 countries in mainland Africa is the foundation of the regression analysis. Liberia and Ethiopia are excluded from the sample since they have not been subject to colonisation to the same extent as the other countries. Ethiopia has always been independent and Liberia has been an independent nation since 1847 when the republic was established (CIA Factbook, 2018). Small island nations such as Cabo Verde, Mauritius and Seychelles are not included in the sample since the geographic conditions differ drastically from countries in mainland Africa and might cause unnecessary bias. Niger and Somalia are excluded from the sample since there are no GDP data for these countries during the sample period 1995-2016. The study has limited the years for observations to 1995-2016 in order to get as complete data sets as possible for all variables. The time span has been chosen in order to assess whether the colonial heritage still has a notable effect on modern economic growth

through export diversification. To this end, incomplete data for years before 1995 have not been estimated in order to extend the data analysis. If there would be no missing data, the complete data set would consist of 22 observations for every country. 45 countries are included, which results in 990 observations in total. Due to lack of data for a few countries, the GDP per capita observations in the data set totals to 970.

Export diversification can be measured in several different ways. The base line regression is run with the number of exported products as a measurement of export diversification since extensive margin trade is argued to be the main contributor to export growth in low-income countries (World Bank, 2013). The variable for this measurement will hereafter be referred to as *Number of Products*. This definition measures the range of goods included in the export base as long as the traded value of the specific product group is more than 10 000 USD (World Bank, 2013). This study uses a measurement of the number of products on a three-digit SITC, Revision 3 level. SITC stands for Standard International Trade Classification and is a system used to statistically classify traded commodities (United Nations, 2016). *Number of Products* does not take price changes into account, which makes it a stable count measurement which is insensitive to world price fluctuations. Nonetheless, all goods are deemed to be equally important, no matter what type of product it is, which might be a drawback (Persson & Wilhelmsson, 2016). As stated by Dennis and Shepherd (2011), extensive margin export diversification is especially important for low- and middle- income countries, which makes this measurement relevant for many of the African countries. An overview of the average number of exported products per country over the sample period is presented in Appendix B.

An alternative way to measure export diversification is the Herfindahl-Hirschmann Index (HHI). This measurement has been widely used in previous studies on export diversification. The index will be used in order to evaluate our base line model in the robustness tests. The different results for the two measurements will be discussed and compared for further analysis of advantages and disadvantages of measuring export diversification. HHI is a product concentration index which shows how export values are concentrated on a certain number of products (UNCTAD, 2018; Lederman & Maloney 2007; Agosin, 2009). Data are collected from UNCTAD and are reported on a three-digit SITC Revision 3 level, which is the most detailed level available for this measurement. HHI is constructed to show values between zero and one, where an index closer to zero indicates diversified exports and a value closer to one

implies highly concentrated exports. In order to be able to interpret the results in the same way as for the number of products measurement, the index is inverted so that it instead measures export diversification. A potential drawback of HHI is the sensitivity to price fluctuations. If the world market price changes from one year to another, it might seem like the export composition has changed even though it looks exactly the same (Persson & Wilhelmsson, 2016). The formula for HHI is presented below, which is inverted in the data analysis (UNCTAD, 2018).

$$H_j = \frac{\sqrt{\sum_{i=1}^n \left(\frac{x_{ij}}{X_j}\right)^2} - \sqrt{1/n}}{1 - \sqrt{1/n}}$$

where

H_j = country or country group index

x_{ij} = value of export for country j and product i

$$X_j = \sum_{i=1}^n x_{ij}$$

and

n = number of products (SITC Revision 3 at 3-digit group level).

It is important to take into consideration that the HHI does not capture all types of exports; services are one example of excluded sectors (Hesse, 2008).

Table 1: descriptives

VARIABLES	N	Mean	sd	min	max
ln GDP/capita	970	7.050	1.001	5.139	9.920
ln Number of Prod	985	4.431	0.827	1.609	5.545
Inverse HHI	985	2.836	1.700	1.041	11.05
Number of countries	38	38	38	38	38

In order to measure colonial ties, the legal system in the country is used as a proxy. The former colonies have been divided into three groups depending on the legal system imposed by the dominant colonial power: countries with civil law system, common law system and other legal systems. The variable is therefore constructed as a categorical dummy variable. This distinction has been made since the two global law systems found today are the common law system and the civil law system, both of which were globalised through colonisation. As French colonies inherited the civil system, and British colonies inherited the common system, the legal system is almost congruent with the colonising power (Klerman et al., 2011). Since the main purpose of this study is to determine how the heritage of the colonising power has affected trade diversification, the colonial ties will be distinguished solely with legal structure and not colonising power. The coding of the variable for colonial history through legal system depends on the dominant colonial power in legal possession of the colony before de-colonisation according to the information given by CIA Factbook and CEPIL.

As most countries in the sample have influences of customary or religious law, only the fundamental system of law has been considered. The countries have been divided accordingly: 29 with civil law, 11 with common law and seven with other systems of law, as shown in Table 2.

Table 2: number of countries with different legal systems

Legal system	Number of countries
Civil	27
Common	11
Other	7

Five of the countries categorized as *Other* have law systems composed of a mix of civil and common, one country has a law system based solely on customary law and one country has no defined official legal system. In the observations for the civil legal system, there are also 11 countries which inherited the civil power, but who were colonised by a country other than France, such as Belgium, Spain and Portugal. There are also two countries which have the civil law system today but who were mainly colonised by Great Britain. As a result, the data do not generate a perfect proxy between colonising power and legal system. However, legal system will be assumed to be a proxy for colonising power in the analysis of the results

despite its limitations. This assumption is made with regard to the similar characteristics between the Roman countries and the difference compared to Great Britain.

Given the small number of countries with a legal system categorised as *Other*, they will be excluded from the baseline sample of the regression analysis to avoid possible distortions. The observations will be used to test the robustness of the results, as civil and other law systems will be combined to form a base law system.

Previous work such as that of Klerman et al. (2011) combine the legal system with the nationality of colonising power to better analyse the impact of the governing style of the colonising power. The combination exploits the discrepancy in the correlation between colonial ruler and legal framework as other smaller colonial powers imposed the civil law system in their colonies. It also accounts for the countries that have a more mixed law system due to being subject to several colonial powers. This approach will not be considered in this study but could be an interesting extension in future studies to further explain the effect of colonisation on African former colonies. By including the nationality of the colonising power, it can be possible to further explain the impact of education, infrastructure and colonisers philosophy on export diversification. However, in this study, these effects will be caught by the fixed effects.

In many of the countries, the legal system consists of a mix of civil or common law and customary law. Since many former colonies have attempted to develop independently since the decolonisation after the Second World War, the judiciary aspects which are not the main legal origin of the country have been excluded from this analysis. Furthermore, the degree to which customary law is integrated into the civil and common law framework of the former colonies is difficult to estimate and is considered to be outside the scope of this study.

4 Empirical results

In this section the empirical results from the data analysis will be presented. These results will then be interpreted and discussed in order to evaluate the research question.

4.1 Results

Three different versions of the models are run: one model for growth over a one-year period (yearly growth rates) and two models over five-year periods. The five-year growth rates are run in two different versions, where one is with moving average and the other version with five-year groups in order to extend our analysis. The results from the data regressions are presented in Table 3.

The initial income variables, *GDP per capita*, are significant on a 1%-level in all three versions of the baseline regression. In the model for yearly growth rates, we can see that a 1% increase in GDP per capita would reduce growth in the next-coming year by 0.178%. However, in the models concerning five-year growth rates, there is a bigger impact on growth rates from income changes. In the model regarding moving average, a 1% increase in GDP per capita results in a 0.656% decrease in five-year growth rates, whereas the model using five-year groups experience a decrease in growth rate of 0.63%. The negative sign on all coefficients indicates a convergence pattern for the countries included in the sample group (Sala-i-Martin, 1996). The model indicates that the countries might converge to different levels of growth as the regression is conditioned given their level of export diversification. The presence of conditional convergence follows the theoretical framework for this analysis, using the Solow model where capital accumulation is a driver of growth. The theoretical model supports the existence of conditional convergence for countries with different base characteristics (Aghion & Howitt, 2009).

The general impact on economic growth by the variable *Number of Products* is positive regardless of legal system. These results are in line with our initial hypothesis and confirm

that export diversification can be considered a driver of economic growth. These coefficients are all statistically significant as shown in Table 3, for growth over one- and five-year intervals and for moving average as well as the five-year group. The positive impact is seen to be larger for five-year growth intervals compared to one-year growth interval. These effects can intuitively be interpreted to be caused by lags in the economy through increased production, employment and consumption as new products are introduced on the market. Economies of scale take time to achieve, and thus the increased value of the coefficient for export diversification at growth over five years is expected. The R-squared within is relatively low in the model for yearly growth rates which indicates that the data may be subject to very high variation. Given the heterogeneous levels of export diversification across the African continent, this is an expected result. Nonetheless, the low p-values signal that there are still significant relationships between the dependent and independent variables. It is worth noting that in the two models with five-year growth rates, the two R-squared within values are much higher.

Table 3: Regression 1 – baseline regression

VARIABLES	Growth 1 year	Moving average Growth 5 years	5 year groups Growth 5 years
ln GDP/capita	-0.178*** (0.0349)	-0.656*** (0.0744)	-0.630*** (0.0602)
ln Number of Prod	0.0295* (0.0151)	0.0729* (0.0395)	0.0966** (0.0434)
Number of Prod*Civil Law	-0.0316* (0.0186)	-0.0903 (0.0546)	-0.0989 (0.0607)
Constant	1.197*** (0.237)	4.438*** (0.534)	4.194*** (0.465)
Observations	783	635	150
R-squared within	0.333	0.658	0.712
Number of countries	38	38	38

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results of the coefficient for the interaction variable used in all versions of the model, *Number of Prod*Civil Law*, indicates the positive or negative effect on the general impact of export diversification given that a country has a civil legal system. When interpreting the regression results of the interaction between *Number of Products* and *Civil Law* system, we find significant negative results at a 10%-level in the model controlling for yearly growth

rates. However, the interaction variable has no statistically significant coefficients in the regressions for five-year growth intervals. A possible explanation for the lack of significance could be the lower number of observations compared to yearly growth. The final five observations for each country disappear due to the forward lags, whereas for yearly growth, only the final observation disappears.

The coefficient for the interaction variable that combines the measurement *Number of Products* with *Civil Law* takes the value -0.0316 in the regression for yearly growth rates. The effect is rather small, but the significant coefficient takes on the expected negative sign from our expectations. The results indicate a negative impact of the civil law system on the generally positive relationship between diversification and economic growth. Since the variables are logged, the coefficients can be interpreted as elasticities. Therefore, countries with a civil law system can be considered to have 0.0316% lower positive effect from export diversification on growth in contrast to countries with the common system. The negative relationship between export diversification and the civil law system is confirmed by the data at a one-year growth rate, although, the effect is very small. The results do not explain what parts of the legal framework influence export diversification the most, as the data is aggregated on a systemic level. It is possible that a larger effect could be found if a more disaggregated dataset on different parts of the legal system was used, however, this is outside the scope of the study.

For the regressions on five-year growth intervals, the coefficients for the interaction variable lack significance. A possible interpretation of this effect could be that there is a short-term impact on economic growth by the interaction variable, which diminishes over time and is thus not significant on five-year growth rates.

From the data it is indicated that the civil law system can be disadvantageous to growth through export diversification. The colonies under British rule who inherited the common legal system are thus, as shown by the results in the baseline regression, still today operating in an economy marginally more favourable for export diversification as a driver of economic growth.

4.2 Robustness tests

In order to test the robustness of the results from the baseline regression, the model specification is altered by changing the measurement of export diversification to the *Inverse HHI*, and the sample data are altered in additional versions of the model.

Robustness test 1 uses the *Inverse HHI* instead of *Number of Products* as the variable for export diversification. The variable *Civil Law* is kept as a base level system. The regression outcome yields no significant results for either the general impact of export diversification on economic growth nor the coefficient for the interaction between the *Inverse HHI* and *Civil Law* system. The regression table is displayed in Appendix C. The lack of significant results questions the robustness of the results of the baseline regression as they cannot be replicated using a different measurement of export diversification.

Robustness test 2 combines the countries with a legal system denoted *Civil* with those countries that are denoted *Other* to see if there is an impact on the results when sample groups are altered. The specification of the regression is the same as for the baseline regression, thus using the natural logarithm of *Number of Products* as the measurement of export diversity. The results of the regression are similar to the base specification as all coefficients for *Number of Products* enter the regression output with significance and only a small increase in the yearly growth rates is seen. The interaction between *Number of Products* and *Civil Law+Other* show an increase in significance compared the base regressions; it is now significant in all models. It also shows a small amplification in all the coefficients. Thus, the inclusion of observations of *Other* appears to have a small impact on the growth rates independent of length of growth period measured. The regression table for robustness test 2 can be found in Appendix D.

Robustness test 3 maintains the baseline regression, but limits the sample of observations to only Sub-Saharan countries, leaving 42 countries in the sample. The number of observations is consequently reduced to 699. The results for the overall positive effect from export diversification on growth are reduced for all models. All results for this variable are still significant in this robustness test. The interaction between *Number of Products* and *Civil Law* is amplified compared to the original sample, and the model with five-year growth and a

moving average is now significant at a 10%-level. The negative relationship between civil law and export diversification is still supported when reducing the sample. The regression table is located in Appendix E.

It can be confirmed that our initial theory holds for the sample of African countries included in the study, also when the sample groups are altered for the robustness tests. Nevertheless, there are some unexpected outcomes given the literature and background research, combined with our initial expectations. The results for the coefficients differ depending on if *Number of Products* or *Inverse HHI* is used as a measurement of export diversification. A majority of the coefficients are statistically significant in the models where export diversification is measured by the *Number of Products* variable. On the other hand, when *Inverse HHI* is used, there are no significant results. The correlation between the two versions of the main independent variable is not more than 0.5017. Given that both *Inverse HHI* and *Number of Products* are measurements of export diversification, a correlation this low is interesting. A possible explanation for the difference in significance and low correlation could be the composition of the measurements and what they capture from global price fluctuations. *Inverse HHI* is a price-sensitive index that measures the value of exports, which makes it much more sensitive to price-altering global events such as conflicts, economic shocks and extreme weather events. In contrast to *Inverse HHI*, *Number of Products* does not take the value of exported products into account and only measures extensive margin export growth. A reduction in world market prices could then misleadingly be interpreted as a decreased level of export diversification when measured by *Inverse HHI*, but not when measured by *Number of Products* (Persson & Wilhelmsson, 2016).

Given the limited sample in this study, it is plausible that the African former colonies and their economies are more sensitive to fluctuating world market prices than countries in the world are on average. Many African countries are still categorised as low-or middle-income countries. A large part is dependent on natural-resource heavy exports, sectors which are sensitive to changes in world market demand (Sachs & Warner, 1997). In many previous studies (Hesse, 2008; Lederman & Maloney, 2007; Dennis & Shepherd, 2011), *Inverse HHI* has estimated a relationship between export diversification and growth in line with theory and our assumptions, without loss of significant results. A possible explanation could be the use of larger samples of countries. In a larger sample, the export composition in the countries

included will be much more diversified, and not all countries will be as dependent on goods with heavily fluctuating prices.

Since it is not possible to recreate the results using a different variable for export diversification, our results are not robust. Thus, the structural validity of our model is reduced. Nonetheless, it is worth noting, that when the sample is changed by including the group *Other* or only considering Sub-Saharan countries, we can only see a small amplification of the results and significance levels compared to the baseline model. The amplification of the coefficients can in part be due to an increased sample or the inclusion of outliers in the data when adding the group *Other* to the sample. When only considering the Sub-Saharan countries, the small difference in results may in part be due to the more similar income levels of these countries. Studies by Imbs and Wacziarg (2003) and Cadot, Carrère and Strauss-Kahn (2011) have found that countries in low and middle-income economies benefit more from export diversification than high-income countries. The geographical conditions of the countries by the Mediterranean differ from the Sub-Saharan countries, as does the proximity to Europe. These facts might affect the trade patterns, but a deeper analysis of this is not of relevance to this study.

5 Conclusion

Many African countries have since the independence from their colonial rulers struggled to develop economically. The continent has the highest export concentration in the world, which has been suggested as a possible reason for the slow growth. This leads us to try to answer the research question on how colonial ties have affected export diversification and thus economic growth in Africa.

The aim of this study was to combine two strands of previous literature; the effect of colonial heritage on economic growth, and the effect on growth from export diversification. Our contributions to existing research have consisted of investigating whether the growth pattern of countries with different colonial ties, and hence different legal systems, reacts differently to export diversifications due to inherent differences in the internal economic dynamics. This linkage has to the best of our knowledge not been acknowledged before for the African former colonies. The analysis was made by concentrating the legal systems into the two major global legal systems, common and civil, and thus only considered Great Britain and France as colonising powers given their superiority during the colonial time. The civil system can be considered to be less effective in promoting export diversification through its inflexible and heavily regulated framework with weak protection of property rights, contract enforcements and investments.

Using a panel data regression model with fixed effects, we could confirm that there seems to be a significant positive relationship between export diversification and economic growth. The results also indicate a conditional convergence pattern in the sample group, which is in line with the theoretical Solow growth model used for this analysis. Furthermore, we can conclude that a country's legal system has a rather small, but significant effect on export diversification and economic growth. The results show that countries with the civil law system experience a negative impact on growth through export diversification. The initial expectations were thus supported by the data.

Several robustness tests questioned the robustness of our results since we could not replicate the results from the baseline model with the use of an alternative measure of export diversification. However, the results remained consistent when altering the data sample.

Seen to the fact that this combination of two separate strands of literature is relatively unexplored, this study is based on two relatively broad assumptions about the number of legal systems and colonising powers. These assumptions could be changed in order to obtain more precise results, for example by including the degree of influence from other legal systems such as customary or religious law, or increasing the focus on the nationality of the colonising powers. Suggestions for further research would be to include more detailed data on similarities and differences of legal systems. This could possibly yield more robust results and further explain how legal systems could promote business development, protect property rights and other areas of relevance to export diversification. This could in turn be influencing economic growth. Such details have not been our focus, but we believe it would be an interesting extension of the findings presented in this study.

References

Alemu, A. M. (2016). The Impacts of Natural Resource Abundance on Export Diversification and Structural Change in African Economies. *Journal of Economic Development, Management, IT, Finance & Marketing*, vol. 8, no. 2, pp.1.

Acemoglu, D., Johnson, S. & Robinson, J. (2004). Institutions as the Fundamental Cause of Long-Run Growth. NBER Working Paper No. 10481. Available online: <http://www.nber.org/papers/w10481.pdf> [Accessed 2 May 2018].

Aghion, P. and Howitt, P. (2009). *The Economics of Growth*. MIT Press.

Agosin, M (2009). Export Diversification and Growth in Emerging Economies. *CEPAL Review*, issue 97, pp.115-31. Available online: <http://www.econ.uchile.cl/uploads/publicacion/7fec2632-b4c3-45a3-ab78-0970614f5bab.pdf> [Accessed 2 May 2018]

Austin, G. (2010). African Economic Development and Colonial Legacies. *Revue Internationale de Politique de Développement*, Iss 1, pp 11-32. Available online: <https://doaj.org/article/bb95145288694d32b61ef75b5cadedd6> [Accessed 23 May 2018]

Berkowitz, D., Moenius, J. & Pistor, K. (2006). Trade, Law, and Product Complexity. *Review of Economics and Statistics*. Vol.88, no.2, pp.363-373. Available online: <https://pdfs.semanticscholar.org/550f/a931fe996974c57892488233f9db1106c730.pdf> [Accessed 2 May 2018].

Bertocchi, G. & Canova, F. (2002). Did colonization matter for growth? *European Economic Review*, vol. 46 no. 10, pp.1851-1871. Available online: <https://www.sciencedirect.com/science/article/pii/S0014292101001957> [Accessed 9 Apr. 2018].

Bonadies, G. A. (2016). Property Rights and International Trade: An Institutional Determinant of Export Structure, PhD thesis, Department of Political Science, International Development, and International Affairs, The University of Southern Mississippi Available online: <http://aquila.usm.edu/dissertations/877> [Accessed 2 May 2018]

Busse, M. & Königer, J. (2012). Trade and Economic Growth: A Re-examination of the Empirical Evidence. Hamburg Institute of International Economics. Paper 123. Available online: <http://dx.doi.org/10.2139/ssrn.2009939> [Accessed 25 May 2018]

Cadot, O., Carrère, C & Strauss-Kahn, V. (2011). Export Diversification: What's behind the Hump?. *The Review of Economics and Statistics*, MIT Press, vol. 93, no. 2, pp. 590-605. Available online: [doi/pdf/10.1162/REST_a_00078](https://doi.org/10.1162/REST_a_00078) [Accessed 20 April 2018]

CEPII (2016) Country Profiles. Available Online:
http://www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=30 [Accessed 1 Mar. 2018]

Chenery, H. 1979. *Structural Change and Development Policy*. New York: Oxford University Press.

CIA Factbook (2018) *The World Factbook – Legal Systems*. Available online:
<https://www.cia.gov/library/publications/the-world-factbook/fields/2100.html> [Accessed 1 Mar. 2018]

Corbett, E. (1972). *The French Presence in Black Africa*. Washington: Black Orpheus Press.

Dennis, A. & Shepherd, B. (2011). Trade Facilitation and Export Diversification, *The World Economy*, vol. 34, pp. 101–22. Available online: <https://doi.org/10.1111/j.1467-9701.2010.01303.x> [Accessed 20 April 2018]

Grier, R. (2018). Colonial Legacies and Economic Growth, *Public Choice*, vol. 98, no. 3/4 pp. 317-335. Available online: <http://www.jstor.org/stable/30024490> [Accessed 20 Apr. 2018].

Hayek, F. (1960) *The Constitution of Liberty*, London: Routledge and Kegan Paul

Heldring, L. & Robinson, J.A. (2012). *Colonialism and Economic Development in Africa*. NBER Working Paper Series, Working Paper 18566. Available online:
<http://www.nber.org/papers/w18566> [Accessed 23 May 2018]

Hesse, H., (2008). Export diversification and Economic Growth, in R. Newfarmer, W. Shaw & P. Walkenhorst (eds), *Breaking into new markets: Emerging lessons for export diversification*. Washington DC: The World Bank.

Holden, P., & Howell, H. (2009). *Institutions and the Legal Framework for Business Development in the Caribbean*, Inter-American Development Bank (pdf). Available online:
<https://competecaribbean.org/wp-content/uploads/2013/06/3-Institutions-and-Legal-Frameworks-for-Business-Development-in-the-Caribbean-Holden-Howell.pdf> [Accessed 2 May 2018].

Imbs, J. & Wacziarg, R. (2003). Stages of Diversification, *American Economic Review*, American Economic Association, vol. 93, no. 1, pp. 63-86. Available online:
<https://www.jstor.org/stable/3132162> [Accessed 10 May 2018].

Jerven, M. (2014). On the accuracy of trade and GDP statistics in Africa: Errors of commission and omission, *Journal of African Trade*, vol. 1, no. 1, pp. 45-52. Available online: <https://doi.org/10.1016/j.joat.2014.08.001> [Accessed 15 Apr. 2018].

Klerman, D.M., Mahoney, P.G., Spamann, H. & Weinstein, M.I. (2011). Legal Origin or Colonial History?, *Journal of Legal Analysis*, vol. 3, pp. 379-409. Available online: <https://doi.org/10.1093/jla/lar002> [Accessed 23 Apr. 2018].

Kohler, M. & Khumalo, T. (2015). Upgrading Export Structure In Sub-Saharan Africa, *International Business & Economics Research Journal (IBER)*, vol. 14, no. 2, p. 269. Available online: DOI: 10.19030/iber.v14i2.9164 [Accessed 28 Apr. 2018]

Kreuter, F. & Kohler, U. (2012). *Data Analysis Using Stata*, 3 ed. Texas: Stata press.

LaPorta, R., Lopez-de-Silanes, F. & Andrei Shleifer. 2008. The Economic Consequences of Legal Origins, *Journal of Economic Literature*, vol. 46, no. 2, pp 285-332. Available online: <http://www.nber.org/papers/w13608.pdf> [Accessed 2 May 2018].

Lederman, D., & Maloney, W. F. (2007). Trade Structure and Growth, In *Natural Resources: Neither Curse Nor Destiny*, D. Lederman and W.F. Maloney, (eds). Palo Alto: Stanford University Press. Available online: http://siteresources.worldbank.org/INTTRADERESESEARCH/Resources/D.Lederman_W.Maloney_Natural_Resources_book.pdf [Accessed 29 Apr. 2018].

Mbate, M. (2015). Can Africa Diversify its Exports? Lessons from Ethiopia, *Development*, vol. 58, no. 4, pp. 614-619. Available online: 10.1057/s41301-016-0048-7 [Accessed 25 Apr 2018].

Mosley, P. (2018). Why Has Export Diversification Been So Hard to Achieve in Africa? *The World Economy*, vol. 41, no. 4, pp 1025-1044. Available online: 10.1111/twec.12620 [Accessed 25 Apr 2018].

Persson, M. & Wilhelmsson, F. (2016). EU Trade Preferences and Export Diversification, *World Economy*, vol. 39, pp. 16-53. Available online: <http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291467-9701/issues> [Accessed 1 May 2018].

Sachs, J.D. & Warner, A.M. (1997). Sources of Slow Growth in African Economies, *Journal of African Economies*, vol. 6, pp. 335-376. Available online: <https://academic.oup.com/jae/issue> [Accessed 17 Apr. 2018].

Sala-i-Martin, X. (1996). The Classical Approach to Convergence Analysis. *The Economic Journal*, vol. 106, pp 1019-1036. Blackwell Publishers. Available online: <https://www.jstor.org/stable/2235375> [Accessed 25 May 2018]

Stacescu, B. & Rostowski, J. (2006). The Wig and the Pith Helmet - the Impact of "Legal School" versus Colonial Institutions on Economic Performance (second version), Available at: <http://www.case-research.eu/en/the-wig-and-the-pith-helmet-the-impact-of-legal-school-versus-colonial-institutions-on-eco> [Accessed 9 Apr. 2018].

Syrquin, M. (1989). Patterns of Structural Change. In Handbook of Economic Development, H. Chenery and T. N. Srinivasan, (eds). Amsterdam: Elsevier Science Publishers.

ThoughtCo. (2018). Chronological List of African Independence. Available online: thoughtco.com/chronological-list-of-african-independence-4070467 [Accessed 9 April 2018]

UNCTAD. (2008). Economic Development in Africa 2008 - Export Performance Following Trade Liberalization: Some Patterns and Policy Perspectives. Available online: http://unctad.org/en/docs/aldcafrica2008_en.pdf [Accessed 9 Apr. 2018].

UNCTAD Stat (2016) Merchandise: Product concentration and diversification indices of exports and imports. Available online: <http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx> [Accessed 1 Mar. 2018]

United Nations. (2016). Commodity Indexes for the Standard International Trade Classification, Revision 3, New York, Statistical Papers, vol. 1, series M, no. 38/Rev. 2, p. v. Available online: <https://unstats.un.org/unsd/trade/b/Knowledgebase/50096/Commodity-Indexes-for-the-Standard-International-Trade-Classification-Revision-3> [Accessed 14 May 2018].

Verbeek, M. (2012). A Guide to Modern Econometrics, fourth edition, Wiley

World Bank. (2016). Key Features of Common Law or Civil Law Systems | Public private partnership. Available at: <http://ppp.worldbank.org/public-private-partnership/legislation-regulation/framework-assessment/legal-systems/common-vs-civil-law> [Accessed 9 Apr. 2018].

World Bank. (2018) World Bank national accounts data, and OECD National Accounts data files. Available online: <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD> [Accessed 1 Mar. 2018]

World Bank. (2013). Online Trade Outcomes Indicators: User's Manual. Available at: <http://wits.worldbank.org/WITS/docs/TradeOutcomes-UserManual.pdf> [Accessed 15 May 2018]

Appendix A

Country	Legal system	Colonising Power	GDP years
Algeria	civil	FRA	22
Angola	civil	PRT	22
Benin	civil	FRA	22
Botswana	other	GBR	22
Burkina Faso	civil	FRA	22
Burundi	civil	BEL	22
Cameroon	other	FRA	22
Central African Republic	civil	FRA	22
Chad	civil	FRA	22
Congo. Dem. Rep.	civil	BEL	22
Congo. Rep.	civil	FRA	22
Cote d'Ivoire	civil	FRA	22
Djibouti	civil	FRA	21
Egypt	civil	GBR	22
Equatorial Guinea	civil	ESP	22
Gabon	civil	FRA	22
Gambia. The	common	GBR	22
Ghana	common	GBR	22
Guinea	civil	FRA	22
Guinea-Bissau	civil	PRT	22
Kenya	common	GBR	22
Lesotho	common	GBR	22
Libya	other	---	14
Madagascar	civil	FRA	22
Malawi	common	GBR	22
Mali	civil	FRA	22
Mauritania	civil	FRA	22
Morocco	civil	FRA	22
Mozambique	civil	PRT	22
Namibia	civil	---	22
Nigeria	common	GBR	22
Rwanda	civil	BEL	22
Sao Tome and Principe	civil	PRT	17
Senegal	civil	FRA	22
Sierra Leone	common	GBR	22
South Africa	other	GBR	22
Sudan	common	GBR	22
Swaziland	other	GBR	22
Tanzania	common	GBR	22
Togo	other	FRA	22
Tunisia	civil	FRA	22
Uganda	common	GBR	22
Zambia	common	GBR	22
Zimbabwe	other	GBR	22

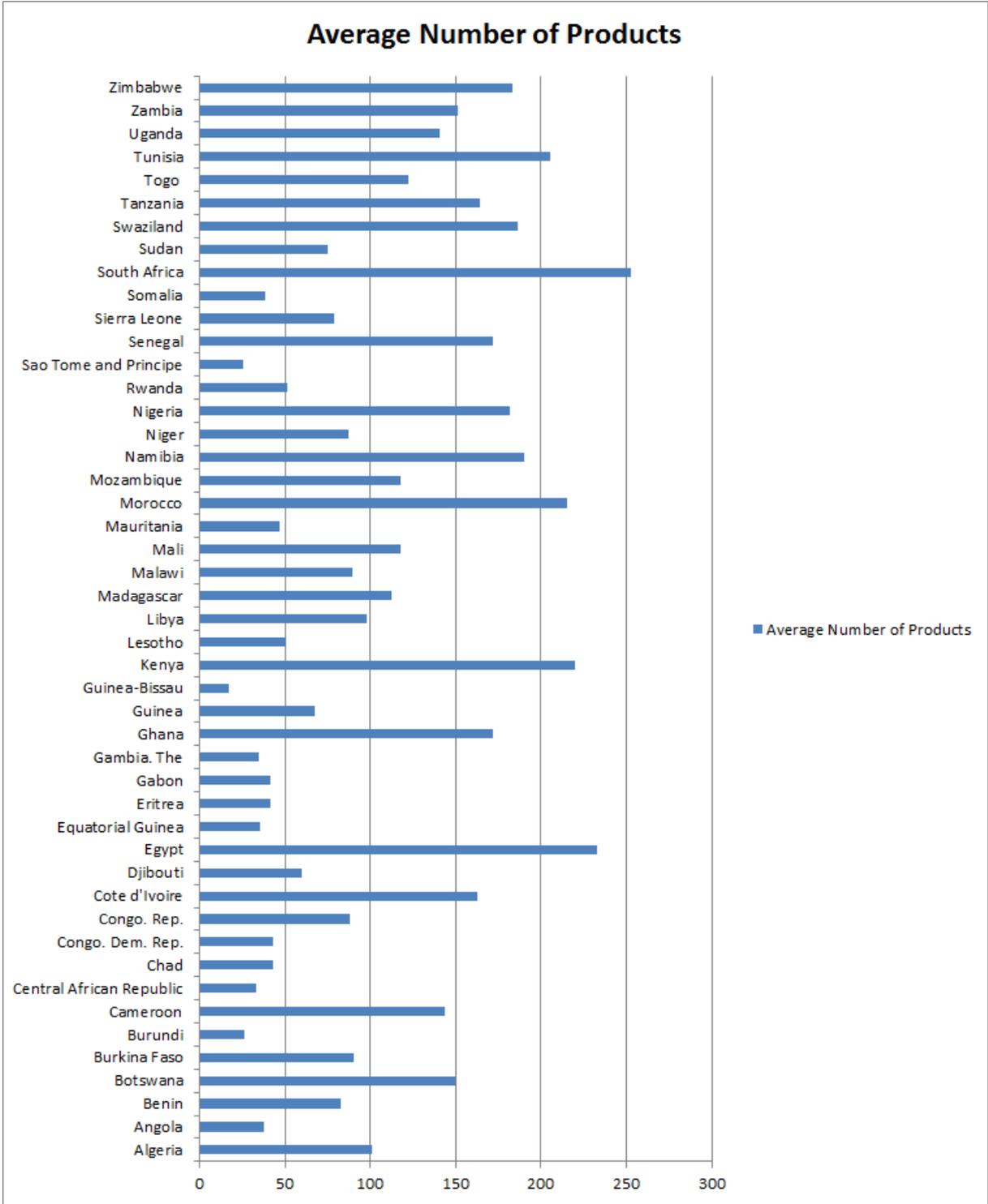
Excluded countries: group “Other”

Country	Leg. system	Colonial power	GDP years
Libya	other	---	14
Botswana	other	GBR	22
Cameroon	other	FRA	22
South Africa	other	GBR	22
Swaziland	other	GBR	22
Togo	other	FRA	22
Zimbabwe	other	GBR	22

Countries excluded from the original data set:

Cabo Verde
Comoros
Mauritius
Niger
Reunion
Seychelles
Somalia
Western Sahara

Appendix B



Appendix C

Robustness test 1: regression using *Inverse HHI* and *Civil Law* as base level

VARIABLES	Growth 1 year	Moving average Growth 5 years	5 year group Growth 5 years
ln GDP/capita	-0.176*** (0.0378)	-0.658*** (0.0852)	-0.631*** (0.0732)
Inverse HHI	0.00144 (0.00730)	-0.00970 (0.0199)	-0.0179 (0.0252)
HHI inverse*Civil Law	-0.00115 (0.00774)		0.0111 (0.0284)
Constant	1.212*** (0.251)	4.507*** (0.568)	4.342*** (0.494)
Observations	783	635	150
R-squared within	0.325	0.650	0.706
Number of countries	38	38	38

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix D

Robustness test 2: Countries with *Civil Law* system and countries with *Other* systems grouped together.

VARIABLES	Growth 1 year	Moving average Growth 5 years	5 year group Growth 5 years
ln GDP/capita	-0.168*** (0.0361)	-0.652*** (0.0634)	-0.617*** (0.0620)
ln Number of Prod	0.0352** (0.0155)	0.0813** (0.0393)	0.107** (0.0421)
Number of Prod*Civil+Other	-0.0347* (0.0185)	-0.0975* (0.0543)	-0.104* (0.0603)
Constant	1.144*** (0.252)	4.508*** (0.475)	4.180*** (0.492)
Observations	921	745	176
R-squared within	0.235	0.604	0.674
Number of countries	45	45	45

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix E

Robustness test 3: Only Sub-Saharan countries with civil or common system

VARIABLES	Growth 1 year	Moving average Growth 5 years	5 year group Growth 5 years
ln GDP/capita	-0.170*** (0.0355)	-0.643*** (0.0616)	-0.614*** (0.0538)
ln Number of Prod	0.0362** (0.0168)	0.0817** (0.0398)	0.116** (0.0498)
Number of Prod*Civil Law	-0.0390* (0.0212)	-0.121* (0.0660)	-0.131 (0.0816)
Constant	1.124*** (0.232)	4.371*** (0.444)	4.052*** (0.434)
Observations	825	669	158
R-squared within	0.317	0.659	0.706
Number of countries	40	40	40

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1