Trade, Institutions and Growth: An Empirical Analysis of the Proposed ACP/EU Economic Partnership Agreements for ECOWAS Countries

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Comments Welcome

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Abbreviations

ACP	African, Caribbean and Pacific Countries
BMP	Black Market Premium
CPI	Consumer Price Index
CSCW	Centre for the Study of Civil War
EU	European Union
ECOWAS	Economic Community of West African States
EPA	Economic Partnership Agreement
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GNI	Gross National Income
IMF	International Monetary Fund
ICRG	International Country Risk Guide
IV	Instrumental Variable (Regressions)
LDC	Least-Developed Country
Ln	Natural logarithm
OLS	Ordinary Least Squares (Regressions)
PPP	Purchasing Power Parity
PRIO	International Peace Research Institute
PRS	Public Risk Services
SSA	Sub-Saharan Africa
UEMOA	Union Économique et Monétaire Ouest Africaine (West African Economic and Monetary Union (WAEMU))
WTO	World Trade Organisation
2SLS	Two-Stage Least Squares

1 Introduction

The Economic Partnership Agreements (EPAs) between the European Union (EU) and the African, Caribbean and Pacific (ACP) group of countries, signed in Cotonou in September 2000, established a comprehensive new framework for bilateral economic relations between the EU and the ACP countries. The Cotonou Agreement aims to promote economic growth and development as well as the smooth and gradual integration of ACP states into the world economy. From the perspective of the EU, two main objectives stand out. First, the EU is looking for new trading arrangements with the ACP states that ensure the compatibility with the regulations of the World Trade Organisation (WTO). The non-reciprocal trade preferences established under the Lomé Conventions require a WTO waiver, as these preferences are neither restricted to just least-developed countries (LDCs) nor granted to all developing countries. At the WTO Doha conference in November 2001, the EU obtained what is probably the last waiver for special ACP preferences until the end of 2007. The new agreements would provide for a shift from the system of non-reciprocal trade preferences to EPAs, which are in effect bilateral free trade agreements (FTAs). This implies that ACP states would have to open up their markets for EU products within a twelve-year period, scheduled between 2008 to 2020.

Based on economic theory, we could expect beneficial effects of lowering trade barriers for ACP countries, as nations may benefit from the well-known gains from exchange and specialisation through trade. In an earlier HWWA study on the impact of ACP/EU EPAs on trade and government revenue for the Economic Community of West African States (ECOWAS), we emphasise the potential benefits of trade for West African countries (Busse et al., 2004).[1] Using a simple partial equilibrium model for an estimate of the static trade effects, the main results can be summarised as follows: First, an EPA between the EU and ECOWAS will lead to overall trade effects (trade creation and trade diversion) for most West African countries in the medium range of some 5 to 10 per cent. Second, much larger effects

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[1] ECOWAS consists of 15 West African countries plus Mauritania, which decided to participate in the regional West African EPA. For simplicity, the term ECOWAS refers to the 15 ECOWAS member countries plus Mauritania in the following. As the EU is not keen on negotiating individual bilateral FTAs with all ACP countries, six regional groupings have been formed. One of these regional EPAs is the ECOWAS group of countries. Within ECOWAS, a (sub-)group of eight countries has achieved deeper integration by forming the West African Economic and Monetary Union (WAEMU or, the French abbreviation, UEMOA, which includes a monetary union. The negotiations on EPAs started in September 2002 with a first phase for all regional groupings, lasting one year, and a second phase, starting in October 2003, at the regional level. The negotiations should be concluded by December 2007.

can be expected for a small number of products at a highly disaggregated level, such as textiles and clothing and certain agricultural goods. Third, trade creation exceeds trade diversion in all West African countries, thus increasing welfare. Based on these results, trade could have a beneficial impact on growth in ECOWAS countries, if these countries agree on an EPA with the EU.

Yet the HWWA study also points out that West African governments would encounter a considerable fall in customs revenues due to the preferential tariff elimination, which could amount up to 20 per cent of total government revenue, and that effective changes in the tax regime are essential. Moreover, an effective competition policy is required to ensure, for instance, that "pricing to market" by EU exporters to ACP markets can be reduced. Otherwise, ACP countries are less likely to achieve welfare gains from trade liberalisation. However, the partial equilibrium model used in that study is built on a number of standard assumptions in quantitative analysis in international trade, such as perfect competition or constant returns to scale, which means that large firms either do not exist or cannot take advantage of their market power.

Other studies, for example those by Bussolo (1999), McKay et al. (2005), Keck and Piermartini (2005), and Karingi et al. (2005), which analyse the welfare and trade impact of the EPAs on various African countries, basically support these results. The authors show that regional EPAs with the EU may lead to a decline in welfare levels, as the losses in tariff revenues exceed any gains from trade through lower import prices, and that a unilateral trade liberalisation by African ACP countries would be preferred. For ACP countries in the Pacific and the Caribbean, the EPAs are less likely to have a major impact on trade and government revenues, since trade with the EU amounts to a much lower percentage of total trade (in comparison to African ACP countries). Still, Gasiorek and Winters (2004) point out as a result of their analysis of the trade and welfare effects that multilateral trade liberalisation would be the preferred option for Caribbean countries.

The EU acknowledges that ACP countries might have difficulties in achieving the potential gains from trade and broadened the Cotonou Agreement – as the second objective – to include a perspective that combines politics, trade and development. In fact, the EPAs aim not only to provide improved market access for ACP countries to EU markets, to enhance trade in services and to increase co-operation in trade-related areas like competition and investment.

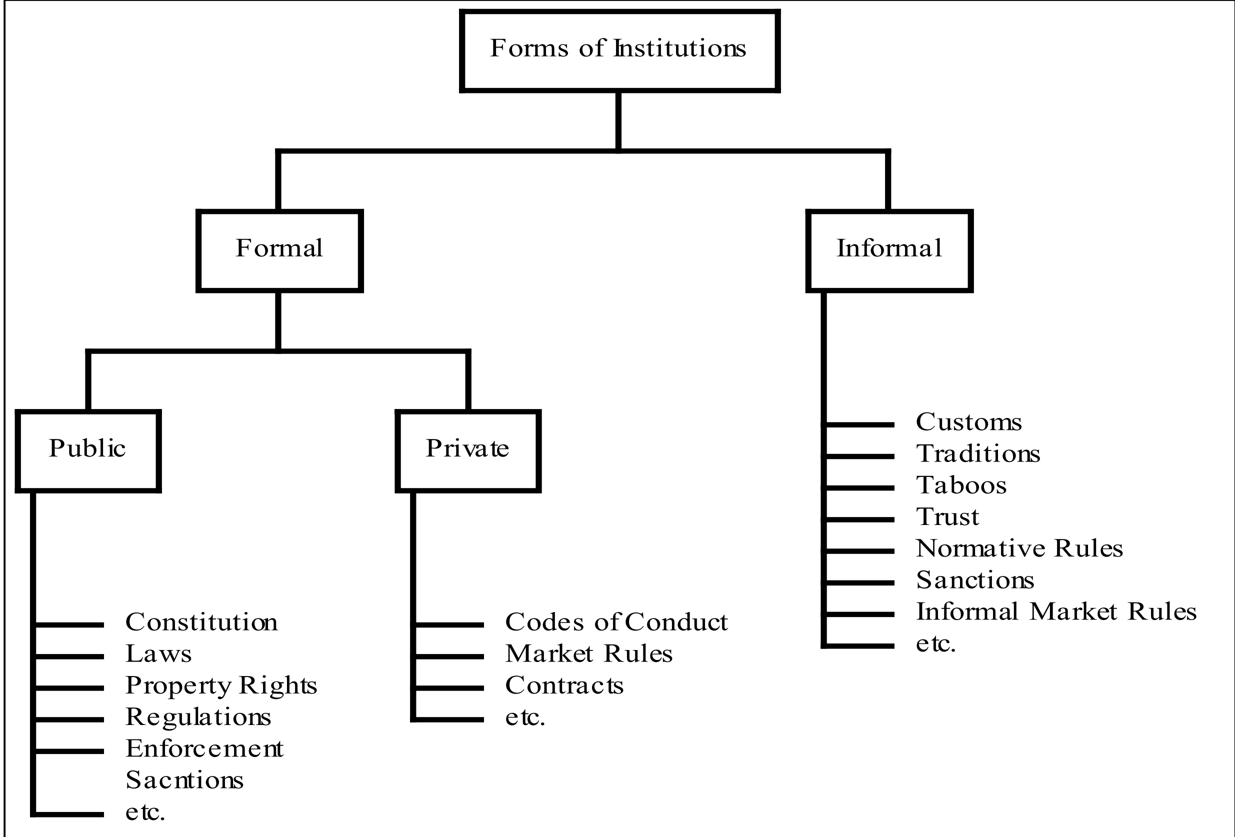
Rather, the Cotonou Agreement intends to go beyond these standard features of an FTA by enhancing the political dimension, explicitly addressing corruption, promoting participatory approaches, and refocusing development policies on poverty reduction.

The main argument for this second objective is relatively obvious, since the export performance of ACP countries has been far from satisfactory in recent decades. Despite non-reciprocal trade preferences for products originating in ACP countries as part of the predecessors of the Cotonou Agreement, the Lomé I to IV Conventions, ACP countries' share of the EU market declined from 6.7 per cent in 1976 to 2.8 per cent in 2004 (EU Commission, 2005). Moreover, about 65 per cent of total exports consist of raw materials and some 60 per cent are concentrated in only ten products. Additional preferences on market access alone are, therefore, not very likely to benefit ACP countries in the future. Among the various reasons for the disappointing export performance and, in general, economic development of ACP (and other developing) countries, the quality of institutions has been identified as a major impediment.[2] In this aspect, the EU is willing to assist ACP countries in reforming their institutional framework.

Institutions can be defined as humanly devised constraints that structure political, economic and social interactions (North, 1990). They exist to reduce uncertainties that arise from incomplete information concerning the behaviour of other individuals in the process of interaction. Above all, institutions are introduced by the setting of formal and the development of informal rules of behaviour (Figure 1). Most of these rules are informal ones, typically unwritten and emerge in an evolutionary process of feedback and adjustment (Kasper and Streit, 1999). Examples are customs, traditions, taboos and normative rules. Informal institutions are relatively more important than formal ones in poorer countries, where most people operate outside the public or formal institutional framework (World Bank, 2001). Formal rules may come up less often in the course of nature and are usually designed. They are made explicit in the constitution, in legislation and in *regulations* (public institutions) or come into existence by formalised private agreements such as codes of conducts and contracts (private institutions). Main agents imposing formal institutions are rulers, parliaments and bureaucracies. The outcome of their actions can broadly be defined as governance, that is, either *good or bad governance*. It is worth noting that public and private formal institutions are interrelated.

In the course of development, the demand for formal institutions increases due to a growing complexity of political, economic and social interactions, which can hardly be efficiently handled by informal institutions (Jütting, 2003). However, informal institutions do not become obsolete. Any change in the institutional environment should take into account or, even better, should be built or be embedded in the existing local institutions.

Figure 1: Forms of Institutions



Source: HWWA

Institutions become only effective if they are accompanied by some sort of enforcement, mediation of conflicts and sanctions, provided by executive and judiciary powers, such as governments and courts. Only then may institutions grant an order built on trust and confidence in the functioning of the rules. This facilitates comprehensible and mutual co-operation between people, in particular in the field of economic interaction. Here, property rights and contracts are the most prominent institutions (Rodrik et al., 2004). They may promote the establishment of new business, facilitate the emergence and the functioning of

[2] See World Bank (2001), Jütting (2003) and Levine (2005) for surveys.

markets, contribute to higher efficiency by reducing transaction costs and promote the division of labour in the national as well as in the international context.

Existing institutions do not necessarily provide the most efficient economic framework. They usually result from different strategies of institution building and institutional change. Moreover, they reflect the distribution of political and economic power. The agents who set and enforce rules have a self-interest in using the rules for their own benefit. Thus, the institutional framework may also have negative deleterious consequences for general material welfare and may lead to economic and social decline (Kasper and Streit, 1999). Therefore, governance and the rules for governance are of utmost importance for the quality of institutions.

The institutional framework in turn is an important determinant of growth, since it affects, for example, the costs of transactions (Aron, 2000). Transaction costs are far higher if economic actors cannot fully trust property rights or the rule of law. As a consequence, they typically operate on a small scale, use inexpensive but less efficient technologies and thus are less competitive. They may even retreat to the black market economy and rely on bribery and corruption to facilitate their operations.

Institutions are relevant in the international context too. In international economic interactions, uncertainty and risks are even more pronounced, which increases the need for effective institutions (WTO, 2004). What is more, good institutions are particularly required to harness the benefits from trade. In trade models it is often assumed that production factors, such as labour and capital, can move at no cost between industries within a country. Obviously, this is a simplistic view of the interaction of participants in an economy and the reallocation of factors, that is, a shift of capital and labour from the (declining) import-competing sector to the (expanding) export sector due to the trade liberalisation, is associated with adjustment costs. For this shift of resources, the regulatory quality matters for the interaction of trade and economic growth in particular. According to the results of Bolaky and Freund (2004), countries with excessive regulations cannot take advantage of trade. Using an aggregated regulation indicator, they showed in their empirical analysis that trade in the most regulated countries may even have a negative impact on per capita income levels and income growth rates.

This preliminary study intends to contribute to the fast-growing literature on the impact of both institutions and trade on economic growth. More specifically, we are interested in the importance of institutional quality for a successful trade liberalisation. This question is of particular relevance for ACP countries in their negotiations with the EU on EPAs. Although we include a large number of countries in our empirical analysis, the main focus is on ECOWAS countries.[3] In contrast to our previous study, we do not conduct further research on the direct impact of the EPAs on ECOWAS countries, but rather examine the preconditions for a welfare improving trade liberalisation with a main focus on institutional quality. We will extend the literature in several ways. First, while previous studies (Levine and Renelt, 1992; Sachs and Warner, 1995; Frankel and Romer, 1999) demonstrate that trade is associated with or leads to higher economic growth for the countries in their respective sample, we examine that linkage for different regions. Most of all, we are interested in whether the linkage is valid for all sub-Saharan countries and, in particular, ECOWAS member states.

Second, we use a comprehensive set of disaggregated variables for institutional quality. So far, most studies have used highly aggregated indicators for regulations (Bolaky and Freund, 2004) or have focussed only on one particular institutional indicator in their empirical work (Acemoglu et al. 2001, Rodrik et al., 2004). Hence, we identify those (sub-)components of good governance and regulations that matter most for a successful dismantling of trade barriers, that is, a positive impact of increasing trade on income levels and growth rates. Also, we intend to examine whether countries with low-quality institutions are likely to observe any beneficial effects from an increasing openness to trade.

Third, we analyse the performance of ECOWAS countries in terms of their institutional quality with a particular focus on the most important (disaggregated) indicators of institutional quality. This benchmarking is useful for an application of the examined linkages for ECOWAS countries and for the identification of the areas that governments in the West African region should focus on, in particular when considering any changes in their regulatory framework. Since it has been pointed out that institutional quality plays an important role for overall economic development, we do not suggest that other areas for reform of the institutional setting should be neglected. Rather, we concentrate our analysis on the identification of the most important sub-components for the linkages between institutions,

[3] Apart from the fact that we continue to work on the ACP/EU EPA for the West African group, 13 out of 16 ECOWAS countries are LDCs, which indicates that they face enormous challenges.

trade and growth without denying that other indicators and, above all, the interplay of different indicators matter too.

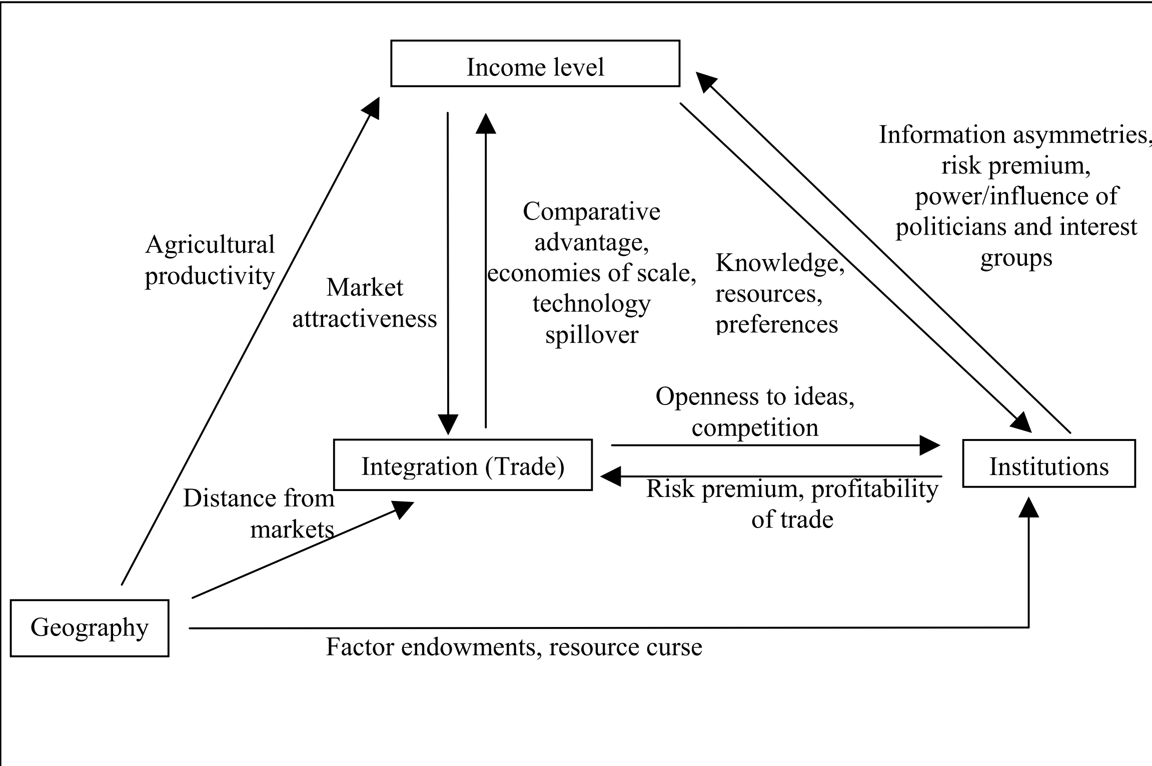
While the questions raised might be relatively simple, designing an empirical strategy for analysing the linkages is no easy task. Above all, the extent to which a country is integrated with the rest of the world and the quality of its institutions are both endogenous, that is, trade and institutions influence income levels and growth rates and vice versa. For example, trade might not only boost welfare, but expanded trade might also be the outcome of increased productivity levels, which can be a signal for market attractiveness (Figure 2). As mentioned to some extent above, the impact of institutional quality on income levels can be explained through (1) information asymmetries, as institutions channel information about market conditions, goods and participants; (2) the reduced risk, as institutions define and enforce property rights; and (3) the restrictions on the actions of politicians and interest groups, as institutions make them (more) accountable to citizens (WTO, 2004). Yet there might also be a reverse influence from income levels to institutions, since citizens from richer countries are likely to have stronger preferences (as well as the knowledge and the resources) for high-quality institutions. In addition, institutional quality may have an indirect impact on income levels through the extent of market integration, since institutional quality also affects the risks involved in trade as well as the profitability of trade itself.

Complicating the empirical analysis further, institutions might have an indirect impact on income levels through trade, as high-quality institutions reduce the risk premium required for (international) trade. On the other hand, trade might not only have a direct impact on income levels, but also an indirect influence via institutions. Above all, institutions may partly be influenced by the degree of openness, since countries may adapt successful institutions from abroad or simply have to establish well-performing institutions to improve their competitiveness.

Hence, we have to use an instrumental approach for the empirical analysis. Primarily, we have to find appropriate instruments that are good proxies for trade and institutions but are unrelated to per-capita income levels (or growth rates). Unfortunately, because of the complex inter-relationships among economic variables, which is particularly true for institutions and income levels, it is notoriously hard to find good instruments for institutional quality. One feasible approach is to employ geographical indicators. Arguably, there are not many

indicators that are as exogenous as the geographical location of a country (Rodrik et al., 2004). Geography can have a direct impact on income levels through the climate and agricultural productivity. More importantly, geography also has an indirect impact on income levels through its influence on trade, as the distance from major markets and the degree of integration can play a vital role. Similarly, geography affects income through the endowments with natural resources. It has been pointed out in a recent study by Bulte and Damania (2005) that resource abundance can have an impact on institutional quality in developing countries, since they enrich (and may corrupt) the ruling class.[4]

Figure 2: Determinants of Income



Source: Adapted from Rodrik et al. (2004).

Thus, we are using a number of indicators that are based on the geography of a country as instruments for the level of market integration and institutional quality and thereafter estimate their respective impact on income levels. The results can be summarised as follows: First, for the linkage between trade and income levels we find that institutional quality is more important than trade in explaining variations in per capita income. Still, we do observe considerable differences at the regional level. Above all, for ECOWAS (and other sub-

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[4] Resource abundance can also be associated with income inequality in developing countries; see Engerman and Sokoloff (2002).

Saharan African) countries, trade has, on average, a negative impact on income levels. This outcome, which is robust to different specifications of the econometric model, describes the (very) long-run impact of trade on income levels in African countries. However, this negative relationship is not robust for changes in the short to medium term. If we use income growth rates rather than income levels and the period 1994-2003, we do not obtain significant results for the linkage between trade and growth in ECOWAS (and other sub-Saharan African) countries.

Second, we find that a limited number of sub-components of good governance and regulatory quality are most important for a successful trade liberalisation. Among the regulation indicators, we obtain the most significant results for starting a business, labour market regulation, and paying taxes. Starting a business describes the costs and time required to set up a new company, whereas labour market regulation measures the flexibility of hiring and firing and employment conditions. Paying taxes measures the amount of taxes a company has to pay and the quality of the tax authorities. In particular, the first two regulation indicators are very important for the reallocation of factor resources within a country, which is a prerequisite to harness the gains from trade. In addition, regulations for trading across borders, enforcing contracts, and closing a business also influence the relationship between trade and income, though they are not as important as the first three indicators mentioned.

For the good governance indicators, we receive much weaker results. Only government effectiveness and the regulatory quality are important in influencing the relationship between trade and income and only for countries with very low scores on these indicators. Both good governance indicators measure the capacity of the government to effectively formulate and implement sound policies, which is closely related to the set of indicators for regulatory quality. The results obtained thus reinforce the general impression that countries have to reform their regulatory framework to be able to benefit from an increasing market integration. Yet the results do not imply that the other institutional indicators do not matter for income levels or growth rates. Rather, it simply means that the indicators emphasised are more important for the relationship between trade and income/growth.

Finally, the benchmarking for ECOWAS countries shows that West African countries are not very likely to benefit from an increasing integration into the world economy with their present

institutional setting. For ECOWAS countries, we find relatively low rankings for the regulation and good governance indicators, even when compared to other developing countries. The large majority of West African countries show scores for the most important indicators that fall precisely in the categories of countries that are less likely to benefit from trade. However, there are exceptions: For the regulation indicators, Ghana performs relatively well, that is, its regulatory quality is considerably above the (West African) average for a number of relevant indicators.[5] In comparison to the other ECOWAS countries, Cape Verde shows a relatively impressive performance for the good governance indicators.[6]

Importantly, these results do not imply that ECOWAS countries will never be able to benefit from an increasing market integration with the rest of the world, either through the EPAs, multilateral or unilateral tariff liberalisation. Rather, the results clearly show that the majority of West African countries are *currently* less likely to harness the gains from trade and that a reform of the institutional framework is clearly a highly important topic on the agenda. For West African countries, a major reform of institutions would not only allow them to increase the welfare improving gains from trade through specialisation and exchange. Rather, high-quality institutions would also enable them to achieve much higher gains through their direct impact on economic and social development.

Given the low level of institutional quality as well as scope and complexity of institutional reforms, ECOWAS countries face an enormous policy challenge. As there are clear warnings of simplistic institutional imitation, any reform of the institutional setting requires a careful analysis that takes country-specific circumstances into account. In addition, it is important to involve all possible public and private stakeholders in the planning and implementation of new rules. Since stakeholders have to be convinced of institutional changes and the reforms have to be carefully designed and implemented, the establishment of *effective* institutions is very likely to take plenty of time. It is an open question whether the time frames for trade liberalisation and required institutional reforms do really match.

The study is structured as follows: The next section reviews the literature on trade and growth, with a special emphasis on the role of institutional quality. Section 3 introduces the indicators used for measuring institutional quality, that is, the disaggregated set of six

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[5] Nigeria has a good performance for some indicators, but for others the score is relatively low.

[6] We could not include Cape Verde in the benchmarking on regulatory quality, as the data is missing.

indicators for good governance and ten indicators for regulatory quality. Furthermore, the section discusses the quality of the institutional data and its implications for the subsequent analysis. It will be pointed out that several of the indicators available (and used) in previous empirical studies are likely to lead to biased results, since the majority of indicators are perception based rather than accurate measurements of institutional quality.

The next three sections embrace the model specifications and the empirical results. First, the simple linkage between trade and income levels will be examined (Section 4). Following this, the focus will turn to the impact of trade on growth rates in the most recent period from 1994 to 2003 (Section 5). Third, the disaggregated institutional indicators that matter most for a successful trade liberalisation will be identified (Section 6).[7] In all three sections, two different estimation techniques, that is, ordinary least squares (OLS) and instrumental variable (IV) regressions, will be used. While the first technique provides a first impression of the order of magnitude of the estimated coefficients and the significance levels, only the IV approach can account for the endogeneity of the variables. Hence, the IV results are more relevant for addressing the main questions raised above.

Section 7 shows the benchmarking for ECOWAS countries and institutional quality indicators at an aggregated level. Finally, Section 8 discusses the policy implications of the results for institutional reform in ECOWAS countries and (briefly) addresses strategies for reform.

2 Review of the Literature

There is extensive theoretical and empirical literature on the potential gains from trade. Given constant returns to scale, perfect competition and the absence of distortions, traditional trade theory shows that there are considerable welfare gains from trade across borders. Countries that open up to foreign trade can achieve mutual benefits due to gains from exchange and gains from specialisation. Exchange allows consumers to exploit the differences in their endowments or preferences. Specialisation, on the other hand, allows the world to produce more of each of the goods by allowing each country to concentrate on what it does best, that is, to produce goods for which it has a low opportunity cost.

[7] In Sections 4 and 5, we also include an indicator for institutional quality as an important control variable in the regression, but only at a fairly aggregated level.

Even in new trade models that rely on imperfect competition, such as monopolistic competition and increasing returns to scale, considerable gains from trade can be achieved. When a monopolistically competitive market expands, it does so through a mixture of more firms (greater product variety) and bigger firms, with improved economies of scale. Free trade expands market size beyond national borders and so allows firms to reap greater economies of scale, to the benefit of consumers, workers and shareholders. Moreover, free trade reduces market power of (domestic) firms that might enjoy monopoly profits, and thus lowers prices to the advantage of consumers.

Theoretical growth studies, on the other hand, point to a very complex and highly ambiguous linkage between trade restrictions and growth rates. In fact, the quite diverse endogenous growth literature supplies a different array of models in which trade restrictions may boost or reduce growth rates worldwide or in just a few countries (Romer, 1990; Grossman and Helpman, 1990; Rivera-Batiz and Romer, 1991ab). However, most of the theoretical models analyse the link between trade policies and growth rates rather than trade volumes and growth rates. Though both concepts are closely related to each other, we cannot conclude from growth models that changes in trade volumes themselves are necessarily associated with increasing or decreasing growth rates. For instance, the size and location of a country clearly affects trade volumes but not necessarily trade policies. Clearly, a landlocked country faces higher transport costs and we would expect a lower trade volume even if it has a relatively open trading regime.[8]

Based on various theoretical models, abundant empirical literature has examined the welfare effects of trade (volumes) on income levels and growth rates. If anything, the majority of studies show that trade is positively associated with growth rates.[9] According to the results from Levine and Renelt (1992), the ratio of trade to GDP is one of the very few variables that are relatively robust in explaining differences in cross-country growth rates.[10] Since studies up to the mid-1990s did not control for the above-explained endogeneity of trade in the

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[8] In the following, we explicitly use trade volumes, measured as imports and exports as a share of Gross Domestic Product (GDP), as our preferred indicator for openness to trade. Rather than analysing the impact of trade barriers, we are interested in examining the impact of trade on income levels and growth rates across countries.

[9] See Yanikkaya (2003) for a review of the extensive literature. Prominent studies are, for example, Dollar (1992), Sachs and Warner (1995), Frankel and Romer (1999), Dollar and Kraay (2002), Irwin and Terviö (2002), and Noguer and Siscart (2005). A critical view can be found in Rodriguez and Rodrik (2000).

regressions, their results are likely to be biased. The first comprehensive attempt to control for endogeneity was made by Frankel and Romer (1999). They construct measures of the geographic component of countries' trade and use them to obtain instrumental variables´ estimates of the effect of trade on income. In fact, they employ a gravity model and the base year 1985 but do not include any income component in the regressions. Rather, they use various geographic indicators to determine bilateral trade levels, including the distance between trading partners, and then add them up to obtain total trade flows. Using these so-called fitted trade figures as an instrument for trade volumes, they show that trade has a quantitatively large and robust positive effect on income.

Irwin and Terviö (2002) evaluate this finding across different time periods. Using data from the pre-World War I, the inter-war, and the post-war periods, they basically confirm the Frankel and Romer result for the entire 20th century, that is, countries that trade more as a proportion of their GDP have higher incomes even after controlling for the endogeneity of trade. They also find that the OLS estimate of the effect of trade on income is biased downwards in almost every sample year, although this result is not robust to the inclusion of distance from the equator (latitude). In a more recent study, Noguer and Siscart (2005) extend the work by Frankel and Romer (1999) and Irwin and Terviö (2002), using a much richer dataset that enables them to obtain a more powerful instrument, thereby allowing them to estimate the effect of trade on income with more precision. They show that geographical control variables must enter the income equation to avoid an upward bias on the trade coefficient. Since they also confirm the positive impact of trade on income per capita, we have quite some evidence that trade has a positive influence on income levels.

In addition to trade, various studies have demonstrated that institutional quality is crucial for economic and social development. Adam Smith (1776) noted that private contracting is an important prerequisite for the mutually beneficial exchanges that promote specialisation, innovation and growth, which are also the main factors for the gains from trade. More recently, empirical studies reveal that institutional quality is associated with higher economic growth and income levels (Campos and Nugent, 1998; Acemoglu et al., 2001), an increase in (public and private) investment (Knack and Keefer, 1995), an improved stock of human capital (Arimah, 2004), better management of (ethnic) conflicts (Easterly, 2001), less income

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[10] Another robust linkage with growth rates was established for the investment to GDP ratio.

inequality (Chong and Gradstein, 2004), and better financial development (Beck et al., 2001).[11]

In contrast to the impact of institutional quality on various economic and social indicators, there are far less studies on the determinants of institutions themselves. In general, there are two main views on the factors that lead to higher or lower institutional quality. First, the law view emphasises that disparities in legal traditions established centuries ago in Europe and spread via conquest, colonisation, adaptation and imitation around the world still have a major impact on the institutional setting of a country. Leading proponents of the legal view are La Porta et al. (1997, 1998), who show that differences in the legal origin had important consequences for institutional quality. For instance, countries which implemented the French civil law have – in comparison to the British common law – on average weaker property rights protection, an important element of institutional quality.

Second, the endowment view stresses that disparities in natural resources, climate, the indigenous population and the disease environment had a significant impact on the establishment of institutions, and that these self-sustaining institutions still have an impact on institutional quality at present. Engerman and Sokoloff (1997, 2002) argue that natural resource endowments related to mining and crops benefited only a fortunate few in societies. The ruling elite thus enjoyed both enormous land holdings and profits extracted. As a consequence, income inequality rose in which the ruling elites did not permit the development of institutions that fostered equality before the law. Quite the opposite, the elites established institutions to maintain their hegemony.

Under another approach, supporting the endowment view, Acemoglu et al. (2001) argue that European settlers adopted very different colonisation strategies in different colonies, with consequently different associated institutions. In places where Europeans faced high mortality rates, they could not settle and were more likely to set up extractive institutions, which were of lower quality. They argue that these institutions have persisted to date. Acemoglu and associates use mortality rates of European settlers as an instrument for the institutional quality and then estimate the impact of institutions on income levels. They find that institutional quality has a large and significant impact on income per capita.

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[11] See Jütting (2003) and Resnick and Birner (2005) for overviews of the literature.

Rodrik et al. (2004), on the other hand, integrate the various lines of research and analyse the relative importance of institutional quality, geography and trade in determining differences in cross-country income levels using an instrumental approach. For institutional quality, they use the same instruments as Acemoglu et al. (2001), that is, mortality rates of European settlers, as well as the origin of the legal system. For trade, they closely follow Frankel and Romer (1999) and use geographical based instruments. According to their results, institutional quality has by far the strongest impact on per capita income levels. Controlling for institutional quality, geography has at best a weak direct effect on income levels, although it has a significant indirect effect through institutional quality on income levels (see Figure 2). In a similar fashion, controlling for institutions, trade is negatively associated with income levels, though the coefficient is not significant. Nonetheless, trade has an indirect effect on income levels via its effects on institutional quality.

As has been pointed out, institutional quality can be proxied by good governance and the regulatory quality in a country. Bolaky and Freund (2004) demonstrate that regulatory quality influences the interaction between trade and economic growth and that countries with excessive regulations do not benefit from trade. The argument is relatively simple: Trade is only beneficial if the involved adjustment costs are relatively low, that is, the reallocation of labour and capital from the import-competing sector to the export sector can be achieved at minimal costs. However, if the structure of the economy is relatively rigid, production factors cannot move to the sectors where large welfare gains can be achieved. The economy may end up in a situation where trade does not have a beneficial impact on the allocation of resources within and between sectors. Furthermore, excessive regulations may encourage a country to produce goods for which the country has no comparative advantage and/or the terms of trade have been unfavourable over recent decades.

The impact of institutional quality on the reallocation of resources within an economy has been analysed to some extent. Most (case) studies offer only modest evidence of significant labour reallocation as openness increases in developing countries (Currie and Harrison, 1997). It has been stressed that trade reform in Mexico did not affect employment due to excessive labour regulations (Revenga, 1997). Blanchard and Portugal (2001), on the other hand, demonstrate in their comparison of the Portuguese and the US labour markets that employment protection has strong negative effects on the reallocation of labour. Their results

imply that increased openness to trade will have a lower effect on growth in economies with inflexible labour laws.

Fisman and Sarria-Allende (2004) discover that in countries with excessive regulations, industries respond to shocks, such as a lowering of trade barriers, through the expansion of existing firms, while in countries with low entry barriers, industries respond through the creation of new firms. In addition, in countries with high entry barriers, industries characterised by large sales turnover tend to have only a few large firms while countries with low entry barriers have many smaller firms. Thus, their results suggest that regulation distorts the structure of an industry, promotes industry concentration, and affects the number of entrants to an industry in case of external shocks. Similarly, Klapper et al. (2004) examine data on firms in Western and Eastern Europe and discover that entry regulations lead to less entry, especially in industries with naturally high entry barriers. They also find less entry into labour-intensive industries in countries with excessive labour regulations.

To sum up, these results suggest that any cross-sectional or panel data analysis on the relative impact of trade on income and growth would suffer from a lack of relevant control variables, if important determinants of a successful trade liberalisation, such as institutional quality affecting the reallocation of resources, are not included. Hence, any careful econometric study should include the different determinants of per capita income levels across countries and above all, combine both aspects, that is, to include measures for institutional quality if the impact of openness to trade on income or growth rates is examined. Moreover, the results also imply that the institutional environment plays a role in influencing whether trade has positive effects on growth through various sources of gains from trade.

3 Measuring Institutional Quality

Although the overall importance of institutions has been emphasised in the literature, there is less agreement on how to measure the quality of institutions. For a long time, researchers who undertook empirical research on the effects and determinants of institutions had to rely on relatively few sources. One of these sources is the International Country Risk Guide (ICRG), published by Public Risk Services (PRS) Group (2005). Since 1984, the group has provided monthly information on areas like political risk, which is partly related to the strength of the

institutional setting and the government. Another source is the Global Competitiveness Report, supplied by the World Economic Forum (2005). In their flagship publication, they present extensive (annual) information, such as information on government regulations across countries. While both organisations publish a large variety of relevant indicators, they retrieve their information from executive and resident opinion polls and thus measure the perceived level of institutional quality. For the majority of these indicators, they do not use factual information to measure differences in institutional quality across countries.

In a similar approach, a team of researchers at the World Bank (Kaufmann et al., 2005) constructed six indicators measuring the quality of institutions by comparing good governance across countries. According to their classification, governance itself can be broadly defined as the set of traditions and institutions by which authority in a country is exercised. This includes (1) the process by which governments are selected, monitored and replaced, represented by two indicators, *Voice and Accountability* and *Political Stability*. Furthermore, governance includes (2) the capacity of the government to effectively formulate and implement sound policies, which is represented by the indicators *Government Effectiveness* and *Regulatory Quality*. Finally, governance implies (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them, which is represented by the indicators *Rule of Law* and *Control of Corruption*.

Hence, the indicators describe informal and formal public institutional quality and address different dimensions of the overall government performance. The six dimensions of governance can be described as follows:

- *Voice and Accountability*, representing different aspects of political rights and civil liberties, such as free and fair elections, the influence of the military in politics and the independence of the media.

- *Political Stability*, describing perceptions of the likelihood that the government in power will be destabilised or even overthrown by unconstitutional and/or violent means, due to, for example, ethnic tensions.

- *Government Effectiveness*, measuring perceptions of "inputs" that are required for the government to be able to produce and implement good policies, including the quality of

government, bureaucracy and public administration, the competence of civil servants, the management time spent with bureaucrats, and the independence of the civil service from political pressure.

- *Regulatory Quality*, combining measures of the incidence of government intervention in the economy, such as wage or price controls, regulations on foreign trade, and legal restrictions on business ownership or equity by non-residents.

- *Rule of Law*, representing the extent to which agents have confidence in and follow the rules of society, that is, the enforceability of contracts, the prevalence of black market activities and the effectiveness and predictability of the judiciary.

- *Control of Corruption*, describing the exercise of public power for private gain, ranging from the incidence of improper practices, through effects of corruption on the attractiveness of the country as a place to do business, to the likelihood that additional payments are required to "get things done".

These indicators are based on several hundred individual variables measuring perceptions of governance, drawn from 37 separate data sources constructed by 31 different organisations.[12] Their dataset, covering 209 countries, is exceptionally large and provides information for five time periods: 1996, 1998, 2000, 2002 and 2004. Kaufmann and associates standardise all six indicators, ranging from about -2.5 to +2.5, with higher values corresponding to better governance outcomes.

Although the good governance measures are also perception-based indicators, we use them in the following empirical analysis for three reasons. First of all, the figures are available (and comparable) for a very large number of countries, including all 16 ECOWAS countries. No other source of information for institutional quality covers the West African region in such a comprehensive manner. Second, the good governance indicators are in fact a combined set of (underlying) variables. Since they are based on a large number of different sources, any error or bias in the data is likely to be reduced in comparison to other sets of indicators for

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[12] For a detailed overview of the variables, the organisations and the different components of each indicator, see Kaufmann et al. (1999). The relevant indicators from the ICRG and Global Competitiveness Report are included there as well.

institutional quality. Finally, the six indicators are clearly relevant measures of institutional quality regarding the linkage between trade and income/growth rates.

Not surprisingly, average figures for all six indicators for developed countries are higher than those for developing countries in 2004, the most recent period for which data is available (Table 1).[13] A closer look at the figures at a regional level shows that sub-Saharan Africa has on average particularly low scores. For all six good governance indicators, African countries south of the Sahara rank consistently below the already low figures for all developing countries. Among sub-Saharan African countries, ECOWAS scores are roughly similar in comparison to the rest of sub-Saharan Africa. The average figures for all six indicators are -0.62 and -0.63 respectively. Yet ECOWAS countries have relatively low scores for the Rule of Law (-0.78) and Government Effectiveness (-0.74), indicating that these are areas with ample room for improvement. For a comparison with sub-Saharan Africa, we have singled out Latin America and the Caribbean as a further region for analysis. Based on average figures, the performance of Latin America and the Caribbean is better than that of sub-Saharan African countries and also better than the average of all developing countries.

Table 1: Good Governance Indicators, 2004

Indicator	Developed countries	Developing countries				
		All	Latin America[1]	Sub-Saharan Africa (SSA)		
				All	ECOWAS	Rest of SSA
Rule of Law	1.46	-0.47	-0.45	-0.73	-0.78	-0.70
Control of Corruption	1.65	-0.45	-0.34	-0.60	-0.58	-0.62
Regulatory Quality	1.31	-0.33	-0.05	-0.59	-0.60	-0.59
Government Effectiveness	1.55	-0.41	-0.34	-0.68	-0.74	-0.64
Political Stability	0.95	-0.46	-0.39	-0.65	-0.57	-0.71
Voice and Accountability	1.04	-0.31	0.16	-0.47	-0.44	-0.50
Average	1.33	-0.41	-0.24	-0.62	-0.62	-0.63

Notes: All indicators are standardised, that is, they have a mean of 0 and a standard deviation of 1, and range from -2.5 to +2.5; a higher value for any of the indicators indicates a better performance; figures are based on our sub-sample of 146 countries; [1]includes in the Caribbean.

Given that they are perception-based indicators, it is not surprising that all six indicators are closely associated with (the log) of GNI per capita. The partial correlations are in the range

[13] According to the World Bank (2005a) definition, developing economies are countries with a Gross National Income (GNI) per capita in 2003 of below US $9,386. For the empirical analysis that uses the good governance indicators, we reduce the country sample to 146 countries since we could not get data for the dependent and/or the (other) independent variables.

from 0.65 to 0.85, indicating a very close linkage with per capita income levels (Table 2). Most of the indicators are very closely related to one another too, as the partial correlations are always at or above 0.74.

Table 2: Correlation Matrix for Good Governance Indicators

	Ln GNI per capita	Rule of Law	Control of Corruption	Regulatory Quality	Government Effectiveness	Political Stability	Voice and Accountability
Ln GNI per capita	1.00						
Rule of Law	0.82	1.00					
Control of Corruption	0.80	0.97	1.00				
Regulatory Quality	0.77	0.93	0.90	1.00			
Government Effectiveness	0.85	0.97	0.96	0.92	1.00		
Political Stability	0.67	0.88	0.83	0.84	0.83	1.00	
Voice and Accountability	0.65	0.79	0.74	0.82	0.75	0.75	1.00

In addition to the good governance indicators, we use the World Bank Doing Business dataset, which provides objective measures on government regulations and their effect on businesses (World Bank, 2005c). The Doing Business indicators are comparable across economies and indicate the regulatory costs of business. They allow us to obtain information on regulatory outcomes, such as time and money spent on bureaucratic procedures, and thus to investigate the efficiency of governmental institutions in place. By focusing on evidence for regulations, we obtain more objective indicators that are less influenced by stages of economic development or recent events.[14] Objective measures have the advantage of allowing a more precise and consistent benchmarking. Nonetheless, for some indicators, such as corruption or political stability, subjective indicators may be the only possible way to gauge differences across locations.

The Doing Business database contains a wealth of information for a total of ten regulation indicators. For example, for information on how to start a business, the Doing Business indicators provide figures for the number of (bureaucratic) procedures required, the time spent

[14] For an extended discussion of the advantages of the Doing Business indicators, see World Bank (2003, 2004). In general, the Doing Business database is widely recognised (and used) as a high-quality measure of regulations across countries. According to the World Bank (2005c), many papers have already used the Doing Business indicators.

for the entire process and the costs involved. For the composition of each indicator, laws and regulations were studied as a first step. Thereafter, the data has been verified by over 3,500 local government officials, lawyers, business consultants and other professionals with hands-on experience in administering or advising on legal and regulatory requirements. Therefore, the data presented by Doing Business reflects the actual requirements and costs that businesses face, rather than a simple description of written laws and regulations. All data is based on information as at January 2005. The ten sub-indicators are as follows:

- *Starting a Business* gives information on the average number of procedures required to start a business, the number of days and the costs required to complete the process and the minimum capital needed to start up a business. To give an example, a Nigerian entrepreneur needs to complete nine procedures to start up an industrial or commercial business in his country. On average, it takes him 43 days and costs 77.8 % of income per capita to complete the procedures. Furthermore, 43.3 % of income per capita has to be deposited as minimum capital in a bank to start the business registration.

- *Labour Market Regulation* combines three different dimensions: flexibility and costs of hiring, flexibility and costs of firing, and conditions of employment. The first dimension measures the difficulty of hiring a new worker, for example, by comparing the mandated minimum wages to the average value-added per working population, and all social security payments and payroll taxes associated with hiring an employee (expressed as a percentage of the worker's salary). The second dimension measures the difficulty, expenses and costs of dismissing a redundant worker. Finally, the third dimension measures the restrictions on expanding or contracting the number of working hours, for instance, if night or weekend work is allowed or if a six day workweek or a 13-hour workday is possible.

- *Paying Taxes* measures the effective tax, as a percentage of gross profit, that a medium sized company has to pay in the second year of operation (except for labour taxes). The total amount of taxes is the sum of all the different taxes payable after accounting for deductions and exemptions. In addition, it measures tax administration, such as number of payments and time spent to comply with tax requirements.

- *Protecting Investors* measures the strength of minority shareholder protections against directors' misuse of corporate assets for personal gain. This includes three aspects: (1) the transparency of transactions, measuring how easy it is for a company's director to misuse his responsibility for personal gain instead of for company gain; (2) the liability for self-dealing which covers the plaintiff's ability to sue the company or even the responsible director in case of a questionable and hurtful transaction; and (3) the shareholders' ability to sue officers and directors for misconduct, which deals with the rights of the shareholders in a legal process.

- *Trading across Borders* considers the efficiency of the customs and trade transport in a country, measuring the number of documents and signatures and days required to fulfil customs procedures for imports and exports.

- *Getting Credit* quantifies the legal rights of lenders and borrowers, which facilitate lending through bankruptcy and collateral laws. For instance, the easier it is for a lender to get his money back in cases of bankruptcy, the more willing he may be to lend money. On the contrary, the easier it is for a creditor to describe his assets in a collateral agreement, the more willing he may be to borrow money. In addition, the indicator incorporates credit sharing information, including the coverage, scope, quality and accessibility of credit information of lenders, available through public and private credit registries.

- *Enforcing Contracts* covers the number of judicial procedures to enforce a contract, the duration and the costs. Thus, it measures the efficiency of the judicial or administrative system to collect overdue debts.

- *Closing a Business* reflects the difficulties in closing down a business, taking into account the time and costs involved in insolvency proceedings as well as the recovery rate. The latter is based on the amount (cents on the dollar) claimants, such as creditors, tax authorities and employees, recover from an insolvent firm.

- *Dealing with Licences* includes all procedures that are required for a business in the construction industry to build a standardised warehouse, as well as the time and costs to complete them. Procedures in this aspect can be steps to obtain necessary licences and permits, complete required notifications and inspections and obtain utility connections.

- *Registering Property* considers all different procedures, including their time and costs, necessary to transfer a property title from the seller to the buyer when a business purchases land and a building.

To facilitate a quantitative analysis, we first compute standardised figures for each component of the ten sub-indicators. However, a higher figure for an indicator may be associated with either more rigid or less rigid regulations. Hence, in order to have a consistent set of indicators and to facilitate the interpretation of the results, we will multiply by (-1) if a higher figure is associated with more rigid regulations. As a consequence, a higher figure is always associated with less restrictive regulations. Finally, we compute the means of all components and standardise them again to obtain consistent indicators.

While the Doing Business indicators are available for a total of 155 countries, we have to restrict our sample to 142 countries, including data of 12 out of 16 ECOWAS countries.[15] We include all countries for which data on regulations, the dependent and all independent variables are available.[16] To obtain an overall index of regulations for each country (the variable is labelled *Regulation Index*), we compute a weighted average of nine out of ten regulation indicators. We do not include *Protecting Investors*, as information for a further eight countries for this indicator is missing. The aggregated indicator is compiled taking factor loadings in principal components analysis as weights. For our country sample, *Regulation Index* ranges from -11.6 to 8.6.[17]

As can be seen from Table 3, the overall regulation intensity in developed countries is far lower (average regulation index of 4.65) in comparison to developing countries (-1.30). Striking, however, are the very low scores for sub-Saharan African countries, with an average of -3.32 for the aggregated index and consistently negative figures for all ten disaggregated indicators. What is more worrying is the fact that the scores for the average regulation indicator and the majority of disaggregated indicators are even lower for ECOWAS countries in comparison to the other sub-Saharan African countries. Among the ten disaggregated

[15] Among ECOWAS countries, no data for regulatory quality is available for Cape Verde, Gambia, Guinea-Bissau, and Liberia.

[16] See Appendix A for the country sample.

[17] For the aggregated regulation index, the country sample is reduced to 139 countries, as information on some disaggregated indicators is missing.

indicators, ECOWAS countries have, on average, particularly low scores for *Registering Property*, *Dealing with Licences*, *Labour Market Regulation*, *Getting Credit*, and *Starting a Business*.[18]

Table 3: Doing Business Regulation Indicators, 2005

Regulation indicator	Developed countries	Developing countries				
		All	Latin America[1]	Sub-Saharan Africa (SSA)		
				All	ECOWAS	Rest of SSA
Starting a Business	0.82	-0.26	-0.29	-0.76	-0.72	-0.79
Labour Market Regulation	0.26	-0.16	-0.11	-0.40	-0.95	-0.13
Paying Taxes	0.73	-0.26	-0.66	-0.39	-0.64	-0.27
Protecting Investors	0.72	-0.17	-0.40	-0.04	-0.18	0.04
Trading across Borders	1.01	-0.29	0.12	-0.84	-0.67	-0.93
Getting Credit	1.15	-0.27	0.53	-0.61	-0.80	-0.52
Enforcing Contracts	0.86	-0.20	-0.24	-0.47	-0.34	-0.54
Closing a Business	1.17	-0.27	-0.13	-0.42	-0.30	-0.48
Dealing with Licences	0.67	-0.24	0.23	-0.65	-1.02	-0.46
Registering Property	0.55	-0.20	0.06	-0.84	-1.15	-0.68
Regulation Index	4.65	-1.30	-0.24	-3.32	-3.97	-2.98

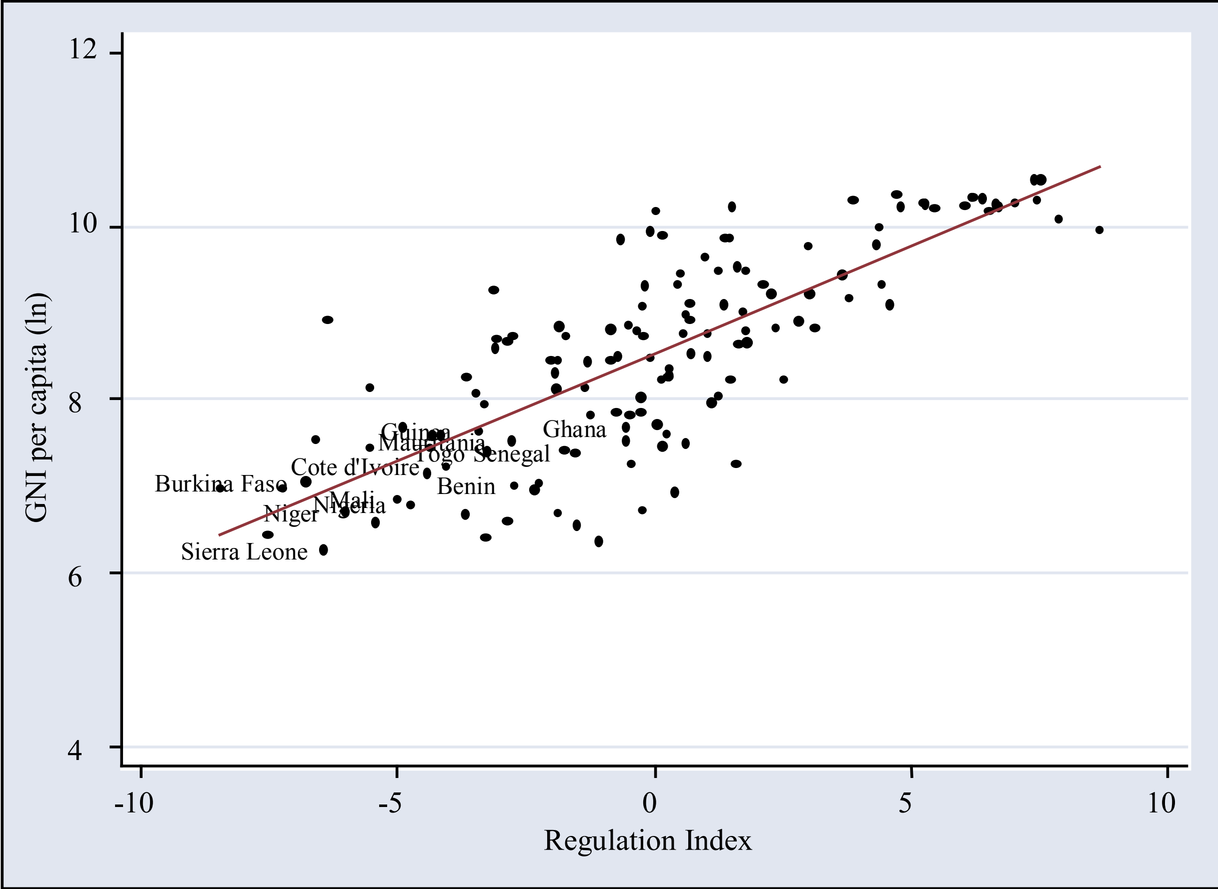
Notes: All indicators are standardised; a higher value for any of the indicators indicates a better performance, that is, less strict regulations; figures are based on a sub-sample of 142 countries (139 countries for *Regulation Index*); [1]includes the Caribbean.

Similar to the quality of institutions, it has been pointed out by the World Bank (2005c) that the regulatory quality is closely associated with per-capita income levels. We can confirm this linkage for our country sample, as GNI per capita, measured at purchasing power parity (PPP),[19] and the aggregated regulation index are strongly positively correlated (Figure 3).

[18] See Section 7 for a benchmarking of the performance of ECOWAS countries for all ten regulation indicators. Detailed information on the underlying (sub-)components can be found in Appendix D.

[19] PPP GNI figures take differences in prices across countries into account.

Figure 3: Per-Capita Income and Regulation Index



Note: Income (log-level of GNI per capita PPP, US $) is based on 2003 data, while the Regulations Index relates to January 2005

The impression obtained from this simple scatter diagram is further confirmed by the relatively high partial correlation between per capita income and the regulation index, which is equal to 0.78 (Table 4). Apart from the overall regulation indicator, GNI per capita is also closely associated with *Trading across Borders* (0.71), *Getting Credit* (0.68), *Closing a Business* (0.59), *Starting a Business* (0.56), and *Enforcing Contracts* (0.53). Much lower partial correlations can be found for *Labour Market Regulation* (0.27) and *Protecting Investors* (0.34). Most of the ten regulations indicators have partial correlation coefficients in the medium range of 0.3 to 0.5, indicating that the linkage between income and the regulatory quality is based on a broader range of indicators and does not vary considerably among the indicators.

Table 4: Correlation Matrix for Regulation Indicators

	Ln GNI per capita	Starting a Business	Dealing with Licences	Labour Market Regulation	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading across Borders	Enforcing Contracts	Closing a Business	Regulation Index
Ln GNI per capita	1.00											
Starting a Business	0.56	1.00										
Dealing with Licences	0.41	0.37	1.00									
Labour Market Regulation	0.27	0.36	0.39	1.00								
Registering Property	0.46	0.39	0.40	0.26	1.00							
Getting Credit	0.68	0.42	0.34	0.29	0.39	1.00						
Protecting Investors	0.34	0.40	0.31	0.46	0.19	0.44	1.00					
Paying Taxes	0.43	0.35	0.31	0.42	0.30	0.25	0.35	1.00				
Trading across Borders	0.71	0.45	0.48	0.24	0.46	0.52	0.31	0.33	1.00			
Enforcing Contracts	0.53	0.50	0.37	0.32	0.28	0.43	0.25	0.27	0.46	1.00		
Closing a Business	0.59	0.52	0.34	0.27	0.29	0.56	0.36	0.33	0.53	0.58	1.00	
Regulation Index	0.78	0.74	0.64	0.55	0.67	0.70	0.48	0.54	0.75	0.70	0.73	1.00

4 Trade and Income Levels

We start the empirical analysis with benchmark regressions on the interaction of trade, institutions and income levels, and then move on to examine the impact of trade on income levels and growth in ECOWAS countries. In the benchmark levels regressions, the dependent variable is the log-level of GNI per capita, measured in PPP US dollars (the variable is labelled *GNI*). Given the assumption that per capita income levels were roughly similar in the very distant past, differences in current income levels reflect a diverging growth performance in the long run. By using per capita income levels, we can interpret the estimates of the regressions as capturing the effects of the independent variables on growth in the very long run.

As the independent variables, we closely follow the previous literature and include measures for geography and market size, in addition to indicators for institutions and trade. More specifically, we include the following explanatory variables:[20]

[20] Data sources for all variables can be found in Appendix B.

- Distance from equator, measured as absolute value of latitude of the country's capital city (*Distance*)
- Dummy for landlocked countries (*Landlock*)
- Market size, measured as total population in million people (*Population*)
- Trade, computed as the sum of imports and exports, divided by GDP (*Trade*)[21]
- Institutional quality as specified in the previous section, that is, good governance and regulatory quality (*Institution*)

The first two variables are related to the geography of a country. As already mentioned in the first section, geography may have an impact on incomes through agricultural productivity and morbidity rates (Rodrik et al., 2004). The distance from the equator can be interpreted as a proxy for various determinants of economic growth that relate to the climate. For example, a country with a tropical climate is more likely to suffer from higher morbidity rates and thus lower growth rates due to malaria or other tropical diseases. Thus, we expect a negative link with per capita income. Being landlocked is likely to increase transport costs and hence, reduces trade and other economic activities across borders, in particular in developing countries with a poor infrastructure (also negative linkage with income). The third variable, market size, may be another important determinant of per capita income levels, since a large internal market is likely to be associated with increasing economic efficiency due to economies of scale, intensive competition and so on. We proxy market size with the total population since we cannot use total GDP, and expect a positive coefficient.

Additionally, we use two explanatory indicators that previous studies have found to be of particular importance for explaining the disappointing growth performance of sub-Saharan African countries, that is:

- Ethno-linguistic fractionalisation of the population, measured as the average of ethno and linguistic diversity (*Fractionalisation*) and
- Conflicts, computed as the number of internal and external conflicts that took place in a country from 1970 to 2004, multiplied by the intensity of each conflict (*Conflict*)

[21] We use figures for trade in goods only and do not include trade in services, because a number of West African countries do not report data for trade in services.

Easterly and Levine (1997) show that ethno-linguistic diversity helps to explain differences across countries in public policies and various economic indicators. This is particularly the case in sub-Saharan Africa, where low economic growth is associated with low schooling, political instability, insufficient public infrastructure, underdeveloped financial systems, etc. According to their results, the degree of fractionalisation may well be an important determinant of differences in per capita income levels. These results are basically confirmed by the study of Alesina et el. (2003), who use an extended dataset for the degree of fractionalisation. Our data is taken from Alesina and associates.

The threat of incidence of internal and external conflicts, ranging from political violence, cross-border conflicts or civil disorder to civil (internal) war or an all-out war with other countries, clearly creates higher uncertainty. Domestic and international investors are then likely to increase the risk premium of their investment projects, which in turn reduces overall investment and negatively affects the country's growth rate. Other than investment, further economic and institutional variables, such as inflation, the effectiveness of aid or corruption levels, are negatively affected as well, which diminish prospects for economic development as a consequence (Collier and Hoeffler, 2004ab).

Information on conflicts is taken from an extensive database on various forms of conflicts, operated jointly by the International Peace Research Institute (PRIO) in Oslo and the Department of Peace and Conflict Research at Uppsala University in Sweden (CSCW, 2005). Researchers from both organisations have compiled information on various armed conflicts and have assigned quantitative figures for the intensity of each conflict. If there were no conflict, they assign a 0, for number of casualties in the range from 1 to 25 they give a 1, for 26 to 1000 casualties a 2 and above 1000 casualties a 3. While these numbers are necessarily arbitrary, they provide an useful dataset for any quantitative analysis as the intensity of each conflict is taken into account. For our analysis, we only include conflicts in the period from 1970 to 2004 to focus on the economic impact of more recent conflicts. Finally, we take the natural logarithm to reduce the skewness in the data. Similar to *Fractionalisation*, we expect a negative linkage of *Conflict* with per capita income levels.

Therefore, the specification of the benchmark cross-sectional model is as follows:

(1) $\ln GNI_i = \beta_0 + \beta_1 X_i + \beta_2 \, Institution_i + \beta_3 \, Trade_i + \gamma_j \, Regional\ Dummy_j + e_i$

where ln GNI_i is the (natural) log of per capita income in country i, X_i is the set of control variables explained above, and e_i is an error term. *Regional Dummy*$_j$ stands for a full set of regional dummies to control for regional characteristics. We follow the World Bank (2005a) classification of regions and include sub-Saharan Africa, East Asia & the Pacific, Middle East & North Africa, South Asia, Central Asia, Latin America & the Caribbean, Europe, and North America.[22] In addition to *GNI*, the market size (*Population*) and the number and intensity of conflicts (*Conflict*) also enter the regressions in logs. Of particular interest are the estimates for the two coefficients β_2 and β_3, which show the linkage of institutional quality and trade with income levels.

Base year for all variables is 2003, except otherwise noted. We include all countries for which we have data for the dependent and all independent variables. That leaves us with a sample of 146 countries, which is a relatively large dataset in comparison to some of the studies surveyed in Section 2. Moreover, we include all 16 ECOWAS countries in the regressions using *Rule of Law* from the good governance dataset and 12 West African countries where we employ *Regulation Index* from the Doing Business database.

The results for the OLS regressions are shown in the first six columns of Table 5. Most of the control variables have the expected sign, but not all of them are statistically significant. An increase in the distance from the equator, having access to the sea and a lower degree of fractionalisation are closely associated with an increase in per capita income. A larger population is associated with higher GNI figures. The conflict variable is significant (and has a negative sign) in one of the specifications only. Not surprisingly, geographical variables lose their explanatory power when regional dummies are included.

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[22] To avoid the dummy trap, we have to exclude at least one regional dummy. Since we are more interested in the impact of trade on income levels in developing countries and to facilitate the interpretation of the coefficients, we exclude both the European and the North American dummy. Sign and significance levels of the most important variables would not change, however, if we exclude only one regional dummy.

Table 5: Trade and Income Levels, Benchmark Regressions, 2003

	Dependent variable: ln GNI per capita, PPP US $, 2003											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Independent variables	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV	IV	IV
Trade	0.47**	0.50***	0.45***	0.26***	0.11	0.13	-0.05	0.11	0.16	-0.21	-0.15	0.08
	(2.02)	(2.62)	(2.49)	(2.70)	(1.28)	(1.20)	(-0.13)	(0.29)	(0.45)	(-0.80)	(-0.65)	(0.29)
Rule of Law				0.73***	0.82***					0.91***	0.85***	
				(11.80)	(10.82)					(5.97)	(5.40)	
Regulation Index						0.14***						0.11***
						(6.56)						(3.20)
Distance from Equator	0.05***	0.04***	0.03***	0.02***	0.01	0.01	0.05***	0.04***	0.03***	0.01**	0.00	0.01**
	(11.74)	(8.30)	(7.92)	(4.97)	(1.04)	(1.60)	(11.21)	(8.25)	(7.52)	(2.43)	(0.79)	(1.98)
Landlock	-0.74***	-0.55***	-0.58***	-0.21*	-0.10	-0.21	-0.78***	-0.58***	-0.60***	-0.15	-0.10	-0.25**
	(-4.74)	(-3.51)	(-3.69)	(-1.66)	(-0.80)	(-1.56)	(-4.44)	(-3.49)	(-3.69)	(-1.03)	(-0.84)	(-1.84)
ln Population	0.05	0.07	0.12**	0.10***	0.08***	0.06*	0.01	0.05	0.10**	0.08**	0.07**	0.06
	(0.99)	(1.57)	(2.39)	(2.65)	(2.81)	(1.87)	(0.18)	(0.92)	(2.07)	(1.93)	(2.19)	(1.53)
Fractionalisation		-1.47***	-1.37***	-0.95***	-0.09	-0.18		-1.45***	-1.34***	-0.81***	0.00	-0.17
		(-4.12)	(-3.93)	(-3.54)	(-0.35)	(-0.60)		(-4.74)	(-4.43)	(-3.17)	(0.00)	(-0.66)
ln Conflict			-0.11**	0.02	0.04	-0.03			-0.12**	0.04	0.04	-0.04
			(-2.22)	(0.60)	(1.22)	(-0.71)			(-2.31)	(0.78)	(0.83)	(-1.04)
Regional Dummies	No	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes
Shea partial R^2 (first-stage)												
Trade							0.19	0.19	0.20	0.24	0.24	0.22
Rule of Law										0.23	0.22	
Regulation Index												0.27
Hansen-Sargan overidentifi-							(0.00)[1]	(0.00)[1]	(0.00)[1]	5.97	3.99	1.83
cation test (χ^2(j) P-value)										(0.20)	(0.41)	(0.61)
R^2	0.53	0.60	0.61	0.78	0.84	0.80	0.50	0.58	0.60	0.75	0.84	0.80
Observations	146	146	146	146	146	139	146	146	146	146	146	139

Notes: Constant term is not shown due to space constraints; OLS regressions have been estimated with robust standard errors; t or z-values are reported in parentheses; multicollinearity has been tested by the creation of variance inflation factors (VIF), all regressions pass at conventional levels; [1]equation exactly identified; significance at the 10, 5, and 1 per cent levels are denoted by *, **, ***, respectively; instrumented variables (depending on the specification): Trade, Rule of Law, Regulation Index; instruments: Fittrade, Engfrac, Eurfrac, Legal Origin (British, French, German, and Scandinavian), and included exogenous variables.

If regional dummies are excluded, openness to trade is always positively associated with per capita income (columns 1 to 4). The coefficient for *Trade* is significant at the 5 or 1 per cent level, even when we include *Rule of Law* (column 4). We use *Rule of Law* as opposed to the other five good governance indicators, since this indicator is arguably the most important indicator affecting institutional quality. The significance of the coefficient for openness to trade vanishes if we include regional dummies (columns 5 and 6). This result implies that regional characteristics explain variations in income levels to a considerable degree and that the linkage between trade and income is not robust to this specification. Both the *Rule of Law* and the *Regulation Index* are highly significant and positively associated with per capita income. They clearly dominate the OLS regressions and significantly improve the overall fit of the model (R-squared of 0.78 and above).

So far, we have assumed that the control variables, trade and the institutional quality indicators are exogenous. As explained in the first section, openness to trade and institutional quality are in fact endogenous. We are very likely to obtain biased results in OLS regressions and therefore, to address this issue, we add an instrumental variable approach. More specifically, we employ a two-stage least squares (2SLS) estimation procedure. The identification strategy is to use the Frankel and Romer (1999) instrument for trade, that is, the fitted values of trade predicted by the exogenous variables in a gravity model.[23] This approach has the main advantage that geographical components of trade flows are identified and used to examine the linkage between trade and income levels.

For the quality of institutions, we also follow the literature and use two different sets of variables that are partly based on history: First, the legal origin, that is, whether a country has a British, French, German, Socialist, or Scandinavian origin for its legal system, and second, the share of the population who speak English and/or a major European language. There is evidence that the colonial origin is still a major determinant of the current institutional setting and regulatory quality of a country (La Porta et al., 1998, 1999). The legal origin may have an influence on the disposition of countries when they intend to reform their institutional structure. Along these lines, Djankov et al. (2002) find that French legal origin is highly correlated with an excessive regulatory environment and may lead to lower quality

[23] We are grateful to Aart Kraay for sharing his estimates for the Frankel and Romer fitted trade values. Other data, such as the distance from the equator or information on landlocked countries, are also taken from the Dollar and Kraay (2002) dataset.

institutions, particularly when the French legal system was implemented in developing countries. We do not, however, use mortality rates of European settlers as an instrument for institutional quality, as suggested by Acemoglu et al. (2001), as this would severely reduce the number of countries included in our sample, which could bias the results.

Columns 6 to 12 in Table 5 show the results for the IV regressions. Similar to the OLS regressions, we do not include institutional variables in the first three regressions but focus on trade only (columns 7 to 9). In line with the results reported by Rodrik et al. (2004), we do not obtain a significant coefficient for *Trade* once we instrument for it. Moreover, the sign of the estimate for openness to trade switches between a positive to a negative sign. The results for the other control variables are roughly similar to those obtained in the OLS regressions. Still, both institutional indicators are highly significant and thereby, important determinants of per capita income levels (columns 10 to 12). In these extended specifications, the coefficients for *Trade* continue to be insignificant.

We assess the validity of the instruments using the Hansen-Sargan test for overidentifying restrictions. Our IV regressions are based on the assumption that the instruments are uncorrelated with the error term in the per capita income equation. The results for the p-value of the *J*-test for each IV specification are reported in the last third row in Table 5. For the last three specifications, we cannot reject the null hypothesis that the instruments are uncorrelated with the error term in all specifications.[24] This result means that our instruments are affecting income levels but only through the trade variable and the institutional indicators.

It is important to test for the instrument relevance when using IV estimation. Since we are using more instruments than endogenous variables (columns 10 to 12), we do not know if the instruments collectively capture the independent variation in the right-hand-side variables. One way to assess this issue is to take a closer look at the magnitude of the R^2 in the first stage for each endogenous variable. The Shea first stage R^2 shows that the partial R^2 for changes in average *Trade* is between 19 and 24 per cent in all six model specifications, which is reasonable. For the institutional indicators, the figures are roughly similar, as the Shea first stage R^2 is 0.22 and 0.23 for *Rule of Law* and 0.27 for the *Regulation Index*, indicating a

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[24] Since we are using Fittrade as the only instrument for Trade in the first three IV regressions, the J-test is not applicable.

similar (appropriate) fit. Since all values for the partial R^2 are above 10 per cent, the instruments are relevant in Shea's (1997) sense, which in turn implies that the instruments have sufficient relevance for the right-hand side variables in the growth regression. As a consequence, the chosen instruments are both valid and relevant for trade and institutional quality.

All in all, the results demonstrate that, in comparison to trade, institutional quality has a much stronger impact on income levels. We confirm in fact the results reported by Rodrik et al. (2004). This does not imply, however, that trade does not play an important role in explaining variations in income levels. Rather, what is emphasised here is the importance of including institutional quality in any per capita income regression.

To analyse the impact of trade on long-term growth at a regional level, we extend the benchmark regressions and add the interactive term *Trade*Regional Dummy*:

(2) $$\ln GNI_i = \beta_0 + \beta_1 X_i + \beta_2 \, Institution_i + \beta_3 \, Trade_i + \beta_4 \, Trade_i{*}Regional\ Dummy_j + \gamma_j \, Regional\ Dummy_j + e_i$$

We start with an analysis for the ECOWAS group and add *Trade*ECOWAS* and *ECOWAS* to the benchmark regression, while keeping the remaining regional dummy variables included.[25] Now, the indicators of particular interest are *Trade* and *Trade*ECOWAS*. As can be seen from columns 1 to 4 in Table 6, the coefficient for trade in the OLS regressions is always positive and significant, while the coefficient for the interactive term is always negative and significant in three out of four specifications. Importantly, the coefficient for the interactive term *Trade*ECOWAS* is always larger than the one for *Trade*, which implies that the net impact of trade on per capita income is negative for West African countries. Only in the last regression, which includes *Rule of Law*, all (other) regional dummies and the full set of explanatory variables, we do not get a statistically significant result for the coefficient.[26]

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[25] In that case, however, we include a *Rest of Sub-Saharan Africa* dummy, which is one for all sub-Saharan African countries except ECOWAS member states and zero for all other countries.

[26] We do not use the aggregated regulation index in this model specification, as information for four ECOWAS countries is missing for this indicator.

Depending on the specification of the model, we next instrument for trade, the interactive term and rule of law, using the same set of instruments as before. Similar to the previous set of regressions in the benchmark model, *Trade* is no longer significant once we instrument for it (columns 5 to 8). The interactive term *Trade*ECOWAS* has still a negative sign in all four specifications, but the coefficient is much larger than in the OLS regressions and is always significant. Thus, the results show that the relationship between trade and per capita income is negative for ECOWAS countries, as the interactive term is negative and significant in three out of four OLS and four out of four IV regressions. Importantly, this results holds even if we control for various important determinants of income levels in Africa that have been singled out in the literature, including fractionalisation, conflicts and the rule of law.

Table 6: Trade and Income Levels in ECOWAS Countries, 2003

Independent variables	Dependent variable: ln GNI per capita, PPP US $, 2003							
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) IV	(8) IV
Trade	0.42**	0.44***	0.39**	0.13*	0.41	0.43	0.37	0.06
	(2.41)	(2.68)	(2.38)	(1.63)	(1.31)	(1.35)	(1.18)	(0.27)
Rule of Law				0.80***				0.79***
				(11.29)				(5.56)
Distance from	0.03***	0.03***	0.02***	0.01	0.03***	0.02***	0.02***	0.01
Equator	(3.14)	(2.78)	(2.59)	(1.10)	(3.78)	(3.53)	(3.25)	(1.08)
Landlock	-0.48***	-0.46***	-0.47***	-0.17	-0.54***	-0.52***	-0.54***	-0.23*
	(-3.35)	(-3.20)	(-3.28)	(-1.46)	(-3.54)	(-3.39)	(-3.52)	(-1.77)
ln Population	0.04	0.04	0.08**	0.08***	0.03	0.04	0.06	0.06*
	(1.00)	(1.18)	(1.96)	(2.76)	(0.69)	(0.85)	(1.46)	(1.90)
Fractionalisation		-0.41	-0.32	-0.01		-0.32	-0.24	0.07
		(-1.16)	(-0.91)	(-0.03)		(-0.97)	(-0.73)	(0.29)
ln Conflict			-0.09*	0.03			-0.08	0.04
			(-1.93)	(0.78)			(-1.50)	(0.92)
Trade*ECOWAS	-1.19***	-1.15***	-0.99***	-0.20	-2.91***	-2.80**	-2.60**	-1.66*
	(-3.27)	(-3.25)	(-2.79)	(-0.69)	(-2.51)	(-2.42)	(-2.25)	(-1.84)
ECOWAS	-1.27***	-1.17***	-1.29***	-1.09***	-0.24	-0.20	-0.35	-0.26
	(-3.04)	(-2.85)	(-3.19)	(-3.30)	(-0.29)	(-0.25)	(-0.44)	(-0.43)
Other Regional Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shea partial R^2 (first-stage)								
Trade					0.25	0.25	0.25	0.25
Trade*ECOWAS					0.21	0.20	0.20	0.20
Rule of Law								0.30
Hansen-Sargan					6.14	6.60	5.72	1.96
overidentification test (χ^2(j) P-value)					(0.19)	(0.16)	(0.22)	(0.85)
R^2	0.71	0.72	0.73	0.85	0.69	0.69	0.70	0.83
Observations	146	146	146	146	146	146	146	146

Notes: See Table 5; significance at the 10, 5, and 1 per cent levels are denoted by *, **, ***, respectively; further instruments (in addition to those listed below Table 5): interactions between Fittrade and ECOWAS as well as legal origin dummies and ECOWAS.

We then repeat the exercise for all sub-Saharan African countries and obtain very similar results. The sign for the interactive term (*Trade*Sub-Saharan Africa*) is always negative and significant at the 10 per cent level or higher in all four IV regressions (Table 7). For the OLS regressions, however, we obtain slightly weaker estimates, as the significance level for the coefficient of the interactive term declines to the 10 to 15 per cent level. For two other regions, East Asia & the Pacific, and Middle East & North Africa, on the other hand, we obtain a positive interactive term, implying that trade has a positive impact on income for the countries in these two regions. This outcome can easily be explained, as East Asian countries have actively followed an export promotion strategy over the last couple of decades and countries in the Middle East benefited considerably from the exploitation and export of oil and gas resources.

Similar to sub-Saharan Africa, the coefficient for the interactive term for Latin America and the Caribbean is negative, though the significance level is in the range between 15 to 30 per cent and thus falls below conventional threshold levels. For Central Asia and South Asia, we do not obtain significant results in the IV regressions.

Table 7: Trade and Income Levels at a Regional Level, 2003

	Number of regressions where interactive term Trade* Regional Dummy is significant			
	OLS		IV (2SLS)	
Region	Sign of coefficient	Number of significant regressions (out of 4 OLS regressions)[1]	Sign of coefficient	Number of significant regressions (out of 4 IV regressions)[1]
ECOWAS	–	3	–	4
Sub-Saharan Africa[4]	–	0[2]	–	4
East Asia & the Pacific	+	3	+	3
South Asia	+	3	–	0[2]
Central Asia	+/–	0	+/–	0
Middle East and North Africa	+	3	+	4
Latin America & the Caribbean	–	0[3]	–	0[3]

Notes: [1]Number of regressions where interactive term *Trade*Regional Dummy* is significant at the 10 per cent significance level or better. [2]Significance level 10 to 15 per cent. [3]Significance level 15 to 30 per cent. [4]Including ECOWAS.

5 Trade and Economic Growth

So far, we have used a cross-sectional model specifications. By following this approach, we concentrate on the (very) long-run growth across countries. Yet it might be useful to

complement the analysis with further regressions on the linkage between trade and growth in the short or medium term. Moreover, cross-country regressions do not account for changes in the dependent and independent variables, which are clearly relevant for policy issues. Hence, we run cross-country (dynamic) growth regressions for the most recent period of ten years from 1994 to 2003, for which we have relatively complete data.

The "standard" cross-country growth regression model is usually specified as follows:

$$(3) \qquad \ln GDP_{it} - \ln GDP_{it-1} = \theta \ln GDP_{it-1} + \gamma' X_{it} + e_{it} ,$$

where GDP_{it} is per capita GDP for country i and period t, X is a set of explanatory variables, including institutions, trade flows and other control variables, θ and γ' are the coefficients to be estimated for the initial GDP per capita (GDP_{t-1}) and the control variables respectively, and e is the error term.[27] By following this approach, however, we are likely to obtain biased estimates due to the well-known problems of cross-country growth regression, such as reverse causality, measurement errors, omitted variables or simultaneity.

To deal with these issues, a panel data approach including changes over time in the variables in question would be preferable. Unfortunately, our institutional indicators are limited to information in 2004 (good governance indicators) or 2005 (regulation indicators) only, which does allow us to explore changes in a dynamic setting.[28] As a remedy, we use the *Law and Order* indicator from the International Country Risk Guide (PRS Group, 2005). This indicator is one of the political risk variables that measures the strength and impartiality of the legal system.[29] Similar to the good governance indicators, the *Law and Order* indicator can be criticised for relying on subjective "expert" based opinions. If that is the case, changes over time are particularly affected by subjective measures and the results of the regressions analysis have to be treated with caution.

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[27] In the growth regressions, we use GDP rather than GNI figures, because GNI data in PPP US dollars is not always available for a number of sub-Saharan African countries.

[28] Though the good governance indicators are available for every other year since 1996, we cannot use them in a panel due to the fact that they are standardised. The Doing Business dataset provides information on regulations in 2003, 2004 and 2005 and will be updated and extended every year. Yet at this stage, we do not have a complete dataset for other variables like GNI and trade for 2004. Furthermore, changes in regulatory quality may take time to affect other variables. Hence, the Doing Business dataset is an excellent source for a panel analysis in a couple of years.

[29] See PRS Group (2005) for details on sub-components and aggregation procedures.

Regarding the methodology, we follow the approach of Caselli, Esquivel and Lefort (1996) and Dollar and Kraay (2002) and transform equation (3) by taking into account the fact that there are country effects η_i included in the error term that are likely to be correlated to the explanatory variables, thereby producing biased coefficients in a pure OLS estimation. Thus, the model can be rewritten as:

$$(4) \qquad GDP_{it} = \alpha\, GDP_{it-1} + \gamma' X_{it} + \eta_i + \varepsilon_{it} \,,$$

where α is $1 + \theta$.

To avoid the country effect bias we estimate (4) in differences:

$$(5) \qquad \ln GDP_{it} - \ln GDP_{it-1} = \alpha\,(\ln GDP_{it-1} - \ln GDP_{it-2}) + \gamma'(X_{it} - X_{it-1}) + (\varepsilon_{it} - \varepsilon_{it-1})\,.$$

In essence, we regress growth in the most recent period of 10 years between 1994-2003, on growth in the previous period (1984-1993) and on changes from the previous to the current period in trade and the other explanatory variables.[30] As the independent variables, we always use *Trade* and *Law and Order*, because the sign and significance level of the estimated coefficient for trade might be biased if we do not control for institutional quality. In addition to openness to trade and law and order, we follow the literature on the determinants of economic growth and add the following control variables:[31]

- Black market premium for foreign currency (US Dollar) in per cent
- Changes in consumer prices in per cent
- Population growth in per cent
- Government consumption, calculated as total government consumption as a share of GDP
- Investment, computed as gross capital formation as a share of GDP
- Human capital levels, measured as secondary school enrolment rates and literacy rates

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[30] In the following, the period 1994-2003 will be referred as the current period, whereas 1984-1993 is the previous period.

[31] See Levine and Renelt (1992) for an overview and a sensitivity analysis of the variables that are commonly associated with economic growth.

- Terms of trade, defined as the ratio of the export price index to the corresponding import price index measured relative to the base year 2000

To control for regional characteristics in explaining variations in GDP growth rates across countries, we also add a set of regional dummies. Again, we include the interactive term *Trade*Regional Dummy* to analyse the effects of changes in trade at the regional level. At this stage of the study, however, we have not run growth regressions for all regions but rather, we focus on the ECOWAS group.[32]

As can be seen from column 1 in Table 8, the benchmark regression is based on a sample of 103 countries for which data is available. Growth in the previous period, changes in trade, and changes in law and order are all positively associated with economic growth in the current period. The significance level of all three coefficients is relatively high (1 per cent level). In contrast to the levels regressions, the interactive term *Trade*ECOWAS* now has a positive coefficient, implying that changes in *Trade* is positively associated with economic growth in the most recent period from 1994 to 2003. However, the t-value for the coefficient is very low and far from conventional threshold levels. Thus, we cannot establish a statistically significant linkage between trade and growth for ECOWAS countries in the growth regressions. This result holds for all other specifications, when additional control variables are included in the OLS regressions (columns 2 to 8).

[32] In addition to several further robustness checks, this could be done at a later stage.

Table 8: Trade and Economic Growth in ECOWAS Countries, 1994-2003

	Dependent variable: Real GDP per capita growth rate, average 1994-2003									
Independent variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS	(9) IV	(10) IV
Average real per capita GDP growth in	0.38***	0.37***	0.38***	0.38***	0.40***	0.38***	0.39***	0.42***	0.60***	0.53**
previous period	(4.18)	(3.58)	(4.57)	(4.23)	(4.57)	(4.04)	(3.40)	(3.60)	(2.91)	(2.40)
Change over previous period in average	0.03***	0.02**	0.01	0.03***	0.03**	0.03***	0.02	0.02	0.02	-0.02
Trade	(3.03)	(2.37)	(1.15)	(3.18)	(1.99)	(2.99)	(1.44)	(1.33)	(0.61)	(-0.64)
Change over previous period in average	0.30***	0.28***	0.26***	0.32***	0.26***	0.30***	0.30***	0.33***		0.28*
Law and Order	(3.46)	(2.85)	(2.98)	(3.72)	(2.95)	(3.44)	(3.34)	(2.86)		(1.71)
Change over previous period in average		-0.02								
Inflation Rate		(-0.10)								
Change over previous period in average			0.11***							
Investment			(3.05)							
Change over previous period in average				-0.38						
Population Growth				(-1.63)						
Change over previous period in average					-0.35***					
Black Market Premium					(-3.77)					
Change over previous period in average						-0.01				
Government						(-0.15)				
Change over previous period in average							-0.01			
Terms of Trade							(-0.94)			
Change over previous period in average								1.90**		
Education								(2.02)		
Trade*ECOWAS	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.06	0.11	0.08
	(0.23)	(0.66)	(0.61)	(0.19)	(0.17)	(0.22)	(0.20)	(0.92)	(0.82)	(0.74)
ECOWAS	-1.00*	-1.22*	-1.32***	-1.10*	-1.42***	-0.99*	-1.33**	-1.20	-0.81	-0.92
	(-1.74)	(-1.80)	(-2.51)	(-1.89)	(-2.63)	(-1.76)	(-2.19)	(-1.16)	(-0.80)	(-0.53)
Other Regional Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shea partial R^2 (first-stage)										
Growth in previous period									0.15	0.14
Trade									0.17	0.16
Trade*ECOWAS									0.09	0.35
Law and Order										0.33
Hansen-Sargan overidentification test									5.53	11.17
(χ^2(j) P-value)									(0.35)	(0.05)
R^2	0.43	0.41	0.50	0.46	0.53	0.43	0.46	0.48	0.29	0.38
Observations	103	98	103	103	94	103	85	78	110	86

Notes: See Tables 5 and 6; instruments: lagged change or the initial value of the variables in 1984.

It can be argued that even changes in most of the independent variables over two periods of 10 years are not exogenous. Lagged growth and the error term in (5) are correlated by construction. In addition, trade may not only lead to higher growth rates, but growing markets might be attractive for exporting firms seeking to increase exports. Therefore, we should exploit the moment conditions in a dynamic setting using adequate instruments. For growth rates in the previous period, we employ the lagged change in growth rates in period t-2, that is, growth rates in the period 1974-1983. For the other explanatory variables, we use the lagged change and/or the initial value of the variable in 1984.[33]

In the first IV regression, we do not include the law and order indicator, since information for this indicator for the year 1984 is not available for a number of countries. When we include law and order (column 10), the sample drops from 110 to 86 countries. For both IV specifications, the instruments are relevant, though we get a Shea partial R^2 of 0.09 for the interactive term, which is slightly below the 10 per cent threshold. Moreover, we reject the null hypothesis that the instruments are uncorrelated with the error term in the second IV specification. Nevertheless, the Shea partial R^2 improves considerably, when the country sample drops from 110 to 86 countries. In comparison to the reasonable fit in the levels IV regressions, both econometric problems indicate that our instruments are somewhat less appropriate in the growth regressions.

Apart from these drawbacks, we observe a roughly similar outcome for the IV regressions in comparison to the OLS estimates. The coefficient for the interactive term is still positive, but not significant. Hence, we only can conclude from the growth regressions that the negative linkage between trade and growth that we have found for ECOWAS countries in the very long run did not exist in the period 1994-2003.

6 Trade, Institutions and Income Levels

In another set of regressions, we are interested in whether the observed linkage between openness to trade and income levels differs for countries with, for instance, low-quality

[33] For example, we do not have information on law and order before 1984 and have to rely on the initial value in 1984 as an instrument.

institutions. Hence, we test the hypothesis that low institutional quality hinders countries from taking advantage of increased openness to trade. In fact, this might be an explanation for the lack of a clear linkage between trade and income in IV regressions. For this exercise, we divide the country sample into groups according to their relative rankings in the institutional quality indicators. More specifically, we construct an institutional dummy (*Institution Dummy*), which has a value of one if a country belongs, for example, to the group of countries with the 20 per cent worst scores on institutional quality, and zero otherwise. We then compute an interactive term of the institutional dummy and trade to see whether institutions in the most regulated countries matter and add that to the list of independent variables.[34]

We use different cut-off points for the institutional dummy, that is, the bottom 20, 30, 40, and 50 per cent countries (the variables are labelled *Bottom 20* to *Bottom 50*). In a similar way, we employ the dummy for different groups of countries with the top 20, 30, 40, and 50 per cent scores on our institutional measures (*Top 20* to *Top 50*). In addition to the dummy, we add an interactive term of the institutional dummy and openness to trade to analyse the relationship between trade and income levels. The model specification can then be written as follows:

$$(6) \quad \ln GNI_i = \beta_0 + \beta_1 X_i + \beta_2 \, Institution_i + \beta_3 \, Trade_i + \beta_4 \, Trade_i * Institution\ Dummy_k + \beta_5 \, Institution\ Dummy_k + \gamma_j \, Regional\ Dummy_j + e_i$$

In a first set of regressions, we use the regulation index and focus on the 20 per cent most regulated countries (*Bottom 20*). In the opening specification (column 1 in Table 9), namely, the benchmark model excluding *Fractionalisation*, *Conflict* and the regional dummies, the coefficient for the regulation index has the expected positive sign and is highly significant at the 1 per cent level. Similar to the previous benchmark equation (column 1 in Table 6), trade is positively associated with per capita income levels. The interactive term *Trade*Bottom20* is negative and significant at the 10 per cent level. Importantly, the coefficient for *Trade*Bottom20* is three times as large as the coefficient for *Trade*, which implies that trade has a negative net impact on income in the countries with low-quality regulations (+0.25-0.74 = -0.49). The significance level for the interactive term declines below the conventional

[34] We have used the institution dummy as opposed to the institution indicators directly in the interaction because it offers the better fit. At this stage, we have not performed dynamic growth regressions that include the interactive term *Trade*Institutional Dummy*. This could be an useful extension of the analysis to further check the robustness of the results.

threshold level, however, if we add further control variables and the regional dummies (columns 2 to 4).

Table 9: Trade, Institutions and Income Levels, Aggregated Regulation Index and 20 Per Cent Most Regulated Countries, 2003

Independent variables	Dependent variable: ln GNI per capita, PPP US $, 2003							
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) IV	(8) IV
Trade	0.25**	0.26***	0.25***	0.18*	0.05	0.30	0.27	0.05
	(2.48)	(2.70)	(2.56)	(1.79)	(0.15)	(0.97)	(0.90)	(0.17)
Regulation Index	0.18***	0.17***	0.17***	0.16***	0.09**	0.12***	0.12***	0.11**
	(9.37)	(8.65)	(8.35)	(6.77)	(2.18)	(2.93)	(2.84)	(2.09)
Trade*Bottom 20	-0.74*	-0.53	-0.48	-0.51	-2.63*	-2.57*	-2.36	-2.74**
	(-1.64)	(-1.18)	(-1.09)	(-1.16)	(-1.70)	(-1.67)	(-1.49)	(-1.93)
Bottom 20	0.58*	0.52*	0.49*	0.54*	0.99	1.25*	1.12	1.30*
	(1.86)	(1.74)	(1.70)	(1.88)	(1.32)	(1.66)	(1.46)	(1.85)
Distance from Equator	0.03***	0.02***	0.02***	0.01*	0.03***	0.03***	0.03***	0.01**
	(7.87)	(6.95)	(6.48)	(1.71)	(6.86)	(5.94)	(5.98)	(1.97)
Landlock	-0.42***	-0.34**	-0.34**	-0.23*	-0.69***	-0.55***	-0.55***	-0.45***
	(-2.58)	(-2.19)	(-2.21)	(-1.67)	(-3.67)	(-2.96)	(-2.99)	(-2.52)
ln Population	0.03	0.05	0.06	0.05	-0.01	0.02	0.03	0.01
	(1.04)	(1.39)	(1.44)	(1.46)	(-0.18)	(0.46)	(0.66)	(0.17)
Fractionalisation		-0.68***	-0.67**	-0.15		-0.59**	-0.59**	0.04
		(-2.48)	(-2.46)	(-0.51)		(-2.02)	(-2.07)	(0.13)
ln Conflict			-0.02	-0.02			-0.03	-0.01
			(-0.52)	(-0.46)			(-0.53)	(-0.24)
Regional dummies	No	No	No	Yes	No	No	No	Yes
Shea partial R^2 (first-stage)								
Regulation Index					0.33	0.28	0.30	0.23
Trade					0.25	0.22	0.24	0.24
Trade*Bottom 20					0.14	0.13	0.12	0.13
Hansen-Sargan overidentification test (χ^2(j) P-value)					8.67 (0.12)	2.92 (0.40)	2.71 (0.44)	2.31 (0.68)
R^2	0.73	0.75	0.75	0.80	0.66	0.71	0.71	0.75
Observations	139	139	139	139	139	139	139	139

Notes: See Tables 5 and 6; significance at the 10, 5, and 1 per cent levels are denoted by *, **, ***, respectively. For the regressions with the interactive term, we also explore the interactions of the legal origin and the language variables with the instruments selected from our identifying assumptions.

Next, we instrument for trade, regulations and the interactive term (columns 5 to 8). The regulatory quality is still an important explanatory variable for variations in per capita income. Similar to the results presented in Table 6, *Trade* is no longer significant in the IV regressions. The interactive term has now a negative and significant coefficient in three out of four specifications, implying that countries with the worst regulatory quality are not able to benefit from an increasing market integration. The selected instruments are both valid and appropriate for all three instrumented variables, as can be seen from the results for the Shea partial R^2 and the Hansen-Sargan test.

In another set of regressions, we repeat the exercise for the top 30, 40 and 50 per cent most regulated economies (*Bottom 30*, *Bottom 40*, and *Bottom 50*). These further tests are useful to ascertain whether the results are influenced by the particular threshold level chosen for the institution dummy. In comparison to the 20 per cent most regulated countries, the significance levels of the coefficients for the interactive term slightly improve if we set the cut-off point at the 30 per cent most regulated economies (top-left in Table 10). While the interactive term is also statistically significant in one out of four OLS regressions, it is significant in all four IV regressions. If we increase the threshold level to 40 or 50 per cent most regulated countries, the number of significant coefficients declines considerably. These results indicate that there is a particular threshold level, which is highly relevant for our results. In other words, low-quality regulations do not allow the top 20 or 30 per cent most regulated economies to take advantage of trade.

Contrary to the most regulated countries, we do not obtain significant results for the countries with better regulatory quality (*Top 20* to *Top 50*). This does not imply, however, that these countries are able to achieve gains from trade. Rather, the chosen cut-off points for the dummy or the aggregation procedure for the regulation index might contribute to this outcome. Therefore, we repeat the analysis for all ten disaggregated regulations indicators. By applying them individually, we are able to identify those regulation sub-components that drive our results. Out of the ten sub-components, *Labour Market Regulation* shows the strongest results if we focus on the 20 to 50 per cent most regulated countries. In all OLS and IV specifications, we obtain a negative and significant coefficient for the interactive term, independent of whether we use the 20, 30, 40 or 50 per cent threshold level.[35] Countries with less regulated labour markets, on the other hand, are able to benefit from trade, since the sign of the coefficient is positive and significant in almost all model specifications. Following this, governments should have a strong incentive to reform their regulatory framework.

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[35] Detailed results for all sub-components are not shown due to space constraints. Like all other results, they are available upon request.

Table 10: Trade, Institutions and Income Levels, Regulation Indicators, 2003

Cut-off point for Institution Dummy (per cent)	Number of regressions where interactive term Trade*Institution Dummy is significant (4 OLS and IV regressions each)[1]											
	Regulation Index			Starting a Business			Labour Market Regulation			Paying Taxes		
	OLS	IV	Sign[2]	OLS	IV	Sign[2]	OLS	IV	Sign[2]	OLS	IV	Sign[2]
Bottom 20	1	3	-	3	4	-	4	4	-	2	3	-
Bottom 30	1	4	-	0	3	-	4	4	-	4	4	-
Bottom 40	1	1	-	0	3	-	4	4	-	0	4	-
Bottom 50	0	0		0	3	-	4	4	-	0	1	
Top 20	0	0		0	2	+	2	4	+	0	2	+
Top 30	0	0		0	3	+	4	4	+	3	0	+
Top 40	0	0		0	0		4	4	+	1	2	+
Top 50	0	0		1	3	+	4	4	+	0	1	+
	Protecting Investors[3]			Trading Across Borders			Getting Credit[4]			Enforcing Contracts		
	OLS	IV	Sign[2]	OLS	IV	Sign[2]	OLS	IV	Sign[2]	OLS	IV	Sign[2]
Bottom 20	0	1	-	4	3	-	0	0		0	3	-
Bottom 30	0	0		0	0		0	0		0	0	
Bottom 40	0	0		0	0		0	0		0	0	
Bottom 50	0	0		0	0		0	0		0	0	
Top 20	0	3	+	0	0		0	0		0	0	
Top 30	0	1	+	2	0	+	0	0		0	1	+
Top 40	0	0		0	0		0	0		0	0	
Top 50	0	0		0	0		0	0		0	0	
	Closing a Business			Dealing with Licences			Registering Property					
	OLS	IV	Sign[2]	OLS	IV	Sign[2]	OLS	IV	Sign[2]			
Bottom 20	0	4	-	0	0		0	0				
Bottom 30	0	0		1	0	+[5]	0	0				
Bottom 40	0	0		0	0		0	0				
Bottom 50	0	0		0	0		0	0				
Top 20	0	0		0	0		0	0				
Top 30	0	0		0	0		0	0				
Top 40	0	0		0	0		0	0				
Top 50	0	0		0	0		0	0				

Notes: *Bottom 20* refers to the 20 per cent most regulated countries, *Top 20* refers to the 20 per cent least regulated countries, and so on. [1]10 per cent significance level or better. [2] Sign of the coefficient. [3]Due to the distribution of the figures for the indicator, we use the 18, 24, 36, and 46 per cent least regulated countries and the 24, 33, 46, and 54 per cent most regulated countries. [4]Here, we use the 17 and 41 per cent most regulated countries. [5]The positive (and significant) coefficient is due to one clear outlier (Malaysia). If we exclude this country, the significance level falls far below the 10 per cent level.

We also find strong results for regulations related to starting a business and paying taxes. For *Starting a Business* and *Paying Taxes*, the IV regressions show that at the *Bottom 50* and *Bottom 40* cut-off points, respectively, countries with excessive regulations may not take advantage from an increase in market integration. Importantly, for countries with less rigid regulations for both indicators we obtain the opposite outcome, though the results for different cut-off points are less straight forward in comparison to the labour market regulation sub-component.

For the remaining sub-components, we obtain significant results for *Trading across Borders*, *Enforcing Contracts*, and *Closing a Business*, but only for the 20 per cent most regulated countries, indicating that the threshold level is much lower for these indicators. Still, they matter for the impact of regulations on growth rates via the interaction with trade, but the negative impact of trade on income is restricted to the group of countries with very rigid regulations (bottom 20 per cent). Getting credit, dealing with licences or registering property are not closely associated in the linkage between trade and income levels. In general, these results underline the fact that some individual regulations, such as starting a business, the rigidity of employment and paying taxes, matter more for the interaction between trade, regulations and growth. Nevertheless, we think that the overall level of regulations in a country plays an important role too. Above all, individual components which affect the reallocation of factor endowments may interact with each other.

In another set of regressions, we employ the good governance variables for the computation of the institutional dummy. As opposed to the regulation indicators, we do not find a similarly strong influence of institutional quality on the interaction of trade and income levels (Table 11). While the results of OLS regressions are broadly comparable to those of the first set of regressions, we hardly get a consistent pattern in the instrumental approach. For *Rule of Law* and *Control of Corruption*, we do not obtain robust estimates. Furthermore, for *Political Stability* and *Voice and Accountability*, the coefficients for the interactive term in the IV regressions are not significant at all. One reason that might help to explain this rather disappointing outcome is the fact that the good governance indicators are perception-based and that the surveys conducted for the indicators are particularly influenced by different stages of development. This could explain the considerable differences between the OLS and IV results.

Nonetheless, we do find evidence that *Regulatory Quality* and *Government Effectiveness* have some explanatory power in the instrumental regressions too. Although the IV results for both good governance indicators are not very robust too, we find significant results if the cut-off point is set at the 20 cent level for the most regulated countries. Using this threshold level, we observe a negative impact of trade on income levels. *Regulatory Quality* and *Government Effectiveness* are related to the capacity of the government to effectively formulate and implement sound policies, which in fact is quite similar to business regulations, measured by the Doing Business indicators. In fact, the partial correlations between *Regulation Index* and

Regulatory Quality and *Government Effectiveness* are 0.82 and 0.83, respectively, indicating that both sets of indicators are closely related to each other. However, the Doing Business indicators measure regulations in a more objective way, which stresses their relevance for our analysis. Overall, the results emphasise the importance of high-quality regulations in order to reduce the adjustment costs of trade liberalisation and enhance the welfare gains from trade.

Table 11: Trade, Institutions and Income Levels, Good Governance Indicators, 2003

Cut-off point for Institution Dummy (per cent)	Number of regressions where interactive term Trade*Institution Dummy is significant (4 OLS and IV regressions each)[1]								
	Rule of Law			Control of Corruption			Regulatory Quality		
	OLS	IV	Sign[2]	OLS	IV	Sign[2]	OLS	IV	Sign[2]
Bottom 20	4	2	-	0	1	-	1	4	-
Bottom 30	2	0	-	4	0	-	0	0	
Bottom 40	4	1	-	4	1	-	0	0	
Bottom 50	3	0	-	4	0	-	0	0	
Top 20	0	1	+	0	0		0	0	
Top 30	0	0		0	0		0	0	
Top 40	0	0		1	0	+	0	0	
Top 50	2	0	+	4	1	+	0	0	
	Government Effectiveness			Political Stability			Voice and Accountability		
	OLS	IV	Sign[2]	OLS	IV	Sign[2]	OLS	IV	Sign[2]
Bottom 20	3	3	-	1	0	-	4	0	-
Bottom 30	4	0	-	0	0		0	0	
Bottom 40	1	0	-	1	0	-	4	0	-
Bottom 50	0	0		4	0	-	0	0	
Top 20	0	0		0	0		4	0	-
Top 30	0	1	+	0	0		4	0	-
Top 40	0	0		0	0		4	0	-
Top 50	0	0		4	0		0	0	

Notes: See Table 10. [1]10 per cent significance level or better. [2] Sign of the coefficient.

7. Institutional Quality in ECOWAS Countries

So far, we have discussed the importance of institutional quality for the impact of trade on income levels for all countries included in our data sample. Next, the focus will turn to the relative performance of ECOWAS countries (benchmarking). Using the aggregated *Regulation Index*, we find that no West African country falls in the group of the 50 per cent least regulated countries (Table 12). Even Ghana, the top performer in West Africa, is placed at a rather low ranking of 82. What is more worrying is the fact that apart from Ghana and Senegal, all other ECOWAS countries belong to the group of 30 per cent most regulated countries (bottom 30 per cent of 139 countries is equal to ranking no. 98 and below). Niger,

Sierra Leone and Burkina Faso are in fact very close to the bottom of the entire country sample, that is, they have business regulations that are far below average. As a consequence, the large majority of West African countries belong precisely to the group of countries for which we obtain a negative linkage between trade and income levels.

For three sub-components of the aggregated indicator that play a major role in influencing whether trade has a positive impact on economic development, the rankings are somewhat similar. ECOWAS countries have relatively time consuming and expensive procedures for local entrepreneurs in starting a business. Apart from Nigeria, all of them are in the lower half of the ranking, thereby hindering their economies from taking advantage of trade. For labour market regulations, only Ghana and Nigeria have relative flexible regulations, whereas the remaining West African countries belong to the *Bottom 40* group. Finally, only Ghana, Burkina Faso and Niger have tax systems that are flexible enough to exclude them from the *Bottom 40* group of countries. For *Trading across Borders*, *Enforcing Contracts* and *Closing a Business*, three out of 12 ECOWAS countries belong to the *Bottom 20* group for which we obtain a negative impact of trade on income.[36]

[36] It is important to keep in mind that these are preliminary results which should be built on in a more comprehensive analysis of the relative (absolute) performance of institutional quality in West Africa.

Table 12: Relative Ranking for ECOWAS Countries and Regulation Indicators

Starting a Business		Labour Market Regulation		Paying Taxes		Protecting Investors		Trading across Boarders		Getting Credit		Enforcing Contracts		Closing a Business		Dealing with Licences		Registering Property		Regulation Index	
Country	R*	Country	R*	Country	R*	Country	R*	Country	R*	Country	R*	Country	R*	Country	R*	Country	R*	Country	R*	Country	R*
Nigeria	66	Ghana	34	Ghana	65	Ghana	25	Senegal	39	Nigeria	59	Ghana	28	Nigeria	59	Senegal	62	Mauri-tania	43	Ghana	82
Benin	80	Nigeria	39	Burkina Faso	77	Benin	33	Sierra Leone	72	Senegal	61	Mali	63	Senegal	61	Ghana	66	Benin	80	Senegal	94
Senegal	86	Cote d'Ivoire	93	Niger	83	Nigeria	33	Togo	84	Guinea	68	Mauritania	69	Guinea	68	Mauri-tania	74	Niger	96	Benin	105
Cote d'Ivoire	98	Guinea	97	Togo	96	Burkina Faso	73	Benin	95	Ghana	69	Niger	80	Ghana	69	Togo	93	Togo	109	Mauri-tania	107
Ghana	111	Benin	109	Mali	102	Cote d'Ivoire	73	Mauri-tania	98	Cote d'Ivoire	77	Senegal	87	Cote d'Ivoire	77	Benin	111	Mali	112	Togo	113
Burkina Faso	114	Senegal	111	Guinea	111	Guinea	73	Ghana	100	Togo	79	Guinea	93	Togo	79	Nigeria	118	Guinea	113	Guinea	116
Guinea	118	Mauri-tania	114	Nigeria	113	Mali	73	Cote d'Ivoire	102	Benin	89	Cote d'Ivoire	94	Benin	89	Guinea	121	Sierra Leone	120	Cote d'Ivoire	120
Mali	120	Mali	126	Cote d'Ivoire	114	Niger	73	Guinea	109	Burkina Faso	96	Togo	102	Burkina Faso	96	Niger	124	Senegal	122	Nigeria	125
Togo	124	Togo	139	Benin	118	Sierra Leone	73	Burkina Faso	122	Mali	104	Nigeria	105	Mali	104	Mali	129	Ghana	124	Mali	127
Mauri-tania	125	Burkina Faso	140	Senegal	120	Togo	103	Nigeria	129	Niger	120	Sierra Leone	121	Niger	120	Cote d'Ivoire	132	Burkina Faso	128	Niger	131
Sierra Leone	131	Niger	141	Mauri-tania	133	Senegal	115	Mali	131	Sierra Leone	121	Benin	125	Sierra Leone	121	Sierra Leone	133	Cote d'Ivoire	137	Sierra Leone	133
Niger	134	Sierra Leone	142	Sierra Leone	135	Mauri-tania	na	Niger	139	Mauri-tania	125	Burkina Faso	132	Mauri-tania	125	Burkina Faso	137	Nigeria	141	Burkina Faso	135
No. of countries:	142		142		141		134		142		142		142		142		139		141		139

Notes: *Relative ranking; countries in the shaded areas belong to the group for which the linkage between trade and income is negative.

Table 13: Relative Ranking for ECOWAS Countries and Good Governance Indicators

Rule of Law		Control of Corruption		Regulatory Quality		Government Effectiveness		Political Stability		Voice & Accountability	
Country	Ranking	Country	Ranking	Country	Ranking	Country	Ranking	Country	Ranking	Country	Ranking
Cape Verde	48	Cape Verde	42	Cape Verde	49	Mauritania	50	Cape Verde	35	Cape Verde	36
Ghana	65	Mauritania	53	Mauritania	63	Senegal	62	Gambia	47	Ghana	51
Senegal	68	Ghana	63	Gambia	74	Ghana	65	Mauritania	54	Mali	54
Gambia	74	Benin	70	Mali	80	Cape Verde	68	Mali	61	Benin	56
Mali	77	Burkina Faso	73	Burkina Faso	82	Mali	75	Ghana	65	Senegal	63
Benin	81	Senegal	77	Ghana	83	Benin	85	Senegal	74	Niger	75
Mauritania	92	Mali	85	Senegal	86	Gambia	91	Burkina Faso	82	Burkina Faso	89
Burkina Faso	94	Gambia	93	Benin	99	Burkina Faso	92	Benin	84	Sierra Leone	96
Niger	116	Guinea-Bissau	99	Niger	112	Niger	118	Guinea-Bissau	88	Gambia	99
Togo	123	Guinea	110	Togo	117	Guinea	124	Togo	89	Guinea-Bissau	100
Guinea	126	Liberia	115	Cote d'Ivoire	119	Nigeria	129	Niger	90	Nigeria	103
Sierra Leone	127	Niger	117	Guinea-Bissau	121	Guinea-Bissau	136	Sierra Leone	94	Guinea	124
Guinea-Bissau	133	Sierra Leone	118	Guinea	124	Cote d'Ivoire	139	Guinea	112	Mauritania	126
Cote d'Ivoire	138	Togo	125	Sierra Leone	125	Togo	140	Nigeria	139	Togo	131
Nigeria	139	Cote d'Ivoire	130	Nigeria	136	Sierra Leone	141	Liberia	144	Liberia	132
Liberia	146	Nigeria	136	Liberia	144	Liberia	145	Cote d'Ivoire	146	Cote d'Ivoire	135
No. of countries:	146		146		146		146		146		146

Note: Countries in the shaded areas belong to the group for which the linkage between trade and income is negative.

While the majority of ECOWAS countries score well below average in the Doing Business indicators, the relative ranking does do not exemplify the sometimes severe impact of business regulations on economic activities in West African countries. Following this, we provide a few examples for the sub-components of the disaggregated indicators for illustration of business regulations. For instance[37]

- Entrepreneurs in Sierra Leone have to pay 835 per cent of (national) income per capita to start a business.
- The cost of firing an employee in Mali is equivalent to some 81 weeks' wages.
- Firms in Sierra Leone who intend to pay their taxes in full would have to part with 164 per cent of their gross profits, that is, everything they earn and more.
- To import a product into Niger, it takes 19 documents, requires 52 signatures and takes 89 days to deal with the required paperwork and customs inspections.
- The judicial procedures for the enforcement of a contract in Burkina Faso take 446 days and cost some 95 per cent of the debt, i.e., almost the entire disputed amount.
- To register a property in Nigeria, the owner has to part with 27 per cent of the property value.

Though these are admittedly extreme examples, business regulations in West Africa often fail even on their own terms: Higher tax rates do not always pull in more revenue, or the most tightly regulated labour markets do not offer the best protection to workers. Rather, extremely inflexible business regulations drive firms and workers into the informal economy, beyond the reach of inspectors, trade unions and tax authorities (Figure 4). Needless to say, working conditions in the shadow economy are often much worse in comparison to formal sector. What is more worrying, firms in the informal sector are less productive (World Bank, 2005c). They cannot take advantage of economies of scale, since they must be small to stay hidden. In addition, they are less likely to engage in trade and take advantage of export opportunities abroad, that is, the potential gains from trade cannot be realised.

In view of the relative performance of ECOWAS countries in business regulations, reforms are sorely needed. However, all 16 West African governments managed just two reforms in 2004, thereby placing ECOWAS in the regional group with the lowest reform intensity

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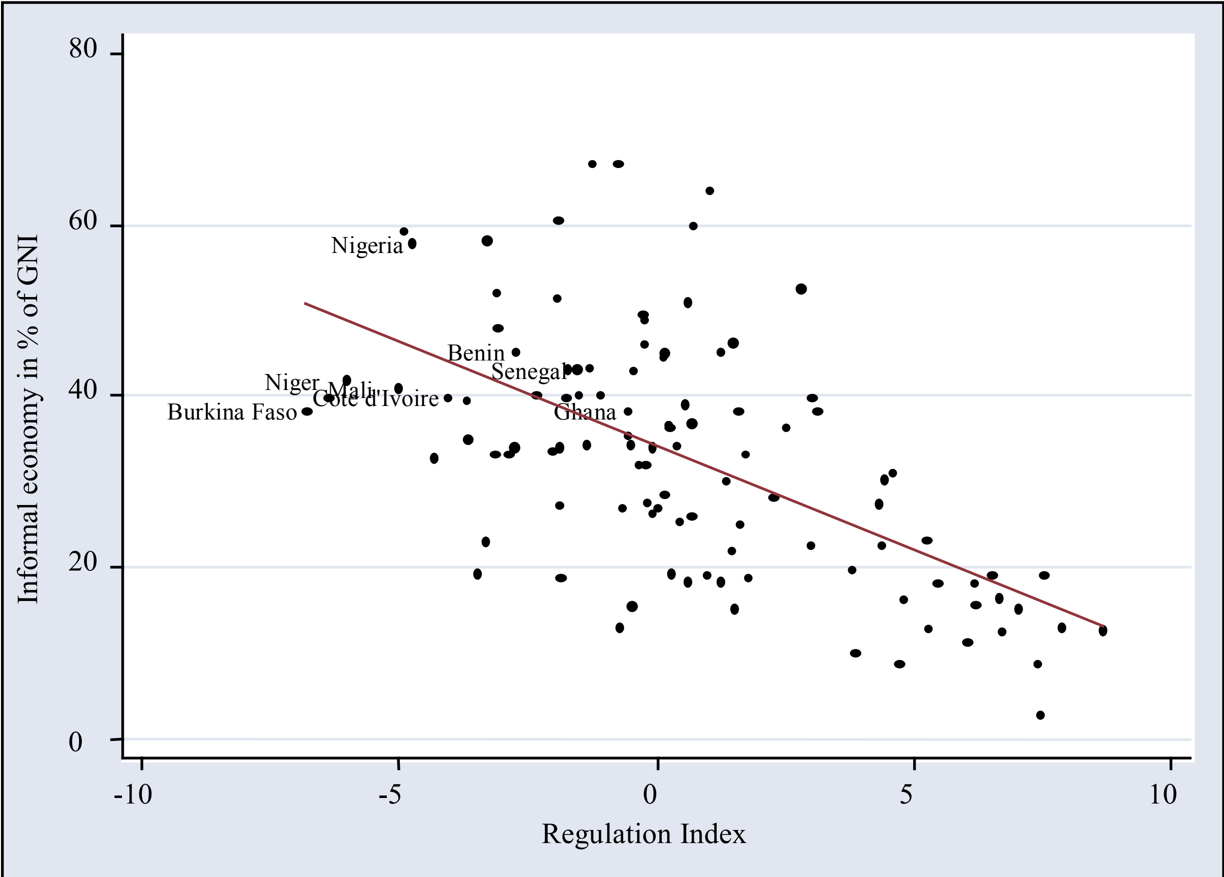
[37] See Appendix D for details on all ECOWAS countries.

(World Bank, 2005c). Although a few ECOWAS countries, such as Burkina Faso, intend to improve their regulatory framework, others made their regulatory framework even more burdensome. In fact, Mauritania was the only country in the world to raise its corporate income tax rate in 2004.

Figure 4: Regulation Index and Informal Economy



Note: Estimates for the informal economy are available for only 108 countries in our sample (World Bank, 2005c).

For the good governance indicators, we obtain a relatively similar ranking for ECOWAS countries. In general, West African countries can be found in the lower half or even lower third of the ranking of 146 countries (Table 13).[38] For *Regulatory Quality* and *Government Effectiveness*, half of ECOWAS countries belong to the bottom 20 per cent nations with the most regulations and least governmental efficiency, for which we obtain a negative relationship between trade and income. On the other hand, Cape Verde scores relatively well on all six good governance indicators. Its performance is even better than that of Ghana, the

[38] See Appendix E for details on all ECOWAS countries.

country with the best performance in the Doing Business dataset among West African countries.[39]

To sum up the results, there is evidence that ECOWAS countries have not been able to take advantage of trade so far, as shown by the negative linkage between trade and income for this regional grouping in the (very) long run. Furthermore, institutional quality clearly plays a fundamental key role for successful trade liberalisation. While the good governance indicators are less important for the direct linkage between trade and income levels, they do matter for overall economic development. Given the scale of inflexibility in regulations, ECOWAS countries would need to take big steps (or even start) in reforming their regulatory framework in order to enable them to take advantage of trade liberalisation.

While the results demonstrate the importance of institutional quality, they do not imply that the majority of ECOWAS countries will never be able to achieve gains from trade. Rather, the outcome demonstrates that West African countries are *currently* unlikely to benefit from a dismantling of tariff barriers as part of the EPA process and suggests that comprehensive institutional reforms are required to harness the gains from increased market integration.

8. Implications for Institutional Reforms

Institutional reforms imply an enormous policy challenge for ECOWAS member states, since the majority of them are least-developed countries and have to start from a low level of formal institutional development. Moreover, they face a vast array of serious political, economic and social problems. In the remaining section of this preliminary study, we briefly discuss five main aspects of institutional change in ECOWAS countries: (1) the enormous scope of institutional reform requirements, (2) the complex framework for related policies, (3) the considerable time pressure involved, (4) the selection and design of appropriate strategies, and (5) the amount and quality of external support for reforms. We intend to outline broader issues involved as well as to highlight some of the main questions and challenges faced. Needless to say, a much more in-depth-analysis of institutional reforms is required to

[39] We could not include Cape Verde in the Doing Business Regulation ranking, as no data is available for this country.

adequately address the complex issues involved, including an analysis at the (ECOWAS) country level.

The relatively poor performance of ECOWAS countries for the institutional quality indicators highlights the enormous *scope of institutional reform requirements* and might dampen prospects for improvements achievable in the short and medium terms. According to the World Bank (2001), policy makers could become paralysed by the apparent need to undertake ambitious reforms on a wide and ever-expanding front. Even if we narrow the scope and concentrate on those institutions that are directly related to trade liberalisation, we still face a whole host of problems, which are partly interrelated and which call for an integrated approach. For example, market entry conditions, which we identified earlier as a priority area for institutional reforms, include a large number of issues such as property rights (access and transfer), competition law (rules for mergers, acquisitions, pricing), taxation (level and structure, incentives), financial market regulations (collateral requirements, protection of creditors), openness (rules for trade, financial services, FDI), administrative procedures and costs to start a business. Regulations of market performance show a similarly complex pattern. Here again, competition law matters as well as labour market regulations, ecological and technical standards and provisions, the law and enforcement of contracts, trade supervision, customs clearance, to mention just a few issues. Last but not least, conditions for market exit are relevant too, such as insolvency law, right of cancellation, social safety, and so on.

Following this, the question remains as to how comprehensive and integrated a strategy for institutional change should be and whether partial reforms could also be successful, taking into account the often limited political and administrative capacities of poor countries. Although more in-depth-analysis is required to shed more insight, some empirical observations and suggestions taken from the literature of institutional change are worth mentioning here. Aron (2000) and Rodrik (2004), for example, argue that large-scale institutional transformation is hardly ever a prerequisite for getting growth going, not even in poorer countries. The initial impetus for growth could also be achieved with minimal changes in institutional arrangements. There is a need to distinguish between stimulating economic growth and sustaining it. Solid institutions appear much more important for the latter than for the former (Rodrik, 2004; Hausmann et al., 2004).

As to the *framework conditions*, it is not the low level of institutional development alone that is a burden for reforms. What matters probably more is the fact that a country's institutional setting is shaped by a combination of history, economic structure, political system and culture (IMF, 2005). Consequently, institutions tend to be persistent over time although not immutable. They typically change incrementally rather than in a discontinuous fashion (North, 1990). Even discontinuous changes such as revolution are never completely discontinuous, but the result of the embedded informal constraints in society. Although formal rules may be changed abruptly as a result of political and judicial decisions, informal constraints like customs, traditions and code of conducts cannot be fully excluded from the reform agenda when, for example, economic performance and efficiency are to be increased by the formalisation of a greater part of informal economic activities. In contrast to formal rules, informal institutions are much more difficult to be penetrated by deliberate policies. Informal rules have to be respected, since they form a large part of the indispensable social capital and compensate much for the deficiencies of formal institutions. Building bridges between existing formal and informal institutions is an effective route to enhancing the success of formal institutions (World Bank, 2001).

In this context, an important question is how to initiate institutional change despite the inertia of existing formal and informal institutions. Above all, whether more efficient institutions can be introduced largely depends on the interests of those having the power to devise new institutions and of others, who should accept, adapt to and use the new rules (Anderson, 2005; WTO, 2004). In fact, this is a classical example for the political economy of reforms. The general commitment of political leaders to good governance and their willingness to use their political weight in support of reforms is crucial for an effective impetus for institutional reforms. Institutional improvements can only be harnessed if the top has fully recognised their importance (Szepesi, 2004). Trade liberalisation could provide an external impetus and may help politicians to lock in their reform programmes.

However, institutional and other reforms are unlikely to survive or to be implemented if established only in response to external pressures and designed and implemented without ownership of those whose interests would directly be affected. It is important to involve all possible public and private stakeholders in the reform process. In the area of trade reform, for instance, developing countries, which have broadened their policy-making processes by engaging in open and inclusive consultations with the private sector, have generally

performed better than countries where such consultations have been absent (Fukuda-Parr et al., 2002). Once stakeholders find themselves adequately involved in the planning and implementation of new rules, a promising basis for institutional change can emerge (Szepesi, 2004).

ECOWAS countries are facing the challenge of much needed institutional reforms due to general institutional deficits as well as the intra-regional integration process[40] and the tight EPA time schedule. Substantive EPA negotiations started only in 2004. The agreements ought to enter into force at the beginning of 2008, with an implementation period from 2008 to 2020. Still, there is considerable *time pressure* during the transitory phase, as the institutions have to be in place before the actual trade liberalisation. It is an open question, whether the time frames for trade liberalisation and the required institutional reforms do really match.

As to the negotiation phase of the EPAs, the challenge is to get a clear picture of the size and structure of institutional reforms, to involve all stakeholders into the process as a prerequisite of success and to implement a first package of required institutional reforms. With the agreements coming into effect, a gradual process of dismantling trade barriers would start, which has to be accompanied by preparatory and synchronous institutional reforms. There is a on-going debate on the definition of an appropriate length of this transitory phase. Here, the legal aspect of the WTO conformity of submitted proposals, limiting this phase either to 10, 12, 15 or more than 18 years,[41] plays a remarkable role.[42] It appears, however, that the legal approach is misleading, since the timing of the EPA process should be designed according to the objectives of the two projects, the capacity to cope with the required structural adjustments, the resources available to prepare for the hard and soft infrastructure needed to make best use of the new trading environment for growth, and the ability to master the political and administrative problems of related institutional reforms. Apparently, this is an enormous challenge, in particular for the least developed countries within ECOWAS, and there is an obvious risk of overstraining them by an overly tight time schedule. Therefore, much more analysis of their capacity to manage all this in due time is needed to improve the basis for a proper scheduling of the EPA process.

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[40] ECOWAS member countries intend to establish a customs union by 2007 at the latest.

[41] In a submission to the WTO, ACP countries proposed a transitory phase of more than 18 years (WTO, 2004).

[42] See Borrmann et al. (2005) for an overview; other main papers on this issue are Mathis (2002), Onguglo and Ito (2003) and South Centre (2005).

The time required for institutional change also depends on the selection of an appropriate *strategy for reform*. Basically, there are three options: imitation, adaptation and innovation. Developing countries might have a preference for imitating models of institutional reforms that were successfully applied elsewhere, thus saving time and resources and repeating effective leapfrogging in the field of technology. Chang (2002) suggests such a "catching-up" framework, where the late-developing countries can import institutions from the developed countries and thereby use "better" institutions without paying for the same "prices". He argues that the developing countries today are enjoying higher standards of political democracy, human rights, and social development than what were achieved by today's developed countries at similar levels of economic development, thanks to their institutional imitation.

However, there are clear warnings of simplistic institutional imitation. Institutions that are effective in industrial countries can have quite different outcomes in developing countries, which, for example, have fewer complementary institutions, weaker administrative capacity, higher per capita costs, lower human capital levels, different technology, and different levels and perceptions of corruption (World Bank, 2001). According to Rodrik et al. (2004), desirable institutional arrangements have a large element of context specificity due to differences in historical trajectories, geography and political economy or other initial conditions. A vivid indication that there is no blue print of an institutional design is the fact that countries with a similar level of income can have very different institutional settings (Jütting, 2003). Therefore, cross-country studies are of limited value for specifying a reform agenda for any particular country. By abstracting from the individual country case, cross-country studies may give important insights on how institutions impact on development outcomes and vice-versa (Jütting, 2003; World Bank, 2001). But there is wide consensus that in the same way in which imported technology needs to be adapted to the local conditions, some degree of adaptation is needed in order to make imported institutions work (Chang, 2005).

Regardless of being imported or innovated, new institutions should be designed to complement what exists. Both the historical European example and the more recent example from China illustrate that institutions tend to function well if they complement the existing environment in terms of other supporting institutions, human capabilities and available

technologies (North, 1990, 1994). This has again much to do with the political economy of reforms: Unless newly designed institutions enjoy certain degree of political legitimacy among the members of the society in question, they are not going to work (Jacoby, 2000).

Frequently, ECOWAS (and other ACP) countries have reminded the EU that her *external support* for institutional reforms is part and parcel of the EPA project. Moreover, they argue that their general need of financial support for implementing EPAs exceeds current financial commitments of the EU. Therefore, they expect the EU to substantially increase the volume of aid – what it has already been rejecting.

While we refrain from contributing to this debate, we would like to emphasise that it is an indispensable precondition for the success of the EPAs that ACP countries have to commit themselves to sufficient investments in their institutional infrastructure. Institutional reforms are a part of their very own responsibility for development and aid might provide just a minor supplement. In addition, we would like to stress that the quality of aid and the way it is used also matter. Aid can affect institutional development in the recipient countries in many ways – positively as well as negatively (IMF, 2005). Empirical evidence on the net effect is mixed. Therefore, donors and recipients should be mindful of the potential effects and seek to ensure both that aid is provided in ways that minimise any adverse risks to domestic institutions, and that the institutional environment in recipient countries is strengthened to make best use of aid inflows. Both sides should be particularly aware of the risks involved in "blue-print-aid".

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Appendices

Appendix A: Country Sample

Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bangladesh, Belarus, Belgium, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Central African Republic, Chad, Chile, China, Colombia, Democratic Republic of Congo, Republic of Congo, Costa Rica, Cote d'Ivoire, Croatia, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Finland, France, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, China, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Republic of Korea, Kuwait, Kyrgyz Republic, Laos, Latvia, Lebanon, Lesotho, Liberia, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Rwanda, Samoa, Country, Sao Tome and Principe, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Republic, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Arab Republic of Syrian, Tanzania, Thailand, Togo, Tonga, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Republic of Yemen, Zambia, Zimbabwe

Appendix B: Definition and Data Sources for all Variables

Variable	Definition	Source
BMP	Black market premium (BMP) for foreign currency (US Dollar) in per cent, calculated as ln (1+BMP)	World Bank (2005b)
Conflict	Number and intensity of internal and external conflicts, 1970-2004	CSCW (2005)
Distance from Equator	Distance from the equator, measured as absolute value of latitude of capital city	Dollar and Kraay (2002) dataset
Engfrac	Fraction of the population speaking English, per cent	Dollar and Kraay (2002) dataset
Eurfrac	Fraction of the population speaking a major European Language, per cent	Dollar and Kraay (2002) dataset
Fittrade	Fitted values of predicted trade by the exogenous variables in a gravity model	Dollar and Kraay (2002) dataset
Fractionalisation	Ethno-linguistic fractionalisation of the population, average for ethno and linguistic diversity, varying base years	Alesina et al. (2003)
Growth	Real growth of Gross Domestic Product per capita in per cent	World Bank (2005a)
GNI	Gross National Income per capita in international US dollars (PPP)	World Bank (2005a)
Good Governance	Set of six good governance indicators, standardised values, range from -2.5 to +2.5, 2004	Kaufmann et al. (2005)
Government	Government consumption divided by GDP	World Bank (2005a)
Human Capital	Educational attainment level, measured as school enrolment ratios and literacy rates	Barro & Lee (2000)
Inflation Rate	Change in consumer prices (CPI), computed as ln (1+CPI average inflation)	World Bank (2005a)
Informal	Informal economy, per cent of Gross National Income	World Bank (2005c)
Institution Dummy	Composite regulation dummy for the 20/30/40/50 per cent most or least regulated countries in the sample, 0 and 1, January 2005	
Investment	Investment (gross capital formation) divided by GDP	World Bank (2005a)
Landlock	Dummy for landlocked countries, 0 and 1	Dollar and Kraay (2002) dataset
Law and Order	Law and Order, 0-12 scale	PRS Group (2005)
Legal Origin	Legal origin dummies for British, French, German, Scandinavian and Socialist, 0 and 1	World Bank (2004)
Population	Population in million, 2003	World Bank (2005a)
Population Growth	Population growth in per cent	World Bank (2005a)
Regional dummies	Set of eight regional dummy variables: (1) Sub-Saharan Africa, (2) South Asia, (3) East Asia & the Pacific, (4) Central Asia, (5) Middle East & North Africa, (6) Latin America & the Caribbean, (7) Europe, and (8) North America	World Bank (2005a)
Regulation Indicator	Set of ten business regulation indicators: starting a business, labour market regulation, paying taxes, protecting investors, trading across borders, getting credit, enforcing contracts, closing a business, dealing with licences, registering property, and aggregated Regulation Index, January 2005	World Bank (2005c)
Terms of Trade	Terms of trade, defined as the ratio of the export price index to the corresponding import price index measured relative to the base year 2000	World Bank (2005b)
Trade	Total imports and exports of goods divided by Gross Domestic Product, 2003	World Bank (2005a)

Appendix C: Economic, Social and Legal Origin Data for ECOWAS Countries

Appendix C1: Per Capita Income, Trade and Geographic Data

Country	GNI per capita, PPP US $, 2003	Trade, % of GDP, 2003	Population, mill., 2003	Dummy landlocked country, 0-1	Distance from equator, latitude
Benin	1,110	37.4	6.7	0	6
Burkina Faso	1,170	28.0	12.1	1	12
Cape Verde	5,130	39.8	0.5	0	14
Cote d'Ivoire	1,400	75.3	16.8	0	5
Gambia	1,740	50.1	1.4	0	13
Ghana	2,190	75.4	20.7	0	5
Guinea	2,080	45.3	7.9	0	9
Guinea-Bissau	680	87.6	1.5	0	11
Liberia	410	178.7	3.4	0	6
Mali	960	50.4	11.7	1	12
Mauritania	1,870	84.1	2.8	0	18
Niger	830	32.6	11.8	1	13
Nigeria	900	53.3	136.5	0	9
Senegal	1,620	56.9	10.2	0	14
Sierra Leone	530	49.8	5.3	0	8
Togo	1,640	57.3	4.9	0	6

Appendix C2: Fractionalisation, Conflict and Language Data

Country	Ethnic diversity	Linguistic diversity	Fractionalisation	Conflict	Engfrac	Eurfrac
Benin	0.79	0.79	0.79	0	0	0
Burkina Faso	0.74	0.72	0.73	2	0	0
Cape Verde	0.42		0.42	0	0	0.7
Cote d'Ivoire	0.82	0.78	0.80	3	0	0
Gambia	0.79	0.81	0.80	1	0	0
Ghana	0.67	0.67	0.67	2	0	0
Guinea	0.74	0.77	0.76	3	0	0
Guinea-Bissau	0.81	0.81	0.81	5	0	0
Liberia	0.91	0.90	0.91	22	0.025	0.025
Mali	0.69	0.84	0.76	3	0	0
Mauritania	0.62	0.33	0.47	0	0	0
Niger	0.65	0.65	0.65	4	0	0
Nigeria	0.85	0.85	0.85	6	0	0
Senegal	0.69	0.70	0.70	14	0	0
Sierra Leone	0.82	0.76	0.79	19	0	0
Togo	0.71	0.90	0.80	2	0	0

Appendix C3: Legal Origin

Country	French legal origin	Socialist legal origin	German legal origin	Scandinavian legal origin	British legal origin
Benin	1	0	0	0	0
Burkina Faso	1	0	0	0	0
Cape Verde	1	0	0	0	0
Cote d'Ivoire	1	0	0	0	0
Gambia	0	0	0	0	1
Ghana	0	0	0	0	1
Guinea	1	0	0	0	0
Guinea-Bissau	1	0	0	0	0
Liberia	0	0	0	0	1
Mali	1	0	0	0	0
Mauritania	1	0	0	0	0
Niger	1	0	0	0	0
Nigeria	0	0	0	0	1
Senegal	1	0	0	0	0
Sierra Leone	0	0	0	0	1
Togo	1	0	0	0	0

Appendix D: World Bank Doing Business Indicators for Regulatory Quality and ECOWAS Countries, 2005

Starting a Business

Country	Procedures		Time		Cost		Minimum capital		Mean of standardised indices[1]	Starting a Business final indicator[2]
	number (1)	standardised (2)	days (3)	standardised (4)	% of income per capita (5)	standardised (6)	% of income per capita (7)	standardised (8)	(9)	(10)
Benin	8	-0.45	32	-0.39	190.8	0.71	323.1	0.26	0.03	-0.05
Burkina Faso	12	0.75	45	-0.04	149.9	0.46	483.8	0.56	0.43	-0.67
Cote d'Ivoire	11	0.45	45	-0.04	134.0	0.36	225.2	0.08	0.21	-0.33
Ghana	12	0.75	81	0.92	78.6	0.02	27.9	-0.28	0.35	-0.55
Guinea	13	1.05	49	0.06	178.8	0.64	405.0	0.41	0.54	-0.85
Mali	13	1.05	42	-0.12	190.7	0.71	490.8	0.57	0.55	-0.86
Mauritania	11	0.45	82	0.94	143.6	0.42	877.5	1.28	0.77	-1.21
Niger	13	1.05	35	-0.31	465.4	2.41	760.8	1.07	1.05	-1.65
Nigeria	9	-0.15	43	-0.10	73.8	-0.01	43.3	-0.25	-0.13	0.20
Senegal	9	-0.15	57	0.28	108.7	0.20	260.4	0.15	0.12	-0.19
Sierra Leone	9	-0.15	26	-0.55	835.4	4.70	0	-0.33	0.92	-1.44
Togo	13	1.05	53	0.17	218.3	0.88	459.9	0.51	0.65	-1.02
Average ECOWAS[3]	11	0.48	49	0.48	230.7	0.96	363.1	0.34	0.46	-0.72

Notes: See text for explanations; [1] mean of (2), (4), (6) and (8); [2] inversed standardised indicator of (9); [3] unweighted average.

Dealing with Licenses

Country	Procedures		Time		Cost		Mean of standardised indices[1]	Dealing with Licenses final indicator[2]
	number (1)	standardised (2)	days (3)	standardised (4)	% of income per capita (5)	standardised (6)	(7)	(8)
Benin	22	0.52	335	1.21	287.90	-0.25	0.50	-0.71
Burkina Faso	46	3.93	241	0.30	5,002.30	3.05	2.43	-3.50
Cote d'Ivoire	22	0.52	569	3.48	194.90	-0.32	1.23	-1.77
Ghana	16	-0.33	127	-0.80	1,549.70	0.63	-0.17	0.24
Guinea	29	1.52	278	0.66	512.20	-0.09	0.69	-1.00
Mali	17	-0.19	260	0.49	4,903.00	2.98	1.09	-1.58
Mauritania	19	0.10	152	-0.56	987.10	0.24	-0.07	0.11
Niger	27	1.23	165	-0.43	2,920.30	1.59	0.80	-1.15
Nigeria	16	-0.33	465	2.47	355.80	-0.20	0.65	-0.93
Senegal	18	-0.04	185	-0.24	175.90	-0.33	-0.20	0.29
Sierra Leone	48	4.21	236	0.25	268.90	-0.27	1.40	-2.02
Togo	14	-0.61	273	0.61	1223.40	0.40	0.14	-0.19
Average ECOWAS[3]	25	-0.61	274	0.62	1,531.78	0.62	0.71	-1.02

Notes: See text for explanations; [1] mean of (2), (4) and (6); [2] inversed standardised indicator of (7); [3] unweighted average.

Hiring and Firing Workers

Country	Difficulty of hiring		Hiring cost			Difficulty of firing		Firing Cost			Rigidity of hours		Mean of standard-ised indices[3]	Hiring and Firing Workers final indicator[4]
	index	standard-ised	% of salary	standard-ised	Hiring index[1]	index	standard-ised	weeks of salary	standard-ised	Firing index[2]	index	standard-ised		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Benin	39	0.09	27.40	0.97	0.53	40	0.15	35.20	-0.37	-0.11	80	1.12	0.52	-0.80
Burkina Faso	83	1.67	22.50	0.53	1.10	70	1.34	57.00	0.19	0.76	100	1.91	1.26	-1.93
Cote d'Ivoire	44	0.27	15.40	-0.12	0.08	10	-1.04	67.60	0.46	-0.29	80	1.12	0.30	-0.47
Ghana	11	-0.91	12.50	-0.38	-0.64	50	0.55	24.90	-0.63	-0.04	40	-0.46	-0.38	0.58
Guinea	33	-0.12	27.00	0.94	0.41	30	-0.24	25.50	-0.62	-0.43	80	1.12	0.37	-0.57
Mali	78	1.49	23.90	0.66	1.07	60	0.94	80.80	0.80	0.87	60	0.33	0.76	-1.16
Mauritania	100	2.27	17.00	0.03	1.15	60	0.94	30.90	-0.48	0.23	60	0.33	0.57	-0.88
Niger	100	2.27	16.40	-0.02	1.12	70	1.34	75.60	0.66	1.00	100	1.91	1.35	-2.07
Nigeria	33	-0.12	7.50	-0.83	-0.48	20	-0.64	4.00	-1.17	-0.90	60	0.33	-0.35	0.53
Senegal	61	0.88	23.00	0.58	0.73	70	1.34	38.30	-0.29	0.53	60	0.33	0.53	-0.81
Sierra Leone	89	1.88	10.00	-0.61	0.64	70	1.34	188.30	3.54	2.44	80	1.12	1.40	-2.15
Togo	78	1.49	25.00	0.76	1.12	80	1.74	66.30	0.43	1.08	80	1.12	1.11	-1.70
Average ECOWAS[5]	62	0.93	18.97	0.21	0.57	53	0.65	57.87	0.21	0.43	73	0.86	0.62	-0.95

Notes: See Text for explanations; [1] mean of (2) and (4); [2] mean of (7) and (9); [3] mean of (5), (10) and (12); [4] inversed standardised indicator of (13); [5] unweighted average.

Registering Property

Country	Procedures		Time		Cost		Mean of standardised indices[1]	Registering Property final indicator[2]
	number	standardised	days	standardised	% of property value	standardised		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Benin	3	-1.08	50	-0.29	15.1	1.47	0.03	-0.05
Burkina Faso	8	0.69	107	0.18	16.2	1.66	0.84	-1.26
Cote d'Ivoire	7	0.33	369	2.36	14.3	1.33	1.34	-2.01
Ghana	7	0.33	382	2.47	3.7	-0.50	0.77	-1.15
Guinea	6	-0.02	104	0.16	15.6	1.55	0.56	-0.85
Mali	5	-0.37	44	-0.34	20.0	2.32	0.53	-0.80
Mauritania	4	-0.72	49	-0.30	6.8	0.03	-0.33	0.50
Niger	5	-0.37	49	-0.30	14.0	1.28	0.20	-0.30
Nigeria	21	5.26	274	1.57	27.1	3.54	3.46	-5.19
Senegal	6	-0.02	114	0.24	18.0	1.97	0.73	-1.09
Sierra Leone	8	0.69	58	-0.23	15.4	1.52	0.66	-0.99
Togo	6	-0.02	212	1.05	7.5	0.15	0.40	-0.59
Average ECOWAS[3]	7	0.39	151	0.55	14.5	1.36	0.77	-1.15

Notes: See text for explanations; [1] mean of (2), (4) and (6); [2] inversed standardised indicator of (7); [3] unweighted average.

Getting Credit

Country	Legal rights		Credit information		Public registry coverage		Private bureau coverage		Mean of standardised indices[1]	Getting Credit final indicator[2]
	index (1)	standardised (2)	index (3)	standardised (4)	% of adults (5)	standardised (6)	% of adults (7)	standardised (8)	(9)	(10)
Benin	4	-0.45	1	-0.84	3.5	-0.03	0.0	-0.58	-0.47	-0.73
Burkina Faso	4	-0.45	1	-0.84	1.9	-0.18	0.0	-0.58	-0.51	-0.79
Cote d'Ivoire	2	-1.42	1	-0.84	3.0	-0.07	0.0	-0.58	-0.73	-1.12
Ghana	5	0.04	0	-1.30	0.0	-0.37	0.0	-0.58	-0.56	-0.85
Guinea	2	-1.42	1	-0.84	0.0	-0.37	0.0	-0.58	-0.80	-1.23
Mali	3	-0.93	1	-0.84	2.3	-0.14	0.0	-0.58	-0.62	-0.96
Mauritania	7	1.01	1	-0.84	0.2	-0.35	0.0	-0.58	-0.19	-0.30
Niger	4	-0.45	1	-0.84	0.9	-0.28	0.0	-0.58	-0.54	-0.83
Nigeria	7	1.01	3	0.09	0.0	-0.37	0.3	-0.57	0.04	0.05
Senegal	3	-0.93	1	-0.84	4.3	0.05	0.0	-0.58	-0.58	-0.88
Sierra Leone	5	0.04	0	-1.30	0.0	-0.37	0.0	-0.58	-0.56	-0.85
Togo	2	-1.42	1	-0.84	3.5	-0.03	0.0	-0.58	-0.72	-1.10
Average ECOWAS[3]	4	-0.45	1	-0.84	1.6	-0.21	0.0	-0.58	-0.52	-0.80

Notes: See text for explanations; [1] mean of (2), (4), (6) and (8); [2] standardised indicator of (9); [3] unweighted average.

Protecting Investors

Country	Disclosure index (1)	Director liability index (2)	Shareholder suits index (3)	Mean of standardised indices[1] (4)	Protecting Investors final indicator[2] (5)
Benin	5	8	4	5.7	0.41
Burkina Faso	6	5	3	4.7	-0.28
Cote d'Ivoire	6	5	3	4.7	-0.28
Ghana	7	7	4	6.0	0.61
Guinea	5	6	3	4.7	-0.28
Mali	6	5	3	4.7	-0.28
Mauritania	n.a.	n.a.	n.a.	n.a.	n.a.
Niger	6	5	3	4.7	-0.28
Nigeria	6	7	4	5.7	0.41
Senegal	7	1	3	3.7	-0.96
Sierra Leone	3	6	5	4.7	-0.28
Togo	4	3	5	4.0	-0.76
Average ECOWAS[3]	6	5	4	4.8	-0.18

Notes: See text for explanations; [1] mean of (1), (2) and (3); [2] standardised indicator of (4); [3] unweighted average.

Paying Taxes

Country	Payments		Time		Total tax payable		Mean of standardised indices[1]	Paying Taxes final indicator[2]
	number (1)	standardised (2)	hours per year (3)	standardised (4)	% of gross profit (5)	standardised (6)	(7)	(8)
Benin	75	1.81	270	-0.24	53.10	0.24	0.60	-0.85
Burkina Faso	40	0.19	270	-0.24	48.30	0.05	0.00	-0.01
Cote d'Ivoire	71	1.62	270	-0.24	46.90	0.00	0.46	-0.65
Ghana	35	-0.04	304	-0.15	45.30	-0.06	-0.08	0.11
Guinea	55	0.88	416	0.16	51.20	0.17	0.40	-0.57
Mali	60	1.11	270	-0.24	44.00	-0.11	0.25	-0.36
Mauritania	61	1.16	696	0.94	75.80	1.13	1.07	-1.51
Niger	44	0.37	270	-0.24	49.40	0.10	0.08	-0.12
Nigeria	36	0.00	1,120	2.11	27.10	-0.77	0.45	-0.64
Senegal	59	1.07	696	0.94	45.00	-0.08	0.64	-0.91
Sierra Leone	20	-0.74	399	0.12	163.90	4.56	1.31	-1.85
Togo	51	0.70	270	-0.24	50.90	0.15	0.20	-0.29
Average ECOWAS[3]	51	0.68	438	0.22	58.41	0.45	0.45	-0.64

Notes: See text for explanations; [1] mean of (2), (4) and (6); [2] inversed standardised indicator of (7); [3] unweighted average.

Trading across Borders

Country	Documents for export		Signatures for export		Time for export		Documents for import		Signatures for import		Time for import		Mean of standard-ised indices[1]	Trading across Borders final indicator[2]
	number (1)	standard-ised (2)	number (3)	standard-ised (4)	days (5)	standard-ised (6)	number (7)	standard-ised (8)	number (9)	standard-ised (10)	days (11)	standard-ised (12)	(13)	(14)
Benin	8	0.30	10	-0.06	36	0.26	11	0.07	14	-0.11	49	0.40	0.14	-0.14
Burkina Faso	9	0.76	19	0.90	71	2.11	13	0.59	37	1.36	66	1.07	1.13	-1.27
Cote d'Ivoire	7	-0.16	11	0.04	21	-0.53	16	1.37	21	0.34	48	0.36	0.24	-0.25
Ghana	6	-0.62	11	0.04	47	0.84	13	0.59	13	-0.17	55	0.64	0.22	-0.23
Guinea	7	-0.16	11	0.04	43	0.63	12	0.33	23	0.46	56	0.68	0.33	-0.36
Mali	10	1.22	33	2.40	67	1.90	16	1.37	60	2.83	61	0.87	1.77	-1.99
Mauritania	9	0.76	13	0.26	42	0.58	7	-0.97	25	0.59	40	0.05	0.21	-0.22
Niger							19	2.16	52	2.32	89	1.97	2.15	-2.43
Nigeria	11	1.68	39	3.05	41	0.53	13	0.59	71	3.53	53	0.56	1.66	-1.87
Senegal	6	-0.62	8	-0.28	6	-1.32	10	-0.19	12	-0.24	26	-0.50	-0.52	0.62
Sierra Leone	7	-0.16	8	-0.28	36	0.26	7	-0.97	22	0.40	39	0.01	-0.12	0.16
Togo	8	0.30	8	-0.28	34	0.16	11	0.07	14	-0.11	43	0.17	0.05	-0.04
Average ECOWAS[3]	8	0.30	16	0.53	40	0.49	12	0.42	30	0.93	52	0.52	0.60	-0.67

Notes: See text for explanations; [1] mean of (2), (4), (6), (8), (10) and (12); [2] inversed standardised indicator of (13); [3] unweighted average.

Enforcing Contracts

Country	Procedures		Time		Cost		Mean of standardised indices[1]	Enforcing Contracts final indicator[2]
	number (1)	standardised (2)	days (3)	standardised (4)	% of debt (5)	standardised (6)	(7)	(8)
Benin	49	1.51	570	0.82	29.6	-0.01	0.78	-1.09
Burkina Faso	41	0.84	446	0.26	95.4	2.01	1.03	-1.45
Cote d'Ivoire	25	-0.52	525	0.62	47.6	0.54	0.21	-0.30
Ghana	23	-0.69	200	-0.86	14.4	-0.48	-0.68	0.95
Guinea	44	1.09	306	-0.38	27.6	-0.07	0.21	-0.30
Mali	28	-0.27	340	-0.23	34.6	0.14	-0.12	0.16
Mauritania	28	-0.27	410	0.09	29.3	-0.02	-0.06	0.09
Niger	33	0.16	330	-0.27	42.0	0.37	0.09	-0.12
Nigeria	23	-0.69	730	1.55	37.2	0.22	0.36	-0.51
Senegal	33	0.16	485	0.44	23.8	-0.19	0.14	-0.19
Sierra Leone	58	2.28	305	-0.39	31.0	0.03	0.64	-0.90
Togo	37	0.50	535	0.66	24.3	-0.17	0.33	-0.46
Average ECOWAS[3]	35	0.34	432	0.19	36.4	0.20	0.24	-0.34

Notes: See text for explanations; [1] mean of (2), (4) and (6); [2] inversed standardised indicator of (7); [3] unweighted average.

Closing a Business

Country	Time		Cost		Recovery rate			Mean of standardised indices[2]	Closing a Business final indicator[3]
	years (1)	standardised (2)	% of estate (3)	standardised (4)	cents on the dollar (5)	reversed[1] (6)	standardised (7)	(9)	(10)
Benin	3.1	-0.07	14	-0.20	9.5	90.5	0.87	0.20	-0.21
Burkina Faso	4.0	0.40	9	-0.56	6.3	93.7	1.00	0.28	-0.31
Cote d'Ivoire	2.2	-0.55	18	0.10	14.9	85.1	0.66	0.07	-0.05
Ghana	1.9	-0.71	22	0.39	23.7	76.3	0.32	0.00	0.03
Guinea	3.8	0.30	8	-0.64	23.3	76.7	0.34	0.00	0.04
Mali	3.6	0.19	18	0.10	6.4	93.6	0.99	0.43	-0.49
Mauritania	8.0	2.51	9	-0.56	8.1	91.9	0.93	0.96	-1.14
Niger	5.0	0.93	18	0.10	2.6	97.4	1.14	0.72	-0.85
Nigeria	1.5	-0.92	22	0.39	31.2	68.8	0.03	-0.16	0.24
Senegal	3.0	-0.13	7	-0.71	19.1	80.9	0.50	-0.11	0.17
Sierra Leone	2.6	-0.34	42	1.87	9.1	90.9	0.89	0.81	-0.95
Togo	3.0	-0.13	14	-0.20	16.0	84.0	0.62	0.10	-0.09
Average ECOWAS[4]	3.5	0.13	17	0.01	14.2	85.8	0.69	0.27	-0.30

Notes: See text for explanations; [1] 100-(5); [2] mean of (2), (4) and (7); [3] inversed standardised indicator of (9); [4] unweighted average.

Appendix E: Good Governance Indicators for ECOWAS Countries, 2004

Country	Voice and Accountability	Political Stability	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption
Benin	0.30	-0.37	-0.39	-0.49	-0.47	-0.34
Burkina Faso	-0.38	-0.32	-0.52	-0.26	-0.62	-0.35
Cape Verde	0.80	0.67	-0.19	0.27	0.26	0.31
Cote d'Ivoire	-1.46	-2.28	-1.30	-0.83	-1.42	-1.01
Gambia	-0.59	0.38	-0.49	-0.15	-0.32	-0.61
Ghana	0.39	-0.10	-0.17	-0.28	-0.16	-0.17
Guinea	-1.12	-0.91	-0.93	-0.94	-1.09	-0.81
Guinea-Bissau	-0.62	-0.53	-1.25	-0.86	-1.26	-0.71
Liberia	-1.24	-2.20	-1.86	-1.83	-1.76	-0.86
Mali	0.35	0.07	-0.29	-0.26	-0.34	-0.52
Mauritania	-1.16	0.26	0.22	0.04	-0.62	0.02
Niger	-0.12	-0.56	-0.87	-0.63	-0.92	-0.87
Nigeria	-0.65	-1.78	-1.02	-1.26	-1.44	-1.11
Senegal	0.19	-0.21	-0.13	-0.31	-0.20	-0.40
Sierra Leone	-0.49	-0.61	-1.32	-1.02	-1.10	-0.88
Togo	-1.22	-0.55	-1.31	-0.77	-1.01	-0.92
Average ECOWAS[1]	-0.44	-0.57	-0.74	-0.60	-0.78	-0.58

Notes: Figures are based on our country sample of 146 countries; standardised indicators, higher values are associated with better governance (range: -2.5 to +2.5); [1]unweighted average.