Financial Development and Manufactured Exports: The African Experience

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ABSTRACT

Using a sample of twenty nine African countries for which adequate time series data are available this paper explores the nexus between financial development and manufactured exports. This particular relationship is especially important in the context of Africa since export diversification away from resources and agriculture is an important part of Africa's growth strategy. Our results show that in eleven countries financial development causes manufactured exports and manufactured exports causes financial development in seven countries. We then explore reasons for these findings and find that a rich and surprising set of factors explain our findings.

Key Words: Financial Development, Granger Causality, Manufactured Exports, Africa

JEL code: E44, E50, F13, G20, 016, 055

I. Introduction

Increasing manufactured exports of African countries is widely recognized as an important endeavor, as Africa strives to promote productivity and economic growth through diversification of exports away from commodities and agriculture. As a result, a small but burgeoning literature has set out to explore what factors are responsible for the growth of manufactured exports from Africa, as depicted in Figure 1. Of particular interest has been an attempt to understand how financial development has contributed to greater manufactured exports.[1] . However much of the empirical work that attempts to establish the link between financial development and manufactured exports relies on panel data analysis where studies assume the direction of causality is from finance to manufactured goods export growth, with controls for possible reverse causality. However it is now well understood that panel regressions have serious issues with controlling for reverse causality and downplaying the unique characteristics of a particular country.

To contribute to this shortcoming in the literature, in this paper we set out to explore the direction of causality between financial development and manufactured exports for a sample of twenty nine African countries with time series data for each country. Our results show that it is incorrect to assume that finance always causes manufactured exports. For a significant number of countries in our sample the causation is from manufactured exports to finance. We provide some evidence on why the causal relationship varies across our sample of countries.

[1] Financial development has also been found to be important in reducing income inequality and poverty. See Mookerjee and Kalipioni (2010)

The rest of the paper is organized as follows. In section II, we provide a brief review of the extant literature. In section III we present and discuss our causality test results and explore the reasons for our findings. In section IV we present a summary.

II. Literature Review

Understanding the relationship between financial development and trade has received increasing attention since the theoretical work of Kletze and Bardhan (1987). In particular, Kletze and Bardhan predicted that a well developed financial sector can increase a country's comparative advantage in industries that rely more on external financing. Subsequent empirical studies have relied on the assumption that causality runs from financial development to trade (Beck, 2002, 2003; Hur, Raj and Riyanto, 2006; Huang and Temple, 2005; Svaleryd and Valchos, 2002). Nonetheless, there is the possibility that trade may cause financial development or both trade and financial development may simultaneously be caused by a third factor [such as favorable market oriented policies or unfavorable government policies]. For example, both Beck (2003) and Huang and Temple (2005), postulate that the relationship between trade and financial development maybe demand driven. In other words, countries with specialized production in sectors with scale economies may demand external finance, thereby, promoting financial development. While some of these studies have attempted to address the causality question (Huang and Temple, 2005; Svaleryd and Valchos, 2002; Bhanumurthy and Singh; 2013), others (Beck (2002, 2003) have simply recognized the "potential" for reverse causality and, as a result, have attempted to impose control measures in the panel regression analysis.

III. Methodology and Results Analysis

Using time series data, we test the causality between exports of manufactured goods and financial development in twenty nine African countries. For each country we employ annual data covering the period 1975 to 2007, with the exception of Burkina Faso, Central African Republic, Chad, Senegal, Sudan and Tanzania. For these six countries the data span the years 1983- 2007. The time period was selected to maximize the sample size and provide enough data points to conduct meaningful time series analysis. All data were first differenced to ensure stationarity as per the augmented Dickey Fuller tests. Following Beck (2002) we use PRIVATE CREDIT as the most appropriate proxy for financial development. Private Credit is defined as Credit to the private sector by deposit money banks and other financial institutions, and is derived from the World Development Indicators (WDI) as published by the World Bank. Data for Manufactured exports is derived from UNCTAD.We report the results from the causality tests that employed four lags on both variables. To test the sensitivity of the causality test results we also employed shorter lags but the results did not change. The significance of the causality tests are gleaned from the probability of the joint F- statistic.

As reported in Table 1, we find that in seven of those countries (group A), manufactured goods exports causes financial development; in eleven of them (group B) financial development causes manufactured goods exports and in the remaining eleven countries (not reported), we do not find any causality between trade and financial development. To understand why the direction of causality is different between countries in groups A and B we explore the unique characteristics within these groups of countries that potentially explain the causality result findings, and

compare our findings to previous studies such as Huang and Temple, (2005) Svaleryd and Valchos, (2002).

3.1. Legal Origin:

La Porta et al (1998) argue that the legal structure of a country is closely related to a country's colonial ties. For example, while the English common law tradition protects the rights of the shareholders and creditors, the French civil code is associated with less efficient contract enforcement, weaker investors' protection and higher corruption. As a result we would expect those African countries in our sample that have a French civil code tradition to have shallower and less developed financial systems and hence finance would have less of an impact in promoting manufactured goods exports. A larger percentage (71%) of countries in group A, have the French civil code, compared to only 55% of the countries in group B, where the causality results show finance causing manufactured exports (Table 2).

3.2. Quality of Institutions:

The most comprehensive data on African governance is the Ibrahim Index of African Governance (2012) that scores and ranks African countries based on the quality of their institutions for the period of 2000 to 2011. We compare the 2011 overall ranking and the change in the quality of related institutional variables between 2000 and 2011. Based on this data, we do not observe any single group possessing superior institutional qualities in the broad categories of (i) safety and rule of law, (ii) sustainable economic opportunity and (iii) human development. So it appears that Institutional quality is not important in explaining our causal findings. This finding is similar to earlier studies by Rajan and Zingales (2003) who found that the rule of law

has not always been associated with greater financial development. In addition, other studies focusing on determinants of financial development in Africa, do not find any meaningful relationship between broad measures of institutional quality and financial development relative to other developing countries (Allen et. al., 2012).

3.3. Export Composition:

Table 2 also classifies the countries on the basis of export composition and whether or not they have a diversified export structure. All the countries in group A have a specialized export structure: 29% export mainly oil, 43% non-fuel primary products and 29% export mainly services. By contrast, 55% of countries in group B have a more diversified export basket. The remaining 36% and 9% are exporters of non-fuel primary products and oil respectively. Thus it appears that the more diversified the export base, Group B countries, the more important is the role of finance in promoting manufactured export growth.

3.4. Export Concentration:

Next, we ask if the concentration of exports can explain our causal findings. The Export concentration index reflects the degree to which a country is dependent on exports. A concentration index close to zero implies that a country is more export dependent. Conversely, the export diversification index measures the depth of a country's export basket. A country whose exports consist of a large number of products and trades with several countries has a lower export diversification index. Trends in the two indices for the 1990-2010 period are reflected in Figure 2. The export concentration index for the countries in group A range between 0.3 and 0.5 , [with the exception of Nigeria, which has a relatively higher concentration index of

about 0.8 to 0.9] (Figure 2.1A). Their diversification index falls between 0.7 and 0.9 (Figure 2.2A).

The export concentration and diversification indices for group B countries are slightly lower. Their concentration index lies between 0.1 and 0.5 and their diversification index averages between 0.35 and 0.75. While these values are not as low as those of the Asian, Latin American and Caribbean countries that are more open and better diversified, group B relative to group A shows a higher degree of openness and diversification.

3.5. Level of Financial Development:

An export diversification strategy requires that external financing options for export oriented industries are made available especially to small and medium firms that have limited internal financing. This is made possible if the financial sector is more developed, allowing more financing opportunities for new and innovative entrepreneurs who might have the potential to develop new export products. Consequently, because of their lower export diversification index, we can infer that group B countries have a more developed financial sector relative to group A.

To further substantiate this claim, we evaluate percentage changes in measures of financial development: the ratio of liquid liabilities in the banking system to GDP (M2) and the ratio of credit to private sector to GDP. We use data for 1990 and 2005; almost a decade after the initiation of the financial sector reforms through the IMF/World Bank structural adjustment programs and three years before the 2008 world financial crisis. We find that 87% of group B countries experienced some growth in M2 between 1990 and 2005, with the growth values

ranging from 7% in Central African Republic to 93% in Burundi. On the contrary only 67% of the countries in group A experienced some growth in their M2 (Table 3). With reference to the ratio of credit to private sector, 43% of the countries in group B had a positive growth relative to 50% in group A. Nonetheless, group A countries experienced a substantial decline in the growth of credit to private sector relative to group B.

The lending rate is another indicator of the level of financial market development in a country. It is defined as the sum of payments to depositors and operational costs, weighted by the proportion of defaults on loans. This rate becomes unpredictable in the presence of asymmetric information where financial intermediaries cannot establish apriori the probability of default among borrowers. According to the learning model (Ordonez, 2012), idiosyncratic shocks to the economy are observable to borrowers for free but to the financial intermediaries at a cost. Consequently, the movement in the lending rates over time reflects the financial frictions created by the costly borrowers' verification costs. Because of this asymmetric information, which is pervasive in countries with less developed financial markets, financial intermediaries set the lending rate based on their expected productivity or success of any given investment. However, as the financial sector becomes progressively more developed, the efficiency of intermediation is increased with the reduction in information, transaction and monitoring costs (Creane, Goyal, Mobarak and Sab, 2004). As a result, we expect less volatility in the movements of the lending rate in countries with relatively developed financial markets and vis-à-vis.

Figures 3A and 3B track the trends in the lending rate between 1960 and 2010 for the countries in group A and B respectively. Some countries are omitted in both groups due to lack of data.

Nevertheless, most countries in group A are characterized by wide swings in the lending rate relative to the countries in group B (with the exception of Tanzania, between 1985 and 1998). The stability in the movement of the lending rate in group B countries (Figure 3B) is another indicator that these countries have a relatively better developed financial market.

As previously mentioned, the endogenous learning process of financial intermediaries about the state of the economy is what generates asymmetric movements of the lending rate. This in turn translates into movements in investment and consequently output. The asymmetric movement of these economic variables is more pronounced in countries with weaker financial systems (Ordonez, 2012). Higher expectations of loan defaults, implies that the only investments to be funded are those with proven record of success and high returns. Braun (2003) also found that industries with more "tangible assets" are relatively larger in size and grow relatively faster than industries with intangible assets in countries with low level of financial development. This alludes further to the selective nature of the financial intermediaries in countries with less developed financial markets.

In Figure 4 we provide the trends of the share of manufactures output with varying skill levels and technology intensity in total manufacturing output. The earliest available data starts from 1995. Figures 4.1A to 4.3A track the trends in the countries in group A for low, medium and high skill respectively. The manufacturing output in subsectors using low (Figure 4.1A) and medium skill (Figure 4.2A) is very volatile relative to that in the subsector employing high skill labor (Figure 4.3A). Conversely, Figures 4.1B, 3.2B and 4.3B show that countries in group B have more stable output in all the three subsectors. If the skill level can be used as a proxy for

productivity in the three subsectors and assuming that all the three subsectors rely on some form of external financing, then we can conclude that financial intermediaries in group A are more selective and biased towards more productive, high skill subsector. On the contrary, financial intermediaries in group B countries are less biased and less selective in investment funding as evidenced by the stability over time in output in all the three subsectors. Henceforth, we can also infer that countries in group B have a better developed financial sector relative to countries in group A.

3.6. Political Structure:

A stable and market friendly governance is necessary not only for sound financial institutions but also for an investment friendly environment. While government regulations are necessary to ensure effective contract enforcement and transparency in accounting and disclosure (Rajan and Zingales, 2003), repressive governments can also impose restrictions and price distortions on the financial market with the purpose of using it as a source of public finance.

Repressive financial market policies such as high inflation taxation, high required reserve ratio, subsidized or directed credit, collusive contracts between public enterprises and banks and other rent seeking practices are more likely to be found in unstable and autocratic leaning governments. Figure 5 shows that countries in group A have wide swings between autocracy and democracy (Figure 5A), highlighting the instability in governance in these countries. On the contrary, countries in group B portray somewhat stable and democratic leaning governance (Figure 5B).

3.7. Foreign Direct Investment:

The evidence presented in the discussion above, shows that the financial sector of countries in group A is relatively less developed. However, it does not explain why the causality in these countries runs from trade to financial development. Some studies have suggested that the trade-financial development relationship maybe demand driven. In other words, countries in group A may have highly specialized sectors with scale economies or more tangible assets, causing an increase in demand for external financing.

As previously established, group A countries are highly specialized; mainly in oil, non-fuel primary products and services. So exactly what explains the trade-finance relationship? It is often argued that FDI inflows increase domestic financial resources, boost export competitiveness and enhances technological capabilities among other factors (UNCTAD, 1999). Historically, the flow of FDI to African countries has been driven by the availability of natural resources (oil and minerals). To establish any unique characteristics in FDI flows between the two groups of countries, we track trends in FDI flows as a percentage of total trade in merchandise and services for the period of 1970-2010. Figure 6A shows steady positive trends for countries in group A relative to those in group B (Figure 6B). This steady flow of FDI in group A indicates that FDI may be the driver of financial sector development.

IV. Conclusion

In the discussion above, we provide evidence that in countries where finance causes manufactured goods exports (group B countries) financial markets are better developed compared to the financial markets in group A countries where manufactured goods exports cause finance. Studies such as Beck (2002, 2003) and Hur et al (2006) found evidence in support of

Kletzer and Bardhan (1987) hypothesis that financial development cause trade in industries with scale economies. Similarly, studies focusing on the relationship between financial development and trade in general (Huang and Temple, 2003 and Svaleryd and Valchos, 2002) also found that financial development positively caused an increase in trade openness. Our analysis above and the results of the causality tests points to Kletzer and Bardhan (1987) hypothesis and confirms the empirical findings that countries in which the financial sector is relatively developed, trade in industries with scale economies will expand. In addition we establish that the legal structure and the composition and depth of exports are important in explaining the finance manufactured goods exports nexus in Africa.

If African countries want to benefit from the virtuous cycle of a deeper well developed financial sector - that helps in poverty alleviation and income inequality – that drives greater manufactured goods exports with all its attendant advantages as discussed earlier, then the findings of this paper should provide important insights. While this study focuses on African countries, further insights might be gleaned by extending this type of detailed country specific analysis to other developing regions of the world.

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APPENDIX

Table 1: Granger causality test results for selected African countries
Granger causality test specifications for: Private Credit (PC) and Manufactured Exports (ME)

Manufactured Exports does not Granger cause Private Credit (4 lags)		
Group A countries	F-statistic	Probability
Burkina Faso	3.77	0.042
Ivory Coast	4.58	0.033
Ethiopia	6.39	0.031
Lesotho	3.91	0.047
Libya	9.28	0.006
Niger	4.01	0.036
Liberia	3.09	0.037
Private Credit does not Granger cause Manufactured Exports (4 lags)		
Group B Countries	F- statistic	Probability
Burundi	6.21	0.002
Chad	3.66	0.031
Gabon	2.97	0.045
Kenya	5.72	0.008
Liberia	4.88	0.039
Mauritius	3.35	0.052
Morocco	9.47	0.006
Sierra Leone	2 .9	0.053
South Africa	6.39	0.014
Tanzania	7.41	0.027

Note: All Causality tests employ four lags. We report the joint probability of rejecting the null hypothesis. We only report the results for tests that are significant at the 5% level or better. We do not show the results for the eleven countries that did not have significant results but they are available from the authors.

Table 2: Legal Origin, Type of Exports and Export Diversification

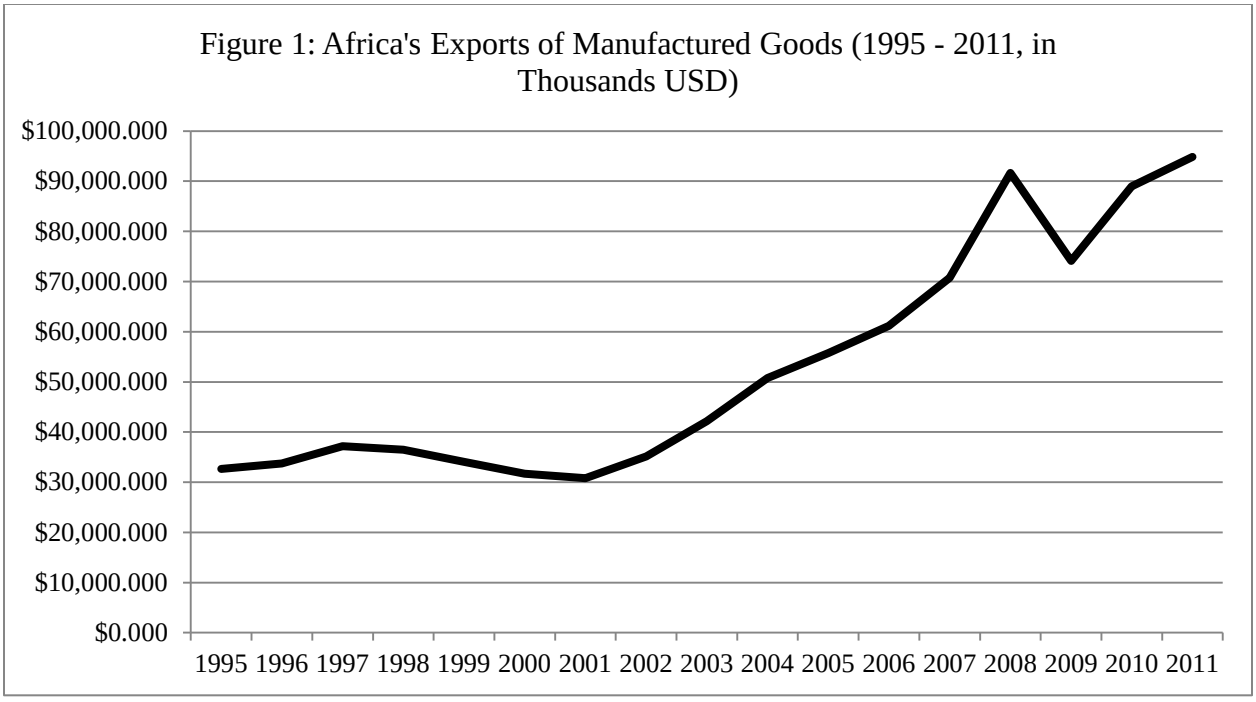
GROUP A	British legal Origin	French Legal Origin	exporters of nonfuel primary products	exporters of fuels (mainly oil)	exporters of services	diversified exporters
Burkina Faso	0	1	0	0	1	0
Cote d'Ivoire	0	1	1	0	0	0
Ethiopia	0	0	1	0	0	0
Lesotho	1	0	0	0	1	0
Libya	0	1	0	1	0	0
Niger	0	1	1	0	0	0
Nigeria	1	0	0	1	0	0
GROUP B						
Burundi	0	1	1	0	0	0
Central African Republic	0	1	0	0	0	1
Chad	0	1	1	0	0	0
Gabon	0	1	0	1	0	0
Kenya	1	0	0	0	0	1
Liberia	0	0	1	0	0	0
Mauritius	0	1	0	0	0	1
Morocco	0	1	0	0	0	1
Sierra Leone	1	0	0	0	0	1
South Africa	1	0	0	0	0	1
Tanzania	1	0	1	0	0	0

Note: Values provided take a value of one (1) if the country possesses the characteristics described by the variable and zero (0) otherwise.
Source: Global Development Network Growth Database, 2012

Table 3: Percentage Change in Financial Development Indicators (1990-2010)

Group A	Domestic credit to private sector (% of GDP)	Money and quasi money (M2) as % of GDP	**Group B**	Domestic credit to private sector (% of GDP)	Money and quasi money (M2) as % of GDP
Burkina Faso	-2.04	9.41	Burundi	158.49	92.99
Cote d'Ivoire	-60.55	-15.69	Central African Rep	-3.55	7.75
Ethiopia	63.82	18.89	Chad	-51.30	-47.54
Lesotho	-48.00	-7.98	Kenya	-20.62	37.06
Niger	52.09	21.77	Mauritius	127.70	72.09
Nigeria	188.49	79.00	South Africa	71.32	25.38
			Tanzania	-26.77	36.68

Source: Authors own calculation based on World Development Indicators dataset, 2012



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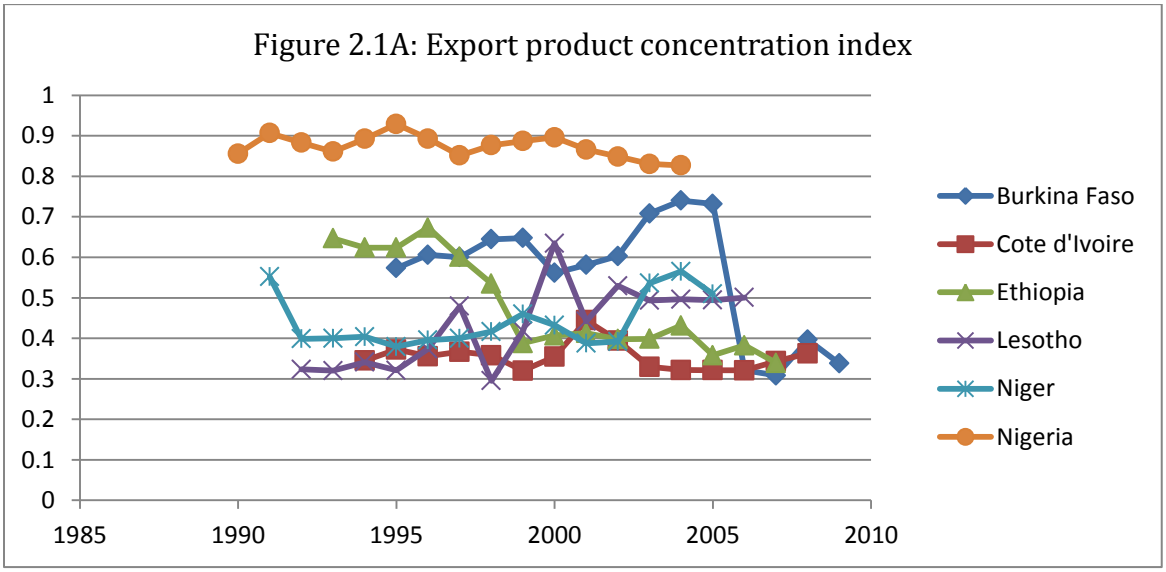

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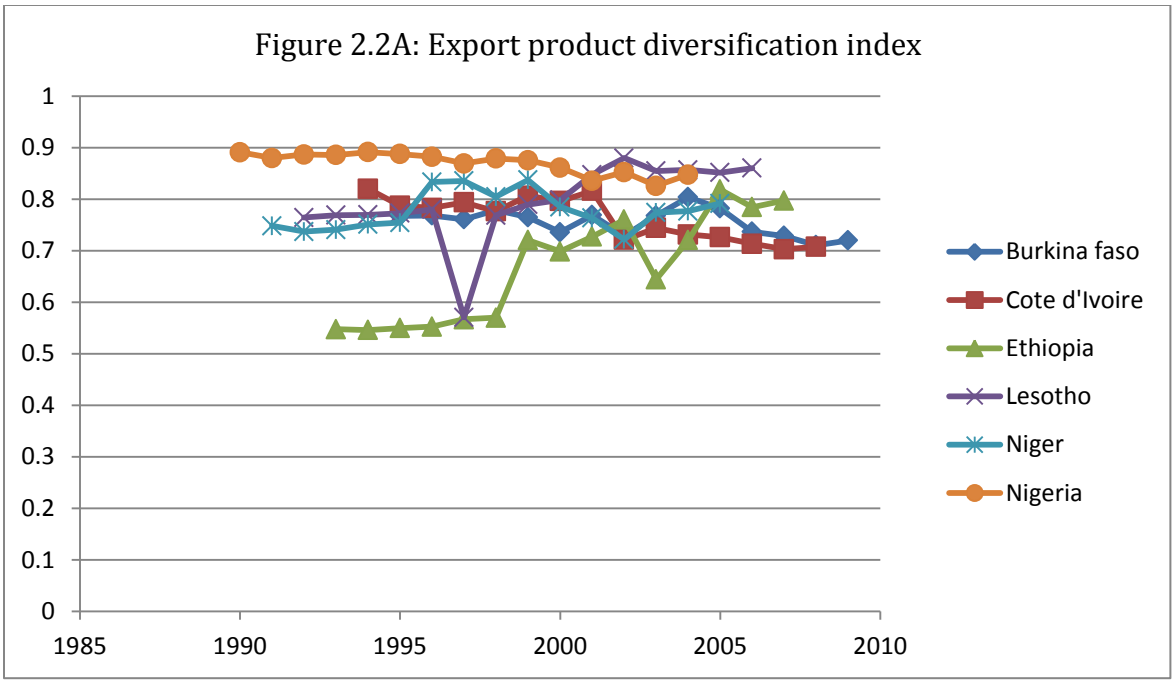

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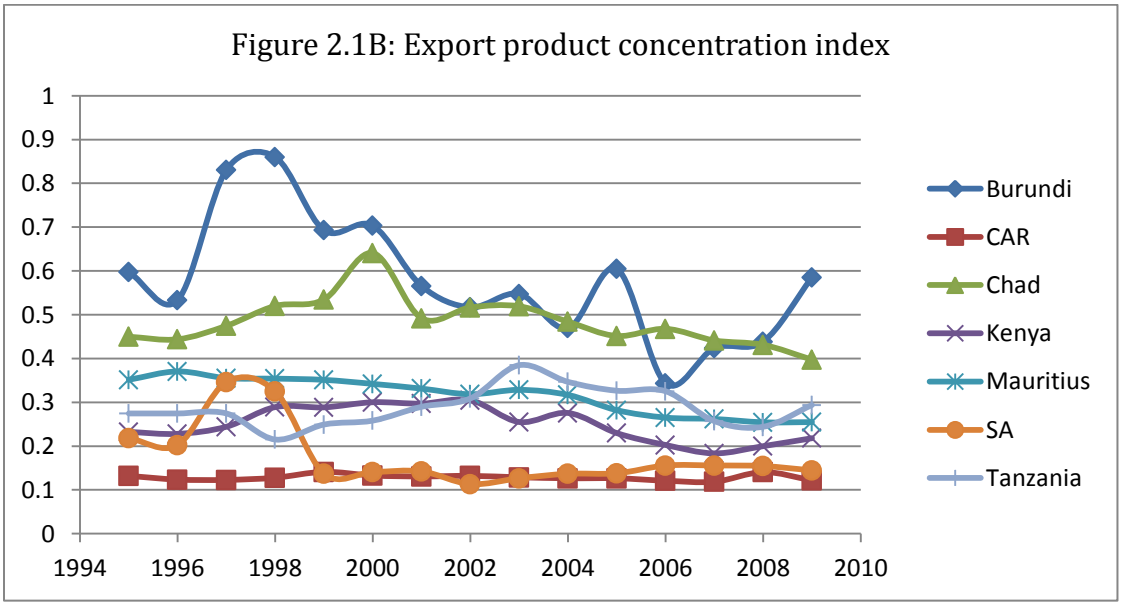

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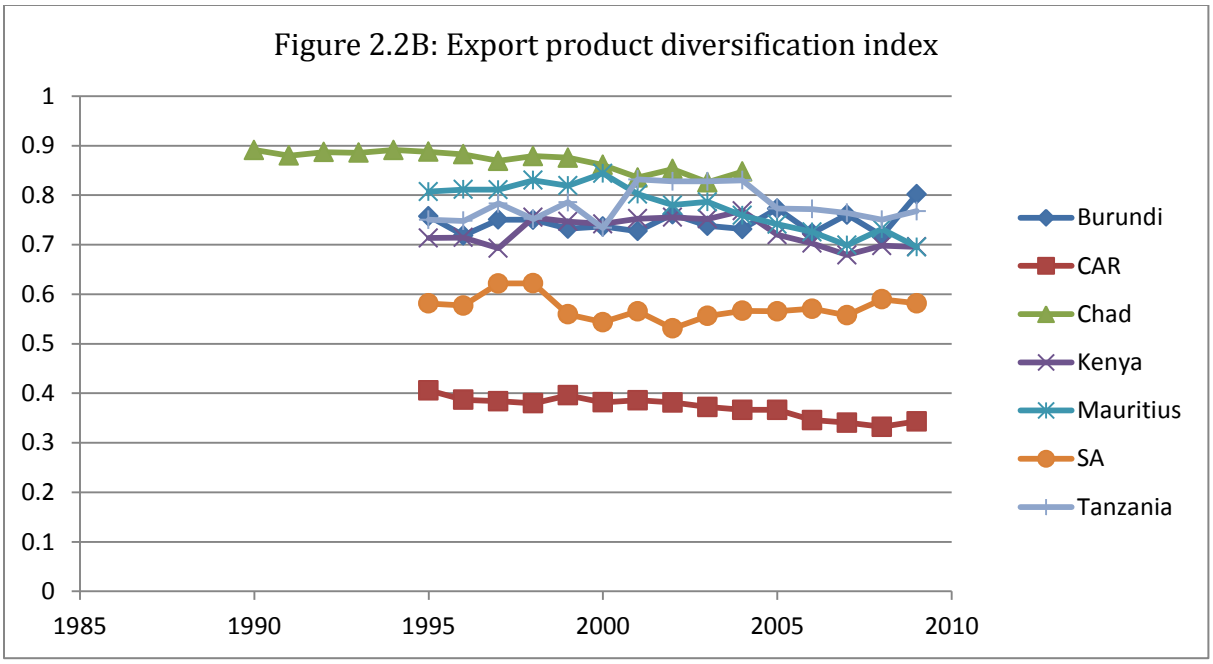

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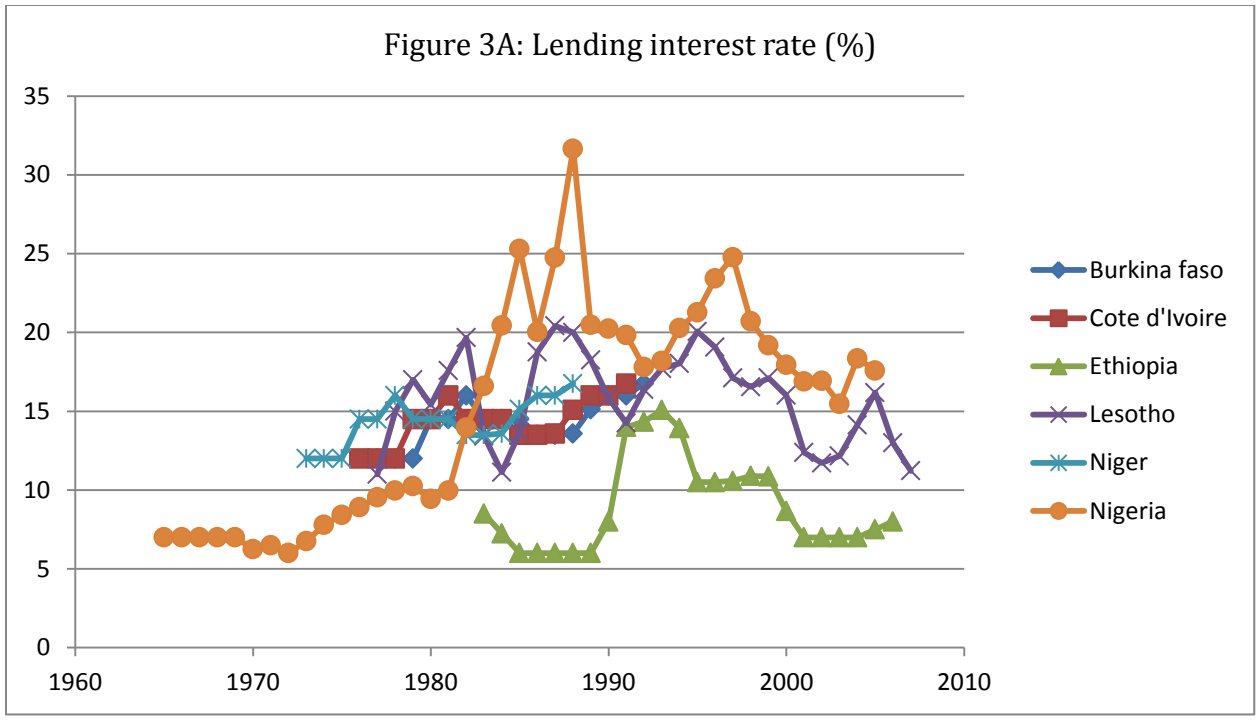

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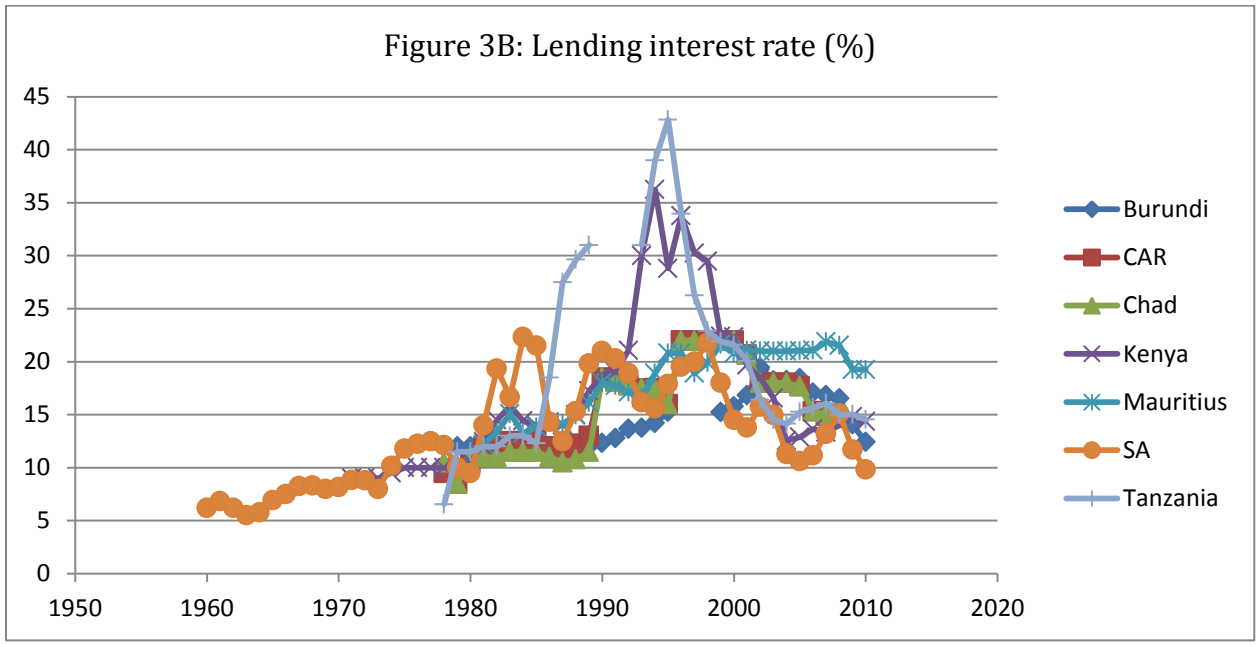

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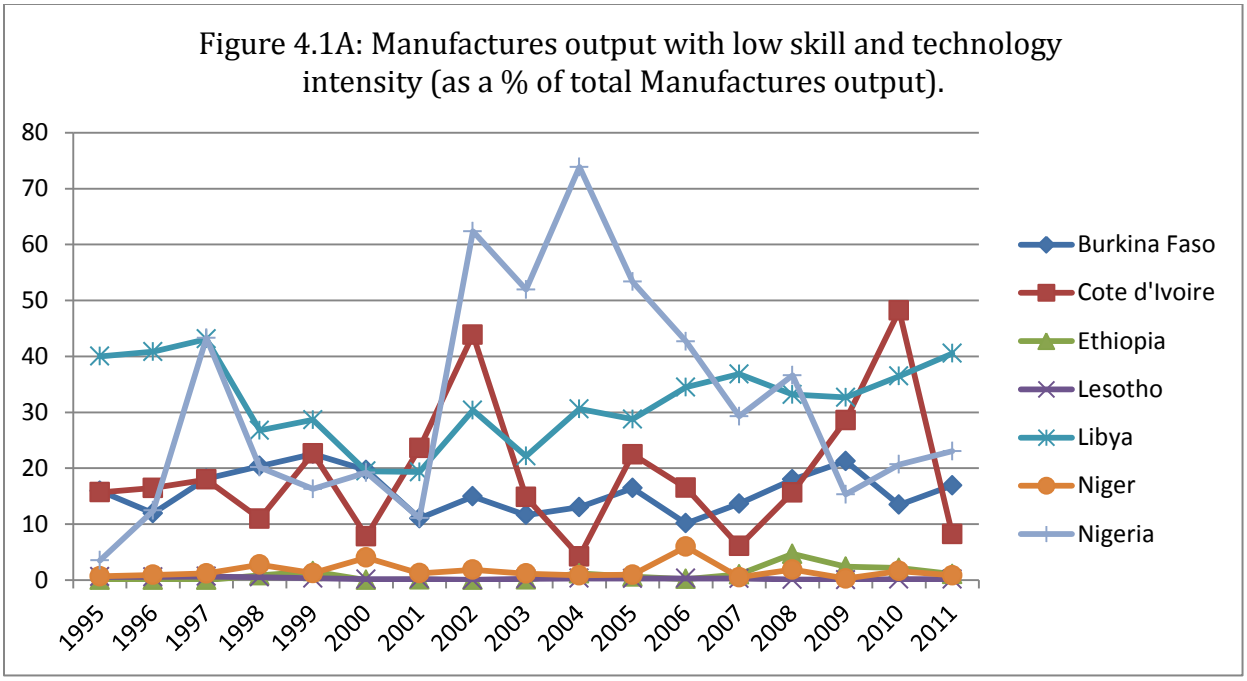

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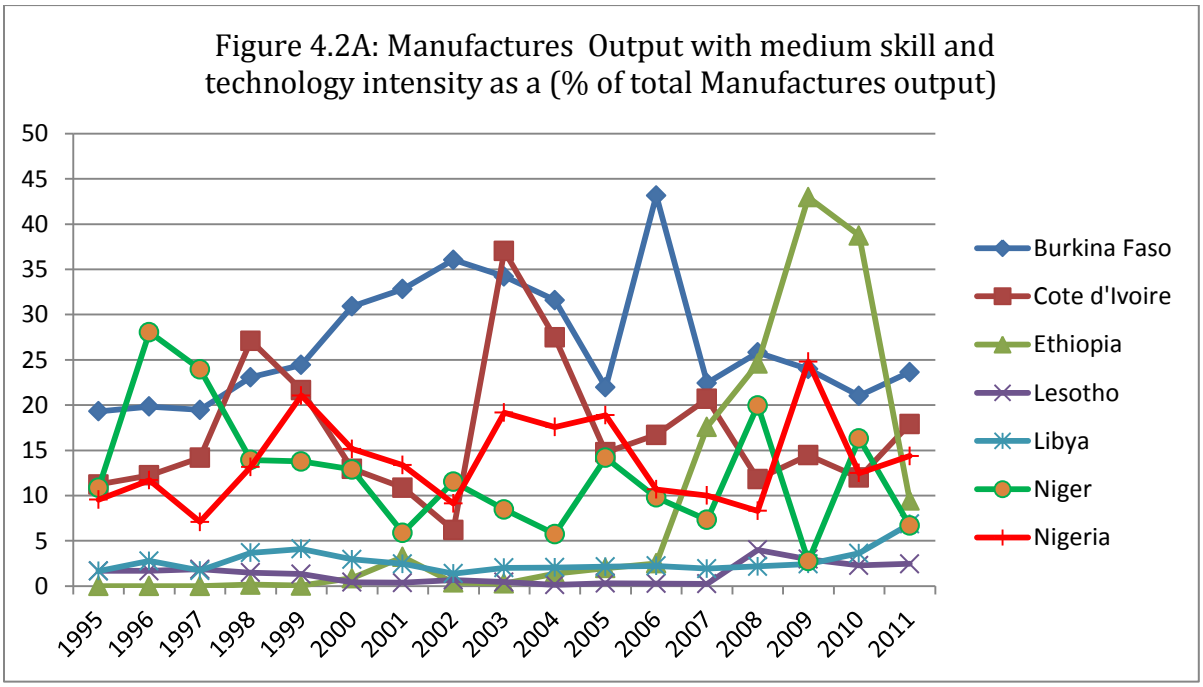

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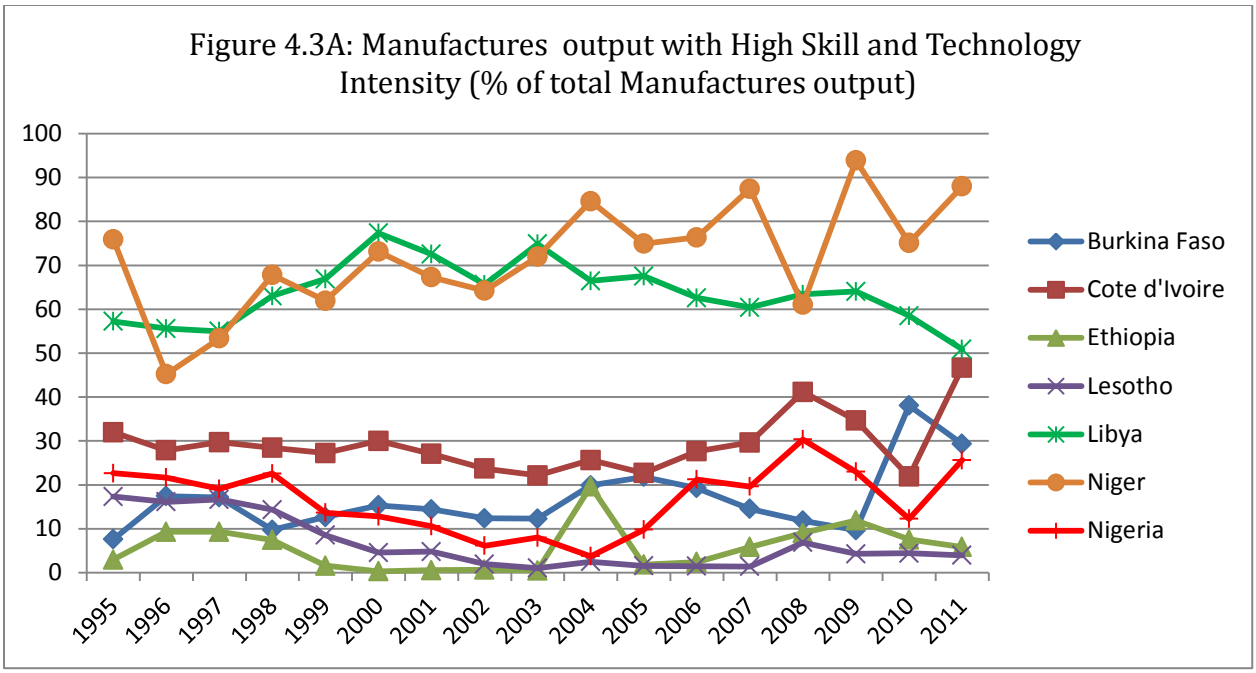

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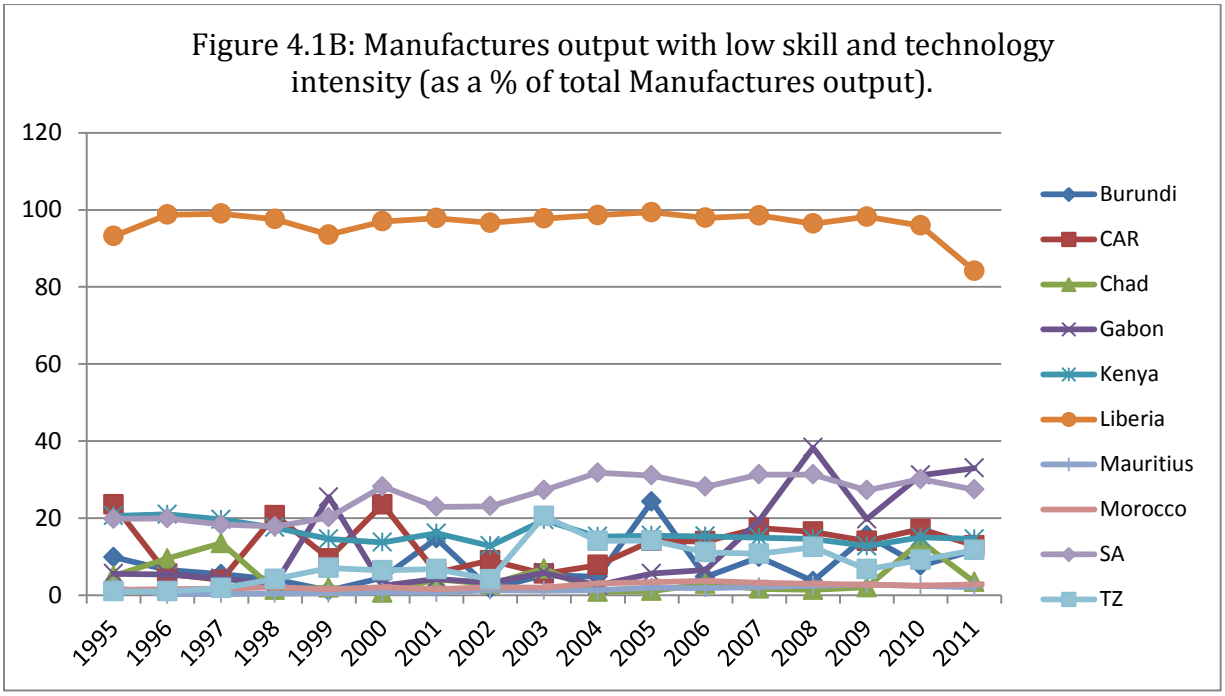

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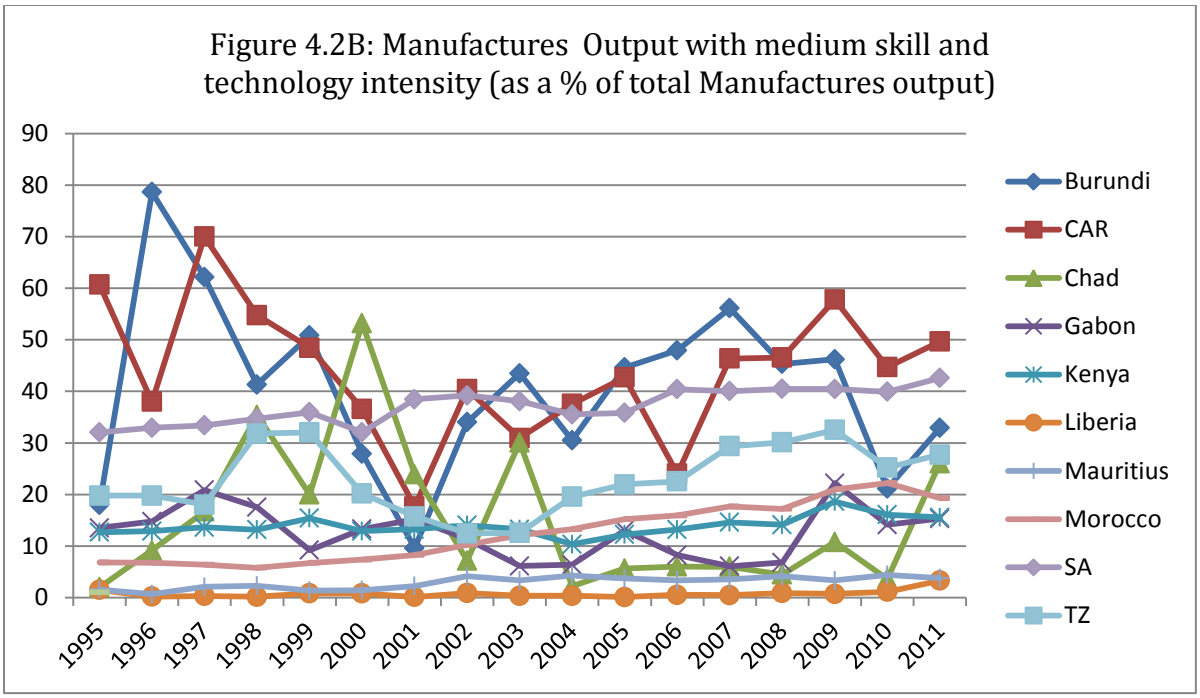

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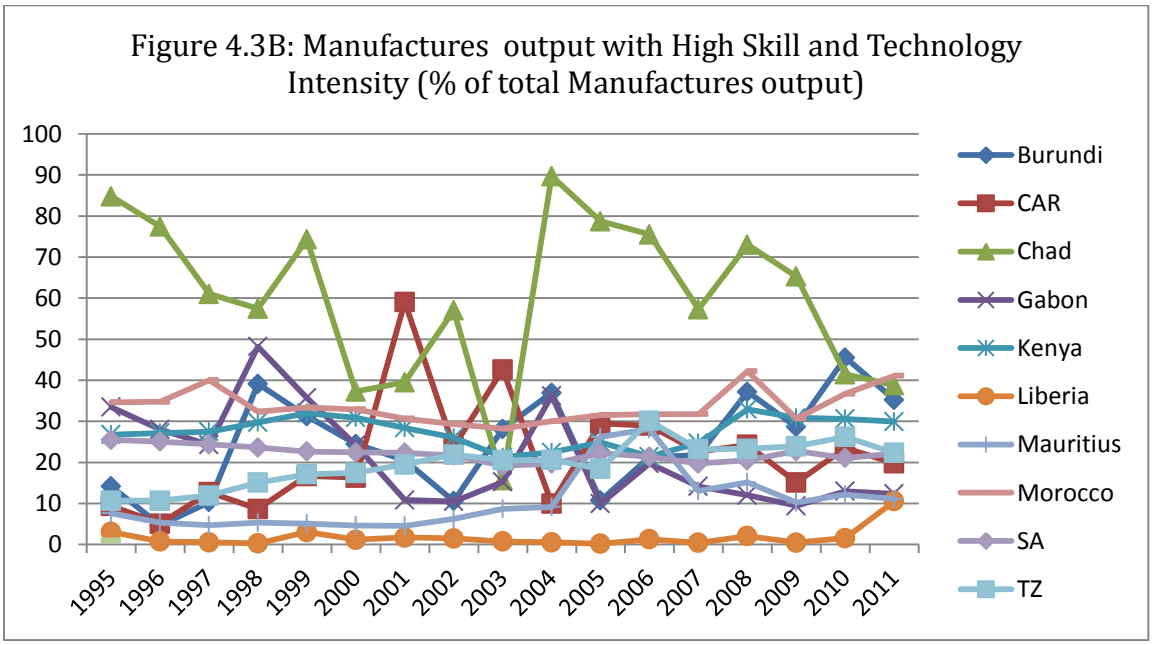

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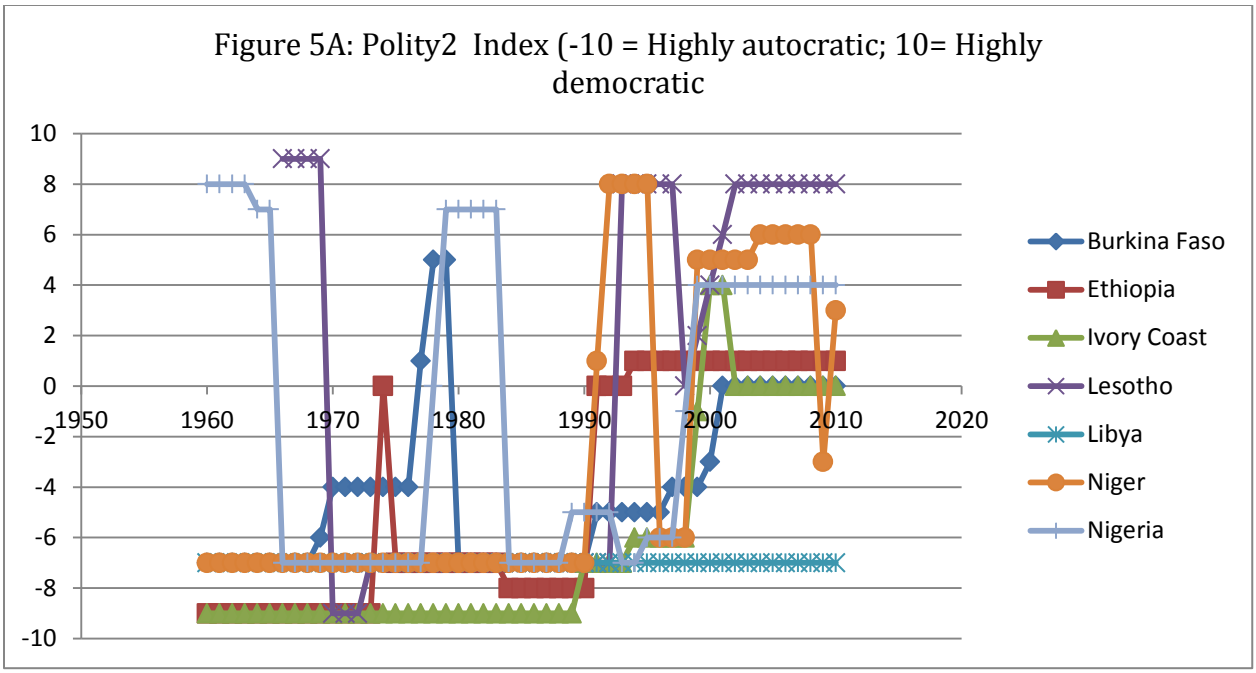
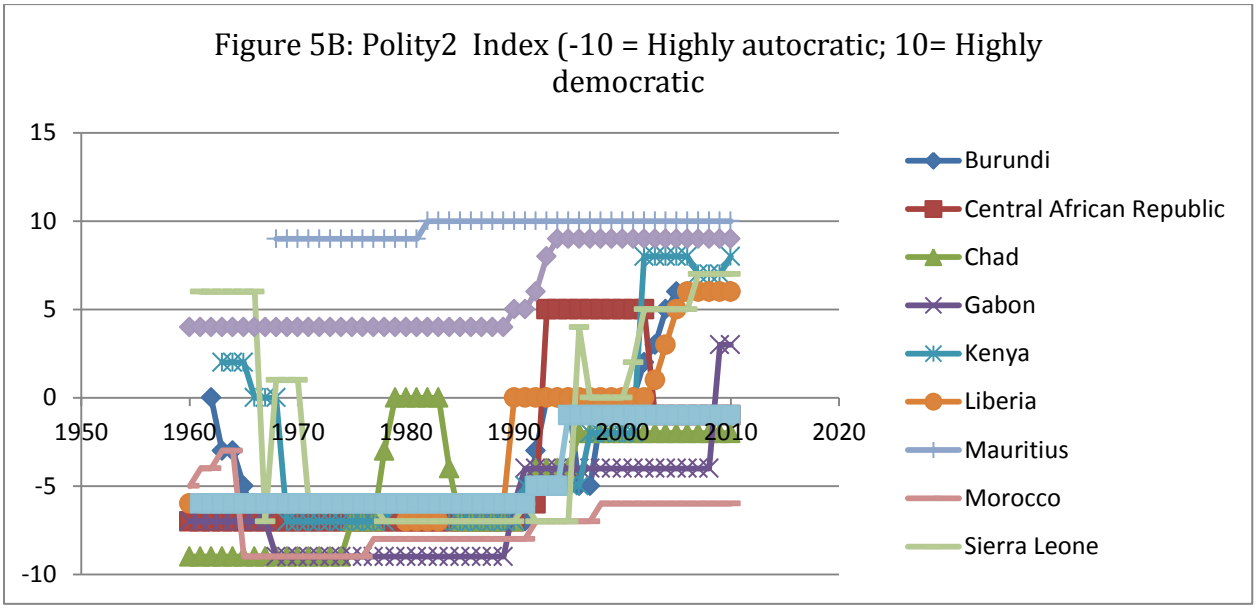
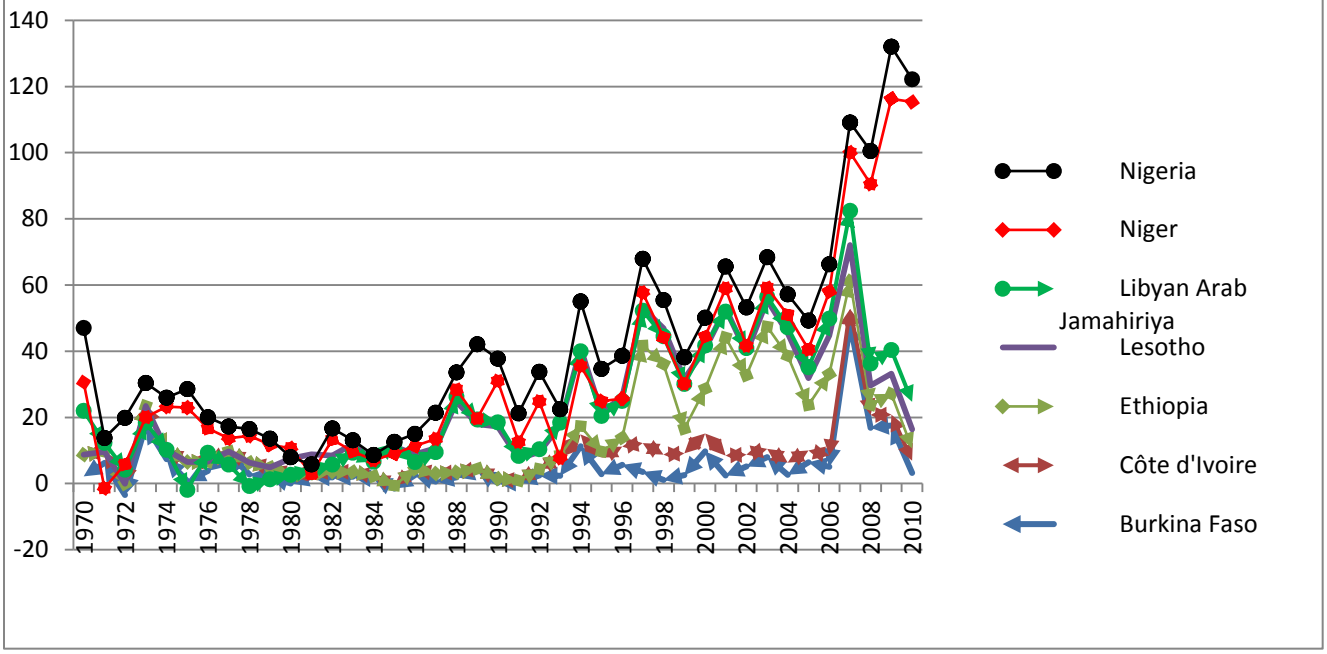


Source: Author's own calculations based on Polity IV project database, 2012



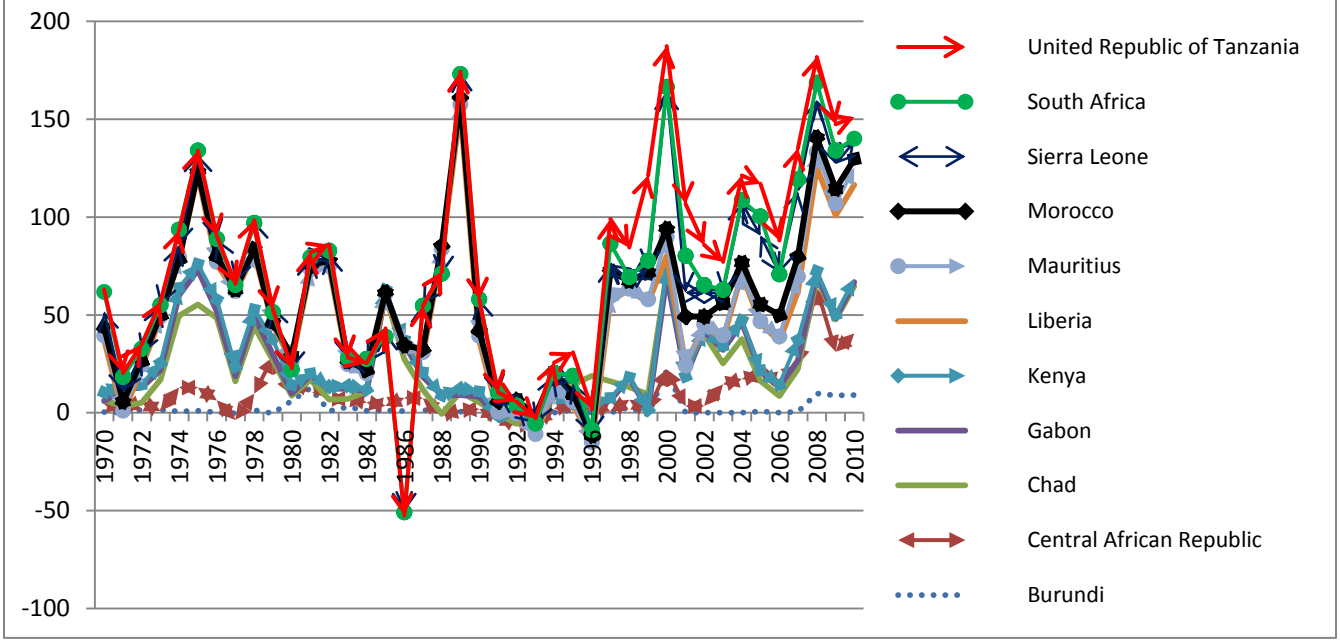
Source: Author's own calculations based on Polity IV project database, 2012

Figure 6A: FDI as Percentage of total trade in merchandise and services



Source: Author's own calculations based on World Development Indicators database, 2012

Figure 6B: FDI as a Percentage of total trade in merchandise and services



Source: Author's own calculations based on World Development Indicators database, 2012