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ECONOMIC DEVELOPMENT AND TRANSNATIONAL ORGANIZED CRIME IN WEST AFRICA

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Transnational Organized Crime (TOC) Analysis and Integration Support

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ACRONYMS

CFA	Central African Franc
CPI	Corruption Perceptions Index
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HDI	Human Development Index
IDS	Individual Drug Seizure
IFS	International Financial Statistics
ILO	International Labour Organization
IMB	International Maritime Bureau
IMB/ PRC	International Maritime Bureau's Piracy Reporting Center
IMF	International Monetary fund
KG	Kilogram
LAC	Latin America and the Caribbean
MSI	Management Systems International, Inc.
OECD	The Organisation for Economic Cooperation and Development
PRS	Political Risk Services Group
ROL	Rule of Law
TI	Transparency International
TOC	Transnational Organized Crime
USAID	United States Agency for International Development
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNODC	United Nations Office on Drugs and Crime
USD	United States Dollars
WEF	World Economic Forum
WHO	World Health Organization

INTRODUCTION

Most of West Africa's sixteen countries rank in the bottom quartile globally for GDP per capita as well as key human development indicators such as life expectancy at birth and infant mortality. In the midst of such widespread underdevelopment a full spectrum of transnational organized crime (TOC) activities have flourished, especially since the 1990s. These include predatory crimes ranging from maritime piracy and kidnapping to cyber theft, as well as market based illicit enterprises such as trafficking in drugs, weapons, humans, counterfeit pharmaceuticals, and natural resources.

While this spatial correlation alone is not evidence of a causal relationship, there are good reasons to think that poor countries, especially those with weak institutions and high levels of corruption, might be more susceptible to TOC activities than wealthier ones. At the same time, transnational crimes enrich members of criminal groups, often at the expense of the wider society and economy. They may thereby hinder broad-based economic development by crowding out legal businesses, depressing foreign direct investment and legitimate trade, contributing to worsening inequality, and through the direct costs imposed by violence, drug addiction, piracy, and instability.

This study explores the relationship between low levels of development and TOCs in West Africa, focusing first on channels through which underdevelopment heightens the region's susceptibility to TOCs, then on the role TOCs play in hampering development through impacts on growth, trade and investment.

Part one critically evaluates the fundamental assumption motivating the study: that low levels of development, *ceteris paribus*, increase West Africa's exposure to TOC activity. It begins by briefly exploring the correlation between national income per capita and TOC around the world, and comparing trends in West Africa against this global backdrop. It then investigates some of the most plausible institutional and socio-economic channels through which underdevelopment in West Africa, and factors closely associated with it, might have contributed to the prevalence and spread of a range of TOCs observed in the region in recent decades. These channels include:

Weak institutions and rule of law. At the macro level, low GDP per capita and a correspondingly small tax base mean there are fewer resources available to fund the operations of public institutions, including schools, courts, and law enforcement, than in wealthier countries. Poorly trained and underpaid judges, public prosecutors and police can make the entire criminal justice system less effective and more susceptible to corruption and capture by criminal interests. Over the medium to long term this can lead to generalized tolerance of corruption in society at large.

Heightened individual and household vulnerability. At the micro level, high rates of household poverty and unemployment may expose some members to greater risk of involvement in or victimization by certain TOCs, though the degree to which this is true can be expected to vary significantly with the nature of the illicit activity and the demographic profile of the individual. For example, youth and especially young women from poor households are more likely to be victims of criminal groups profiting from coerced sexual labor, while poor and unemployed young men may be more susceptible to voluntary or coerced recruitment into predatory activities such as piracy.

Transnational crimes such as cyber theft, bank fraud, and the "cross-cutting" illicit activity of money laundering, on the other hand, may require higher levels of training and skill. Their prevalence across West Africa is likely to be less directly related to individual or household poverty and more the result of weak regulatory capacity on the part of the state and low levels of respect for rule of law in the broader society, though high rates of unemployment or underemployment among higher-skilled individuals may also play a role.

Finally, recent research conducted by MSI with USAID on drug trafficking in transit countries found that those who already had jobs in the transportation or import/export fields were more likely to be involved in the drug trade, but found no evidence that poverty played a significant role in recruitment.

Part Two is a quantitative analysis of the economic impacts of two TOC activities in West Africa. The first section examines the effects of maritime piracy, for which directly observed event data is available from the International Maritime Bureau (IMB). The second section focuses on drug trafficking, using UNODC's data on individual cocaine seizures and seizures of all drugs as proxies for drug flows through and police action in the region.

These two TOC activities were selected for four reasons. First is the scale of each problem, which is potentially large enough to affect country-level economic performance to a measureable degree. Second is the urgency of the threat that they potentially pose to economic and human development in the region as a whole, and to the political stability of the most severely affected states. Third, piracy and drug trafficking represent two distinct categories of organized crime – predatory and market based – that are likely to generate diverse streams of costs and benefits and respond to quite different sets of incentives and policies. Fourth, there are sufficient data of reasonable quality in the public domain to support original quantitative analysis of each activity's economic impacts.

The maritime piracy section uses a thirteen country monthly panel¹ with a twentieth-four month lag to capture the effects of pirate attacks and armed robbery against ships on trade, growth, and political and economic risk in the coastal countries of the Gulf of Guinea.

The drug trafficking analysis employs an original sixteen country² quarterly panel with a one-period lag, to generate estimates of the costs and benefits associated with the size of seizures of cocaine, measured in kilograms, and the frequency of seizures of all drugs, specified as a count variable. The models employing quantities of cocaine seized as the variable of interest seek to measure the effects of cocaine flows into and out of the region, while the seizure count models more directly measure the effects of police action.

Part two tests for evidence of specific pathways through which TOCs are hypothesized to affect a country's economic performance in the areas of agriculture, trade, investment, and growth. For piracy, economic costs are hypothesized to be reflected in declining trade figures in coastal countries resulting from direct losses to predatory piracy as well as indirect losses from global and regional trade destruction caused by piracy's impact on the cost of maritime shipping insurance and transport around the world.³ In the case of cocaine trafficking, direct costs might include falling investment due to perceptions of rising risk. Particularly in the region's smaller and non-CFA zone economies, foreign exchange windfalls from the drug trade could also lead to currency and real exchange rate appreciation and other Dutch Disease effects detrimental to the competitiveness of licit, productive sectors such as agriculture.

¹ Landlocked Burkina Faso, Mali and Niger are excluded.

² The cocaine trafficking analysis includes all sixteen countries in the panel; the piracy study excludes the region's three landlocked countries: Burkina Faso, Mali and Niger.

³ See recent empirical work by Sami Benassi and Inmaculada Martínez-Zarzoso (2012 and 2013).

PART ONE: UNDERDEVELOPMENT AND TRANSNATIONAL ORGANIZED CRIME IN WEST AFRICA

Overview of the per capita GDP – TOC Relationship

Income poverty exposes people to a wide range of threats, from infectious disease to criminal and political violence. This is true at the level of individual households as well as for entire countries and world regions. The arrow of causality between income poverty and its many socio-economic and public health correlates can be direct or mediated by other factors, and often runs in more than one direction. Part one of this report focuses on the short- to medium-term relationship between income per capita and transnational organized crime in West Africa, and specifically on the role that low levels of development may have played in exposing countries to TOCs since the early 2000s.

Around the world, without controlling for any other factors, GDP per capita and the perceived costs of organized crime are negatively correlated across countries and over time, though the strength of the correlation is not great. The scatterplots⁴ illustrate this using data on the perceived costs of organized crime⁵ compiled by the World Economic Forum on 148 countries. A country's organized crime score is based on business executives' responses to the following question in the WEF Executive Opinion Survey:

“In your country, to what extent does organized crime (mafia-oriented racketeering, extortion) impose costs on businesses? [1 = to a great extent; 7 = not at all].”⁶

These scores are presented here as a proxy for the actual costs of all TOC activities. They are useful insofar as they allow for cross-country and cross-regional comparisons of the perceived costs by business representatives of one TOC activity that captures some aspects of both market-oriented and predatory TOCs: mafia-style racketeering and extortion. The WEF indicator does not, however, capture other important costs associated with TOC activity around the world, such as lost work days and hospital days due to violence and drug consumption. In West Africa, where corrupt public officials, police and military are as likely to be involved in protection rackets as private TOC groups, this variable may also pick up some of the costs of public corruption.⁷

Directly observed measures of TOC activity are difficult to come by for obvious reasons. First, because criminal networks often⁸ prefer to operate below the radar of governments, media, and other institutions interested in surveilling them. And second, because what data do exist are usually collected and used by law enforcement and intelligence agencies that do not make them publicly available.

For clarity of explication, the following graphs use the inverse of the 1-7 (best) scores from the WEF survey, so that a negative correlation between perceived costs of TOC and per capita GDP appears as a downward-sloping line rather than an upward-sloping one.

⁴ Figure 1, Annex. Figures in the report are inserted in an annex to allow for larger size and improved legibility.

⁵ The WEF survey also includes a question about the “costs of crime and violence” including petty theft, burglary and local random acts of violence. It is employed later in this report as a secondary measure of crime impact.

⁶ Data are from the World Economic Forum's Global Competitiveness Index Data Platform: <http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/>. GDP per capita is in current US dollars as reported in the International Monetary Fund's World Economic Outlook Database from national sources.

⁷ The WEF survey also includes separate questions on irregular payments and bribes to public officials, and favoritism in decisions made by government officials, but does not ask specifically about the costs of extortion and racketeering by state actors.

⁸ Often, but not always – see Lessing (2013) and Mandel (2011) for analytical discussions of when and why organized crime groups resort to overt acts of violence against the state and society at large.

A perfect correlation⁹ would have all of the points falling precisely along the red line. Not surprisingly, the actual relationship is decidedly fuzzier: countries at the same level of per capita income report very different organized crime scores, at the same time that similar scores are reported by countries at widely disparate income levels. GDP per capita alone is not sufficient to explain the global distribution of organized crime.

An interesting feature of the data is that countries reporting the very worst scores on the WEF survey – those where organized crime is seen to impose the greatest costs on legitimate businesses – all tend to fall toward the middle of the income per capita distribution, and include many countries implicated in the global cocaine and heroin trades either as producers or transit locations.

A quadratic functional form¹⁰ appears to fit the data better and is consistent with organized crime activity rising as a country moves from least developed to lower and lower-middle income status and falling off at higher income levels.¹¹ Rapid processes of urbanization and economic growth may outpace the regulatory and law enforcement capacities of middle-income governments, providing opportunities for criminal organizations to set up protection rackets to extract and extort income from legitimate business owners and new in-migrants to urban centers. Though the WEF survey question asks about one particular form of TOC (“mafia-oriented racketeering, extortion”), such a U-shaped relationship to GDP per capita is intuitively plausible with respect to a range of transnational crimes. Nations in the midst of social and economic transformation may present greater opportunities than subsistence economies for predatory criminals, in the form of more and wealthier potential victims, as well as for criminal enterprises such as drug traffickers and counterfeit merchandisers seeking retail markets for their illicit goods and services.

The following map¹² shows the spatial distribution of global wealth as it relates to the same WEF indicator of organized crime, with poorer countries shaded darker and the intensity of TOC activity represented by the size of the red and yellow crosshair symbols. Areas of missing data are shaded pale yellow and include several low-income countries and conflict zones known to have significant TOC activities such as Afghanistan, the Democratic Republic of Congo, and Somalia.

Notable outliers from the global trend include wealthy, underperforming Italy, where organized crime in 2013 continues to impose heavy costs on the economy despite the country’s high per capita income, and Ethiopia, where a strong, authoritarian state effectively imposes law and order on a large and mostly poor population.

Narrowing the focus to West Africa¹³, three of the region’s sixteen countries are missing data (Guinea-Bissau, Niger and Togo). Mauritania and the Gambia report lower costs of organized crime than their neighbors, but the region’s relatively homogeneous low income status makes it difficult to discern a broader pattern in the map.

However, when the data on West Africa are overlaid against those for the rest of the world and separate regression lines fit to the two distributions, as in the following two scatterplots¹⁴, they tell a more illuminating story. If one assumes the relationship to be linear, as in the first graph below, West Africa

⁹ A perfect positive correlation (Corr. = 1.00) would be represented by an upward sloping 45 degree line; a perfect negative correlation (Corr. = -1.00) by a downward sloping 45 degree line. In this case the actual correlation coefficients are -0.496 over the entire period and -0.505 for 2013.

¹⁰ Figure 2, Annex

¹¹ These quadratic lines of fit – the curved red lines in the above graphs – are the fitted values from regressions of the WEF organized crime score on $\log(\text{GDPPC})$ and $[\log(\text{GDPPC})]^2$, without controlling for any other factors.

¹² Figure 3, Annex

¹³ Figure 4, Annex

¹⁴ Figures 5 and 6, Annex

appears to buck the global trend, with the costs of organized crime rising as a function of per capita income (represented by the upward-sloping red line).

It is important to note that West African cases occupy a restricted range in the global GDP per capita spectrum, with no countries in the region having yet attained upper-middle or high income levels. If the relationship between a nation's wealth per capita and its exposure to TOC activity is non-linear, it would make sense for West Africa to display a (mis-specified) linear correlation contrary to that observed in the rest of the world. Rising rates of income per capita in West Africa over time correspond within each country and in the region as a whole to the transition from least developed to middle income status, a phase of development that may plausibly be theorized to increase a country or region's TOC exposure. Indeed, when the data are fit to a quadratic model, as in the second graph, what had appeared to be a starkly divergent regional pattern shows signs of converging to the global trend, though within a broad 95% confidence interval due in part to the relatively small number of observations.

The foregoing section presents the basic contours of the relationship between the costs of TOC and per capita income around the world, without controlling for any other factors that might mediate this relationship or otherwise help to explain TOC outcomes. It then sets West Africa in this global context, and provides initial evidence that any statistical association between the two phenomena may be non-linear in nature. The correlations presented above are not by themselves evidence of a causal relationship, either globally or in West Africa. They simply provide a starting point for generating causal theories to be tested more rigorously later in this report.

Because the organized crime indicator employed above is based on responses of private business representatives to a survey question specifically designed to gauge the business costs of racketeering and extortion, it does not capture any variation that may exist in the relationship between per capita income and different kinds of TOC. Moreover, GDP per capita is but one of many possible indicators of a nation's level of economic and human development. A thorough assessment of the relationship between underdevelopment and TOC in West Africa cannot rely on these two indicators alone, and must present evidence for or against a range of specific causal hypotheses. This is the purpose of the following section.

Underdevelopment and TOC Exposure in West Africa

Oversimplifying the relationship between a country's level of development and transnational organized crime by assuming it to be linear, direct, or consistent across demographic groups or illicit activities can lead to inefficient, ineffective and even counterproductive responses to both problems. In West Africa as around the world, the relationship between level of development and TOC is likely to be mediated, as depicted in Figure 7, by institutional, sociological and economic intervening variables.

Institutional and sociological factors include strength of the rule of law, as measured by the capacity and independence of the judiciary, the reliability of the police, and the level of corruption in public agencies and private firms.¹⁵ Economic factors such as unemployment may lower the opportunity costs of unlawful activity and give rise to TOCs attracted by large supplies of low-wage illicit labor.

Drawing on recent studies by academics and development agencies as well as data from the World Bank, IMF, World Economic Forum, Afro-Barometer Survey, Transparency International, and UN Office on Drugs and Crime, this section weighs the evidence in support of each of these pathways with respect to several TOC activities prevalent today in West Africa.

Path 1 (Institutional): Low GDP per Capita → Weak, Corrupt Institutions → TOC

¹⁵ A societal variable that may be partly determined by income per capita and in turn play a role in explaining the supply of corruption in government and business is the degree of tolerance for corrupt behavior.

Low income countries by definition have fewer resources per capita than wealthier countries to fund the operations of public institutions, including schools, courts, law enforcement agencies, and the armed forces. Poorly trained and underpaid judges, public prosecutors and police can make the entire criminal justice system less effective and more susceptible to corruption and capture by criminal interests. Military forces lacking the training, professionalism, and materiel required to secure a country's borders and coastline leave them open to illicit trafficking in drugs, humans, and natural resources as well as to attacks by pirates and other predatory transnational criminals.

A number of studies from the 1990s and early 2000s noted the strong positive correlation between institutional strength, control of corruption, and GDP per capita, leading to a vigorous debate over the relative importance of openness to trade (Sachs and Warner 1995; Alcalá and Ciccone 2004) economic geography (Engerman and Sokoloff 1994; Sachs, Gallup and Mellinger 1999), and institutions, rule of law, or "governance" (Acemoglu, Johnson and Robinson 2001; Rodrik, Subramanian and Trebbi 2002; Dollar and Kraay 2003; Easterly and Levine 2003) in explaining long-run development outcomes.

Kaufmann and Kraay (2002) contributed to this debate by taking a hard look at the direction of causality between GDP per capita and the quality of governance in 175 countries over the period 2000-2001. As their provocatively titled paper, "Growth without Governance" implies, they found evidence not just of "a strong positive causal effect running from better governance to higher per capita incomes," but also of "a weak and even *negative* causal effect running in the opposite direction from per capita incomes to governance."¹⁶ They speculated that high-level corruption and "state capture" by elites may in part explain the latter result over the longer term, and cautioned against interpretations linking rising GDP per capita to worsening governance over shorter time horizons, at the same time warning that policies focusing exclusively on economic growth may not lead to long-run improvements in institutional quality.

Glaeser, La Porta, Lopez-de-Silanes and Schleifer (2004) responded by calling into question both the quality of cross-national data on public institutions and the validity of instrumental variables used by, among others, Acemoglu, Johnson and Robinson to address the issue of reverse causality in the growth – governance relationship. Following earlier work by Lipset (1960) and more recently by Barro (1999) and Alvarez (2000), the authors presented cross-national evidence that human capital is a more basic source of growth than institutions and argued, drawing largely on the late 20th Century experiences of East Asian economies, that "poor countries get out of poverty through good policies, often pursued by dictators, and... subsequently improve their political institutions."¹⁷

A 2003 study by Buscaglia and van Dijk for UNODC¹⁸ tests the hypothesis that "organized crime has the capacity to take advantage of poor economic and social conditions within a country." They found a moderate negative association (beta = -0.236, significant at 7%) between the UNDP's Human Development Index and the author's index of organized crime, and a larger and much stronger association (beta = -0.688, significant at 0.1%) between HDI and an index of low-level corruption. However, they found no evidence of a statistically significant correlation between HDI and high-level corruption, or state capture. Also, their sample contained no West African, and only three sub-Saharan countries, all of them Anglophone states from the southern Africa region.¹⁹

The debate over both primacy and direction in the relationship between institutional quality and economic growth continues, with a recent study using data from a USAID-funded survey of over 13,000 firms in Vietnam from 2006 to 2010 finding evidence of a negative causal relationship between provincial economic growth and bribe extraction by public officials. The findings were strongest among firms with secure land rights and operations in multiple provinces, making them more mobile and thus able to "vote

¹⁶ Kaufmann and Kraay (2002), p. 1.

¹⁷ Glaeser et al. (2004), pp. 271-272.

¹⁸ UNODC (2003), Ch. 1, pp. 1-21.

¹⁹ Namely, Botswana, South Africa and Zimbabwe.

with their feet” in response to public sector corruption (Bai et al. 2014). The authors’ principal finding, that economic growth may indeed reduce corruption, may thus be less applicable to economies dominated by extractive industries, whose operations tend to be geographically determined, as well as to West African countries characterized by insecure or unclear property rights regimes.

Using cross-sectional data from WEF for 2013,²⁰ the set of graphs in Figures 8 and 9 illustrate, first, that institutional strength is indeed strongly positively correlated with GDP per capita around the world.²¹ Certain low-income countries such as Rwanda and Gambia over-perform on this measure, and oil-rich Venezuela is a negative deviant from the worldwide pattern, but the global data as a whole seem to fit a linear model better than did the relationship between organized crime and GDP per capita discussed earlier. This is consistent with the hypothesis that GDP per capita affects TOC exposure indirectly, though its direct effect on institutions.

When the data are disaggregated by the world’s four main regions as in Figure 10, a positive, linear correlation is again observed for each, though the relationship is much weaker in Africa than in the Americas, Asia-Pacific, or Europe.

Examining trends within the African continent, the small number of observations for each sub-region mean that any patterns should be interpreted with caution, but it is nonetheless interesting to note that the relationship remains positive among Eastern, Southern, and Middle African countries but not in the Western or Northern Africa samples.²² With respect to West Africa, this may merely reflect the fact that no countries in the sub-region have yet made the transition to middle or upper-middle income levels. As the most uniformly poor part of Africa, as well as the one with the weakest public and private institutions, the relatively flat trend for West Africa serves, along with underperforming North Africa, to drag down the overall trend line for the continent as a whole. In North Africa, institutional strength is in fact *negatively* correlated with income per capita, perhaps due to the corrosive effect of oil and authoritarianism on institutions in Egypt, Algeria, and Libya.²³

When public and private sector institutions are examined separately, institutional quality is tightly correlated across sectors globally and within West Africa, both over time and in the 2013 cross-section. It is then no surprise that each institutional sub-group’s correlation to GDP per capita is also similar across world regions and African sub-regions.²⁴

Turning to the second part of the GDP per capita – institutional quality – TOC relationship, evidence from simple cross-country correlations supports the hypothesis that transnational organized crime groups tend

²⁰ The institutional strength indicator is a composite index scored 1-7 (best) and comprising the following, similarly scored, sub-indicators: *For public institutions*, property rights, intellectual property protection, diversion of public funds, public trust in politicians, irregular payments and bribes, judicial independence, favoritism in decisions of government officials, wastefulness of government spending, burden of government regulation, efficiency of legal framework in settling disputes, efficiency of legal framework in challenging regulations, transparency of government policymaking, business costs of terrorism, business costs of crime and violence, organized crime, and reliability of police services; *For private institutions*, ethical behavior of firms, strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders’ interests, and strength of investor protection.

²¹ Institutional strength and GDP per capita co-vary by 68.6% in the global panel and 68.4% in the 2013 cross-section.

²² Cross-sectional data from the latest available year (2013) and with country labels are presented here to illustrate where each West African country stands today. When the same relationships are plotted using data over the entire 2006-2013 period, the overall trends for the four major world regions remain essentially unchanged. See Annex I for details.

²³ In North Africa and elsewhere, the presence of oil and other extractable natural resources may confound efforts to capture the true causal impact of GDP per capita, acting through weak institutions, on TOCs. As discussed by Karl (1997) and others, in countries where large oil and mineral discoveries precede the establishment of strong, accountable state institutions, a “resource curse” may take hold, stunting the development of sustainable public revenue generating institutions, retarding the consolidation of democracy, and masking high rates of household poverty behind inflated aggregate measures such as GDP per capita. In addition to the North African countries just mentioned, West Africa’s largest economy and primary locus of TOC activity, Nigeria, is a case in point.

²⁴ Specifically, public and private institutional quality co-vary by 92.7% in the global sample of countries over time, and within the West Africa sample by 74.8%. See Annex I for separate scatterplots of the association between public and private institutions and GDP per capita for world regions and African sub-regions.

to flourish in countries with weak institutions generally, and with weak law enforcement and rule of law institutions in particular.

The WEF survey computes indices of private, public, and overall institutional strength. The public institutions index is composed of sixteen indicators, of which the organized crime score is one. The following graph presents the WEF's perceived costs of organized crime score as a function of the strength of private institutions in West Africa and the rest of the world. Interestingly, though overall institutional quality in West Africa is not strongly correlated with national income per capita (see Figure 10), the strength of private sector institutions is negatively correlated with the perceived costs of organized crime in West Africa (red line in Figure 11), as it is around the world (blue line in Figure 11).

Because the organized crime score is itself part of the public institutional quality composite index, to further explore the relationship between rule of law institutions, specifically, and TOC costs, we disaggregate the public institutions index and present the pairwise correlations of TOC costs to the seven sub-indicators most closely associated with the rule of law, in Table 1 below. Rankings run from 1-11, with seven indicators presented below and the other four in the next section, which examines the role of corruption as opposed to ROL institutions.²⁵

TABLE 1: PAIRWISE CORRELATIONS OF TOC COSTS WITH RULE OF LAW INDICATORS

Indicator	West Africa	West Africa	Rest of World	Rest of World
	(obs. = 77)	Rank	(obs. = 995)	Rank
Reliability of police	-0.5593	1	-0.7684	1
Intellectual property protection	-0.4964	3	-0.6898	4
Property rights	-0.4817	4	-0.6778	7
Efficiency of legal framework in settling disputes	-0.4362	5	-0.667	9
Efficiency of legal framework in challenging regs	-0.3571	8	-0.6443	10
Strength of Private Institutions	-0.3423	9	-0.6686	8
Judicial independence	-0.326	10	-0.6887	5

Within West Africa and around the world, the reliability of police services is the strongest (negative) correlate of the costs of organized crime, with the diversion of public funds coming in a close second in both samples. Notable differences between the two samples include the much weaker correlation with judicial independence in West Africa, and the fact that rule of law institutions across the board show stronger correlations with the costs of organized crime in the rest of the world than they do in West Africa.

²⁵ Five of the sixteen indicators are not presented as they either do not relate directly to corruption or the rule of law or, in the case of indicator I.14, "Business costs of crime and violence," are too closely related to the variable of interest.

To summarize findings thus far, Africa is the poorest continent in terms of GDP per capita, and its institutions are weaker on balance than those of any other major world region. Within sub-Saharan Africa, the West Africa region is both the poorest and the one with the weakest institutions. Per capita GDP is positively correlated with the quality of both public and private institutions globally. This pattern holds within each of the four major world regions and in three of Africa's five major sub-regions, though not among Western or Northern African countries where the trend is flat and negative, respectively. As hypothesized, institutional strength and especially the strength of public sector institutions associated with the rule of law is negatively correlated with the perceived costs of organized crime in West Africa, though this relationship tends to be weaker in West Africa than elsewhere.

The problem of weak institutional *capacity* to resist TOCs, understood above as directly resulting from low GDP per capita and a correspondingly small tax base, is compounded in West Africa by a crisis of institutional *legitimacy* that may depress economic development over the medium to longer term and give rise to societies that are more tolerant of corrupt behavior than is the norm among high-income countries. In post-colonial states founded for purposes of wealth extraction and expatriation, and where legacies of authoritarian rule span the pre- and post-independence periods, the legitimacy of public institutions in society at large is historically very weak.²⁶ In such settings, civilian, military, and law enforcement officials already faced with strong economic incentives to cut deals with TOC groups, may do so with little compunction and relative impunity. In extreme cases of rule of law breakdown and partial state capture by TOC elements, such as that seen in Guinea-Bissau beginning in the early 2000s, high-ranking politicians and military officers may actively and even openly collaborate with transnational criminal groups. In such settings even law abiding citizens who personally disapprove of corrupt behavior may begrudgingly accept it as inevitable and not worth fighting.

Transparency International (TI) each year generates a Corruption Perceptions Index for most countries. It is scored 0-100 (best) and is based on the results of not just the WEF survey but a range of other internationally recognized sources.²⁷ When West African countries' CPI scores are plotted as a function of GDP per capita²⁸ and viewed in global context, as in Figure 12, the slope of the relationship is very similar across the two samples and West African countries are seen to outperform most of their per capita income peers in the rest of the world.

Decomposing the relationship by world region²⁹ and then by African sub-region as before³⁰, CPI scores are consistently positively correlated with GDP per capita in all four world regions and four of five sub-regions of Africa, with the exception of Northern Africa where extreme outlier Libya reverses what would otherwise be a positive association.

Moreover, the correlation is more strongly positive among West African countries than for any other world region or sub-region. When 2013 perceptions of the cost of organized crime from the WEF survey are plotted as a function of the CPI³¹, however, the West African and global trends noticeably diverge: the global correlation is strongly negative, at -0.67 while within West Africa the relationship is much weaker, with the two indicators showing a correlation of just -0.12.

GDP per capita thus appears to be negatively correlated with corruption in West Africa to a degree that is similar to the pattern observed in the rest of the world, at the same time that higher scores on the TI

²⁶ See Young (1994) for a comparative political analysis and Acemoglu, Johnson and Robinson (2001) for corroborating empirical evidence.

²⁷ In 2013 these included: the African and Asian Development Banks, Bertelsmann Foundation, IMD World Competitiveness Yearbook, Political Risk Services, World Bank, WEF, World Justice Program, Economist Intelligence Unit, Global Insight, Political and Economic Risk Consultancy, and Freedom House.

²⁸ Figure 12, Annex

²⁹ Figure 13, Annex

³⁰ Figure 14, Annex

³¹ Figure 15, Annex

corruption index, which are associated with lower organized crime costs globally, show barely any association with organized crime in West Africa. This is in part because the much smaller sample of West African countries is highly sensitive to the addition or exclusion of even one outlier, such as Cape Verde, where CPI performance and GDP per capita are both the highest in the sub-region but where organized crime costs as measured by the World Economic Forum in 2013 were also relatively high.³² It is also possible that something about the nature of the TOC costs imposed on West African businesses makes them less sensitive to improvements in the TI corruption indicator, than TOC costs globally tend to be. Part Two of this report examines in more detail the pathways through which two of the most important TOC activities present in West Africa today, cocaine trafficking and maritime piracy, affect economic performance in the region.

The following table presents the pairwise correlations between perceived costs of organized crime and the four WEF indicators most closely associated with public sector corruption. Among the eleven public institutional quality measures, the diversion of public funds is second only to the reliability of police services (discussed in the previous section) as a correlate of organized crime costs, both in West Africa and the rest of the world. The other three WEF sub-indicators of corruption are less strongly correlated in West Africa than the legal institutional measures for protecting property rights and settling disputes presented above. All four measures are, once again, less strongly correlated with organized crime costs in West Africa than in the larger global sample.

TABLE 2: PAIRWISE CORRELATIONS OF TOC COSTS WITH PUBLIC SECTOR CORRUPTION INDICATORS

Indicator	West Africa	West Africa	Rest of World	Rest of World
	(obs. = 77)	Rank	(obs. = 995)	Rank
Diversion of public funds	-0.5209	2	-0.7393	2
Favoritism in decisions of government officials	-0.4329	6	-0.684	6
Irregular payments & bribes	-0.4077	7	-0.7251	3
Transparency of government policymaking	-0.136	11	-0.6218	11

It is important to note that the CPI and WEF scores analyzed above measure the perceived amount of corruption, and not necessarily the degree of tolerance for corruption in society. Institutional weakness, along with social acceptance, both contribute to the overall amount of corruption. The most recent Afro-Barometer survey includes a question about respondents' attitudes toward the proper role of the media in reporting on government mistakes and corruption. This indicator may capture societal tolerance for corruption better than the WEF or Transparency International survey questions:

Which of the following statements is closest to your view? Choose Statement 1 or Statement 2:

³² Specifically, Cape Verde ranked 104th out of 144 countries on the costs of organized crime measure in 2013 (WEF 2013, p. 137). A 2007 study by UNODC on crime and corruption in the country noted the threat of transnational drug trafficking and challenges to securing the island nation's borders, but cited theft and robbery as well as counterfeiting and brand piracy rather than organized crime related extortion as the principal crime costs to businesses. Large maritime seizures of cocaine have been made in Cape Verdean national waters in recent years and large quantities of the drug are transported to Europe by "mules" on commercial flights originating in Cape Verde.

Statement 1: The news media should constantly investigate and report on government mistakes and corruption.

Statement 2: Too much reporting on negative events, like government mistakes and corruption, only harms the country.

Results for thirty-three countries in Africa, including thirteen in West Africa, are presented in Figure 16. Greener shades correspond to lower levels of tolerance for corruption (as indicated by higher degrees of agreement with Statement 1); orange to yellow shades indicate higher levels of tolerance (as indicated by greater agreement with Statement 2).

West Africa as a region falls mostly along the green range of the spectrum, with only Senegal and to a lesser extent, Côte d'Ivoire and Nigeria showing moderate levels of agreement with the statement that media reporting on corruption and government mistakes does harm to the country. It would thus appear that low income status, to the extent that it predisposes nations in West Africa to higher costs of organized crime, is more likely to do so through weak rule of law institutions than through societal acceptance of public corruption and incompetence.

Path 2 (Economic): Low GDP per Capita → High Unemployment → TOC

The second major route through which underdevelopment is hypothesized to foster TOC activity in West Africa is by providing a large supply of low-wage labor to criminal enterprises as well as to predatory gangs involved in activities such as piracy, extortion, and kidnapping. Without ascribing to West Africans, or poor people generally, any intrinsic tendency toward involvement in organized crime, it is still possible to theorize that a poor individual by virtue of his or her poverty and, by extension, lack of a well-paying, formal sector job, faces lower opportunity costs of involvement in illicit work than does a gainfully and legally employed individual. In countries with weak and discredited law enforcement and criminal justice systems, such as most of those in West Africa, the risk of detection and incarceration that might otherwise serve to lower the expected returns to crime, are very low.

A basic assumption underpinning this hypothesized pathway is that GDP per capita is strongly correlated with a nation's global unemployment rate. In fact, this assumption does not find strong support in the data either for West Africa or the world as a whole. Over the period 2006-2012, unemployment rate estimates generated by the International Labor Organization using a statistical model show a correlation coefficient of -0.19 to unlogged GDP per capita³³. The global distribution of wealth per capita is highly right skewed, however, to the extent that when countries with GDPs per capita higher than USD 50,000 are excluded from the sample, the correlation to unemployment rates is nearly halved, dropping to -0.10. In fact, no country in the West Africa region had a GDP per capita higher than USD 5,000 during the period of this study. Among lower income countries with GDP per capita under USD 10,000 the correlation is actually reversed, at +0.19. When the natural logarithm of GDP per capita is used instead, it is almost completely uncorrelated to either raw or logged rates of unemployment globally. Within West Africa the correlation is +0.21, meaning that unemployment rates in the region are higher at higher levels of income per capita.

Cross-national comparisons involving unemployment rates and countries at widely disparate levels of development are problematic for several additional reasons. The poorest countries, including most West African countries, do not regularly compile unemployment data so analysts must rely on estimates generated by the ILO's statistical model, which some experts believe over-estimates unemployment rates for low income countries in Africa. Moreover, the relationship between economic growth and job growth depends on how a nation's economic structure of production and labor force demographics evolve over

³³ Figure 17

time. Even rapid and sustained economic growth over a number of years may have little positive impact on formal sector employment if it is driven by a highly capital intensive enclave sector such as crude oil production or industrial mining. Looking specifically at the case of West Africa, the fact that a majority of the region's economically active population who are "employed" work not in the formal wage sector but rather in home-based enterprises and subsistence agriculture – sectors which exist only on the margins in high-income countries – means that comparing global unemployment rates in West African countries to those in the OECD, for example, is of limited analytical utility.

A recent study by the IMF of sub-Saharan Africa's employment prospects uses survey data from twenty-eight countries, including eleven from West Africa,³⁴ and an elasticity model employing economic growth and demographic projections to estimate the current and future structure of employment over the period 2005-2020. With respect to the structure of employment, the authors predict that agriculture and home industry will continue to employ a majority of the labor force over the period, and that "even if sub-Saharan Africa realizes another decade of strong growth, the share of the labor force employed in private firms is not expected to rise substantially."³⁵

As for demographic trends, they point out that the median age in sub-Saharan Africa is eighteen, making it by far the youngest major world region, and project that the number of youth entering Africa's working age population will continue to rise over the period, with the total working age population expected to increase by 200 million from 2005 to 2020 – or nearly three percent per year. The authors urge African governments to "undertake measures to attract private enterprises that provide wage employment [but also] to focus on improving productivity in the traditional and informal sectors as these will continue to absorb the majority of the labor force."³⁶

While perfectly sensible economic policy advice, the IMF's projections and recommendations do not bode well for the future evolution of TOC activity in the region, to the extent that young people frustrated at their lack of wage employment opportunities are more likely, *ceteris paribus*, to participate in a range of illicit and anti-social activities including but not limited to TOC. To give one example from the West African context, a recent study by USAID of conflict dynamics in Nigeria found, on the basis of semi-structured interviews with over 280 key respondents, that unemployment and underemployment, especially among male youth, were important factors contributing to violent conflict.³⁷

Most of the discussion thusfar has relied upon the WEF survey data on perceived costs of organized crime to proxy for the degree of TOC activity in West Africa and around the world. Both are useful to a study of this nature since they cover most recent years and all or nearly all countries in the generally data-poor West Africa region. However, as noted at the beginning of this section, both are better indicators of the costs imposed by transnational criminal enterprises on private sector businesses than on members of society at large.

A recent study of the economic impact of TOC in Mexico has used homicides as a proxy for the presence of violent transnational cocaine trafficking cartels in Mexican states (Ashby and Ramos 2013). Homicides can be useful proxies for violent TOC activity in cross-national studies to the extent that homicide data, unlike data on less serious crimes, are reasonably comparable across regions and legal systems and are collected periodically by most national governments as well as by national and international organizations such as UNODC, WHO, and the Centers for Disease Control & Prevention in the USA.

³⁴ Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Ghana, Liberia, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

³⁵ Fox et al. (2013), p. 1.

³⁶ *Ibid.*, pp. 1-6.

³⁷ Nigeria Conflict Assessment (2014).

That said, homicides may not be as accurate a proxy for violent TOC activity in West Africa as they are in Latin America for several reasons. First, the quality of homicide data collected in most West African countries is quite poor by global standards. Second, the only recent year for which homicide data are available for most countries in the region is 2008. Third, the relative contribution of even violent TOCs such as maritime piracy to national homicide rates in West Africa is much weaker than in the LAC region, where armed violence related to trafficking and gangs drives national rates in many countries. However, for lack of a better cross-country indicator of violent TOC activity to complement the WEF cost of organized crime indicator used thus far in the study, UNODC homicide data from 2008 are employed in the following section and Figure 18.

When logged homicide rates per 100,000 population (the benchmark for international comparisons) are regressed on the log of the unemployment rate, as in Figure 18, a very weak positive association is observed globally (blue fit line), while a similarly fragile negative relationship obtains among West African countries (red fit line). The same is true with respect to the relationship between WEF's organized crime cost indicator and logged unemployment rates, depicted in Figure 19.

These weak results do not necessarily mean that unemployment is wholly irrelevant in explaining TOC outcomes. It is possible, for instance, that urban unemployment could be a more potent risk factor for certain TOCs in West African countries than the global jobless rate. Large cities tend to impose higher costs of living on poor and unemployed residents while at the same time, in least developed regions with weak public institutions and no functioning welfare state, failing to provide the formal safety nets that have eased the transformation from agrarian to urban life in wealthy countries since the end of the Second World War.

PART TWO: COST-BENEFIT ANALYSIS OF SELECTED TOC ACTIVITIES IN WEST AFRICA

Introduction

The second part of this report is an econometric analysis of the impacts of two TOC activities especially prevalent in West Africa today: maritime piracy and cocaine trafficking. These activities were selected for four reasons. First is the scale of each problem, which is potentially large enough to affect country-level economic performance to a measureable degree. Second is the urgency of the threat that they pose to economic and human development in the region as a whole, and to the political stability of the most severely affected states.³⁸ Third, piracy and drug trafficking represent two distinct categories of organized crime – predatory and market based – that are likely to generate diverse streams of costs and benefits and respond to quite different sets of incentives and policies. Fourth, there are sufficient data of reasonable quality in the public domain to support original quantitative analysis of each activity's economic impacts.

Using micro-data on pirate attacks in the Gulf of Guinea from the International Maritime Bureau's Piracy Reporting Center, and on individual cocaine seizures from UNODC, the two case studies employ original monthly and quarterly panels³⁹ to generate estimates of the costs and benefits flowing from these illicit activities to West African economies. Using a range of economic and political-economic indicators as dependent variables, these studies test for evidence of specific pathways through which TOCs are

³⁸ See USAID (2013) and UNODC (2007, 2008, and 2013a).

³⁹ The cocaine trafficking analysis includes all sixteen countries in a quarterly panel; the piracy study excludes the region's three landlocked countries, Burkina Faso, Mali and Niger, and uses a monthly panel.

hypothesized to affect a country's economic performance in the areas of agriculture, trade, investment, and growth.

For cocaine trafficking, direct costs might include falling investment due to perceptions of rising risk. Particularly in the region's smaller and non-CFA zone economies, foreign exchange windfalls from the drug trade could also lead to currency and real exchange rate appreciation and other Dutch Disease effects detrimental to the competitiveness of licit, productive sectors such as agriculture. In the case of piracy, economic costs are likely to be reflected in declining trade figures in coastal countries, resulting from direct losses to predatory piracy as well as indirect losses from global and regional trade destruction caused by piracy's impact on the cost of maritime shipping insurance and transport around the world.⁴⁰

Case A: Maritime Piracy

Background

Maritime insecurity in the Gulf of Guinea has been concentrated for most of the last two decades off the Nigerian coast and in inshore waterways of the Niger Delta Region, where it is driven largely by armed criminal groups involved in the theft and "bunkering" of petroleum products (UNODC 2013, p. 45). While an aggressive and well-coordinated international naval response, in conjunction with the widespread adoption of best management practices by commercial ship owners and crews, has contributed to a steep decline in attempted and successful acts of piracy off the East African coast (Chatham House 2013), cases of maritime piracy and armed robbery against ships have risen dramatically in the Gulf of Guinea, where they are often characterized by very high levels of violence against crews.

Though still the epicenter of piracy in the region, Nigeria is no longer the only heavily affected country. Côte d'Ivoire and Guinea have consistently reported several incidents per year since the early 2000s, and both Benin and Togo experienced sudden and dramatic increases beginning in 2010, with cases reported to the International Maritime Bureau's (IMB) Piracy Reporting Center skyrocketing from zero in both countries in 2010 to 22 in Benin in 2011 and 14 in Togo in 2012. The IMB recorded three times more incidents in the Gulf of Guinea than off the Somali coast in the first half of 2013,⁴¹ leading one West African maritime security expert recently to declare that "the Gulf of Guinea is the most insecure waterway, globally."⁴²

Article 101 of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) defines piracy as "any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed *on the high seas... or in a place or outside the jurisdiction of any State.*" Such a definition, placing maritime piracy explicitly in international waters, has important legal repercussions with respect to the suppression and prosecution of the crime but is not appropriate for the present study, which seeks to estimate the economic impacts not just of international piracy narrowly defined but of the broader phenomenon of armed robbery and kidnapping for ransom directed against seagoing vessels and their crews, including incidents occurring in the region's in-shore waters and ports.

In two recent articles, Bensassi and Martínez-Zarzoso estimate the impacts of piracy around the world on global trade volume and maritime shipping costs. They find large and robust effects, with 10 additional successful hijackings leading to an 11% drop in global exports valued roughly at US\$ 24.5 billion dollars

⁴⁰ See recent empirical work by Sami Benassi and Inmaculada Martínez-Zarzoso (2012 and 2013).

⁴¹ As discussed by Vircoulon and Schneider of the International Crisis Group on 15 August 2013.

<http://www.crisisgroup.org/en/regions/africa/west-africa/op-eds/schneider-ircoulon-west-africa-where-navies-are-not-enough-fighting-piracy-in-the-gulf-of-guinea.aspx>

⁴² Loic Moudoma, lead maritime security expert of the Economic Community of Central African States, as quoted on the Huffington Post, 25 September 2014. http://www.huffingtonpost.com/nick-turse/pirates-of-the-gulf-of-guinea_b_5881290.html

(Bensassi and Martínez-Zarzoso 2012, 870). Looking specifically at the impact of piracy on shipping costs, they find that each additional hijacked ship increases maritime transport costs between Europe and Asia by roughly 1.6%.

Data and Methodology

Coggins (2012) introduces a new dataset of maritime piracy events compiled from records kept by the International Maritime Bureau's Piracy Reporting Center (IMB/PRC) for the period January 2000 through December 2009. The Coggins data cover all reported acts – both successful and attempted – of piracy on the high seas as well as armed robberies against ships in national waters the world over. The map in figure 20 depicts the 401 cases reported in the Gulf of Guinea from January 2000 through December 2009.

This study updates the Coggins/IMB dataset for events occurring in the Gulf of Guinea through November 2013 using IMB/PRC reports published on the International Maritime Organization's website.⁴³ From these micro-data I construct a new monthly panel of pirate attacks in the Gulf of Guinea covering fourteen years and the region's thirteen coastal countries. To deal with the problem of endogeneity in the relationship between GDP (and maritime shipping traffic volume and value) and the frequency of pirate attacks, I follow Bensassi and Martínez-Zarzoso (2012) by including a twenty-four month lag between the month of the attack and the measure of the dependent variable. As they point out, it may take some time for the effects of maritime insecurity in a region to be fully incorporated into shipping contracts and maritime insurance rates – the two main channels through which piracy is hypothesized to affect trade.

Model Specification

The basic model used regresses the natural logarithm of the value of a country's exports ($\log Exports$) on the number of pirate attacks reported to IMB for that country, with a 24-month lag ($L24.Piracy$). The model includes controls for GDP ($\log GDP$) and population ($\log Pop$). The second model adds month dummies to account for seasonal factors ($Season$), and year dummies ($Year$) to control for region-wide, time-variant annual effects. The third model includes additional controls for fuel exports as a percentage of all merchandise exports ($Fuel X\%$), as a way of isolating the effect of piracy, as opposed to the petroleum share of exports, on trade; the liner shipping index ($Shipping Index$), an indicator computed by the United Nations Conference on Trade and Development to capture a country's degree of connectivity to global shipping networks (UNCTAD);⁴⁴ and the quality of port infrastructure. Finally, in the fourth model the PRS Civil War index ($Civil War$) is included to control for maritime insecurity related to intrastate armed conflict as distinct from piracy. All four models control for country fixed effects (α_i).

Model 1

$$\begin{aligned} (\log Exports)_{it} = & \alpha_i + \beta_1(L24.Piracy)_{it} + \beta_2(\log GDP)_{it} \\ & + \beta_3(\log Pop)_{it} + \beta_4(Season)_{it} + \beta_5(Year)_{it} + \beta_6(Fuel X\%)_{it} + \beta_7(Shipping Index)_{it} \\ & + \beta_8(Port Quality)_{it} + \beta_9(Civil War)_{it} + \varepsilon_{it} \end{aligned}$$

⁴³ Last accessed 25 February 2014: <http://www.imo.org/OurWork/Security/SecDocs/Pages/Maritime-Security.aspx>

⁴⁴ The liner shipping index is a composite indicator of a country's degree of integration into global sea commerce. It is "based on five components of the maritime transport sector: number of ships, their container-carrying capacity, maximum vessel size, number of services, and number of companies that deploy container ships in a country's ports." See the World Bank website: <http://data.worldbank.org/indicator/IS.SHP.GCNW.XQ> for more details.

Results and Discussion

The table below presents results from regressions of the log of the value of West African countries' monthly exports on three indicators of piracy and armed robbery against ships in the Gulf of Guinea and in-shore West African waters: 1) all attempted attacks, both successful and repulsed, recorded by the International Maritime Bureau from January 2000 through November 2013; 2) all successful incidents, with "success" defined as attacks in which the aggressors succeeded in boarding if not seizing control over the vessel; and 3) attacks in which the pirates succeeded in hijacking the vessel and/or kidnapping crew members for ransom.

These three specifications of the variable of interest, pirate attacks, are used in four models with progressively more control variables. The availability of control data and frequency of monthly pirate attacks allow models one and two to be estimated on all thirteen coastal countries⁴⁵ over a total of 1716 monthly observations; model three on eight countries⁴⁶ over 384 monthly observations, and model four on just five countries⁴⁷ over 276 country-months. For each country, months in which no attacks were reported to the IMB are coded zero. Because "attempt" is a catch-all category that includes unsuccessful incidents as well as all those classified as "success" and "ransom," it includes more non-zero observations and more variation in the variable of interest than the other two.

Results from model one, controlling only for country fixed effects, GDP and population, are consistent with the hypothesis that monthly pirate attacks and armed robbery against ships reported to the IMB depress the value of exports in the country whose coastline is closest to the location of the incident in the following years. Moreover, the magnitude of the effect grows with the size of the incident. In a log-linear model such as this one, unit changes in unlogged terms on the right hand side of the regression model reflect percentage changes in the dependent variable according to the following equation:

$$\text{Percent change in Export Value} = (e^{\beta} - 1) * 100$$

Each additional attack of any kind is thus associated with a 2.89% fall in the value of monthly exports two years later. Each successful attack is associated with a 4.34% drop, and each incident in which a ship and/or its crew is effectively held for ransom, with a 4.48% fall.

Results from model two, controlling for annual and seasonal effects, retain their negative sign but are not statistically significant. When time-variant trade quality controls are added, however, statistically significant results of the hypothesized negative sign are again generated, with the magnitude of the effect of the most severe incidents of successful hijackings and kidnappings rising to -9.35%. Results from the fourth model, controlling for civil war intensity, are similar in magnitude, showing drops in export value ranging from 2.08% for all attempted attacks to 8.33% for successful kidnappings for ransom, and are also significant at the 5% level or higher.

TABLE 3:

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Political Risk	Luxury Imports	Foreign Exchange	Net Foreign Assets	Total Reserves	WEF OC Costs

⁴⁵ Benin, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Nigeria, Senegal, Sierra Leone and Togo.

⁴⁶ Benin, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Mauritania, Nigeria, Senegal.

⁴⁷ Côte d'Ivoire, Gambia, Ghana, Nigeria, Senegal.

In-country	0.0373**	-5,131**	-489.0***	-51,134***	-401.6***	-0.00671**
Seizures	(0.0133)	(1,262)	(66.66)	(7,248)	(51.03)	(0.00286)
Obs.	312	26	364	120	364	211
R-squared	0.260	0.468	0.205	0.337	0.170	0.331
No. of units	13	5	16	5	16	13

Robust standard errors in parentheses

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

The seizure count model for flights destined for West African countries yields statistically significant results for six of the thirteen quarterly indicators, and all five of the annual series. This specification, using the number of drug seizures in foreign airports on flights destined to a given country, may be a better indicator of actual drug flows than seizures in the country itself, as these events are less directly affected by the quality of policing at the destination. It is thus not surprising to see that drug seizures of this type are associated with relatively large drops in the PRS financial and political risk scores.

Foreign exchange and total reserves excluding gold rise significantly in the quarter following an inbound drug seizure. This is consistent with the hypothesis that rising drug flows to West Africa translate into hard currency earnings for West Africans involved in the trade. Net foreign assets rise at the same time that foreign assets fall, a result that is difficult to explain.

TABLE 4:

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Financial Risk	Political Risk	Foreign Assets	Foreign Exchange	Net Foreign Assets	Total Reserves
In-bound	-0.159*	-0.176**	-99,799**	778.8***	134,556***	448.8***
Seizures	(0.0804)	(0.0672)	(46,817)	(106.8)	(15,051)	(83.08)
Obs.	312	312	343	364	120	364
R-squared	0.407	0.270	0.178	0.102	0.297	0.075
No. of units	13	13	16	16	5	16

Robust standard errors in parentheses

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

The annual consumer price index falls by nearly a full point, a result that runs contrary to the hypothesis that narco-dollars and associated money laundering⁴⁸ could have an inflationary effect on West African economies. Foreign direct investment falls by USD 22.4 million, which is consistent with findings on the depressive effect of cocaine trafficking on FDI in Mexican states. However, the real effective exchange rate index *falls* by 1.357 (mean: 104.59; s.d.: 17.53), which would seem inconsistent with hypotheses linking drug trafficking to Dutch Disease effects in West Africa. Results for remittances from abroad are contradictory and difficult to map to a coherent theory of drug trafficking impact: nominal annual remittance inflows rise by 58.86 million in current USD, while falling by 0.1 as a percent of GDP.

⁴⁸ See a brief discussion on the UNODC website: <https://www.unodc.org/unodc/en/money-laundering/introduction.html>

TABLE 5:

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Log of export value in USD millions	No	No	No	Time	Time	Time	Time	Time	Time	Time	Time	Time
	Controls	Controls	Controls				& Econ.	& Econ.	& Econ.	Ec. War	Ec. War	Ec. War
Attempt	-0.0294*			-			-0.0265**			-0.0210**		
	(0.0137)			(0.0160)			(0.00855)			(0.00750)		
Success		-0.0444**			-0.0134			-			-0.0261**	
		(0.0196)			(0.0199)			0.0299***			(0.00732)	
								(0.00831)				
Ransom			-0.108*			-0.0619			-			-
			(0.0556)			(0.0438)			0.0982***			0.0870***
									(0.0103)			(0.00786)
Log GDP	1.064	1.064	1.061	0.465	0.472	0.474	2.029**	1.979**	1.925*	1.942**	1.914**	1.875**
	(0.853)	(0.849)	(0.851)	(0.558)	(0.558)	(0.557)	(0.828)	(0.833)	(0.849)	(0.577)	(0.585)	(0.614)
Log population	2.541**	2.543**	2.557**	-3.107	-3.102	-3.108	-1.969	-2.522	-2.686	1.067	0.496	0.150
	(1.148)	(1.144)	(1.141)	(1.782)	(1.784)	(1.780)	(4.950)	(5.079)	(5.001)	(6.734)	(6.862)	(7.052)
Seasonal controls	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
Annual controls	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
Fuel export %							0.00190	0.00194	0.00210	0.00509*	0.00508*	0.00524*
							(0.00289)	(0.00293)	(0.00298)	(0.00194)	(0.00203)	(0.00221)
Liner shipping index							-0.0104	-0.0103	-0.0101	-0.0109	-0.0104	-0.0103

							(0.0147)	(0.0147)	(0.0143)	(0.0107)	(0.0113)	(0.0120)
Port quality							0.329*	0.354**	0.357**	0.242	0.267	0.276
							(0.144)	(0.137)	(0.132)	(0.207)	(0.201)	(0.208)
Civil war										0.163	0.163	0.169
										(0.159)	(0.162)	(0.164)
Constant	-45.22***	-45.26***	-45.41***	55.84	55.62	55.07	3.199	13.30	17.22	-45.33	-35.19	-28.54
	(8.394)	(8.386)	(8.407)	(37.57)	(37.63)	(37.36)	(73.11)	(74.16)	(73.69)	(107.4)	(108.5)	(112.8)
Observations	1,716	1,716	1,716	1,716	1,716	1,716	384	384	384	276	276	276
R-squared	0.397	0.397	0.397	0.500	0.500	0.501	0.363	0.363	0.364	0.368	0.368	0.370
Countries in panel	13	13	13	13	13	13	8	8	8	5	5	5

Robust standard errors in parentheses

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

Case B: Drug Trafficking

Background

A declining consumer market for cocaine in the US and a rapidly growing one in Western Europe, along with greater risk of interdiction in the Caribbean, led Colombian cartels to make increasing use of West African countries as transshipment points to European markets starting around 2004. Very large shipments began to make their way to West Africa by private sea-going vessel as well as aboard private planes, often departing from Venezuela. (UNODC 2011b, 12).

Europol in 2010 described three main trafficking routes for cocaine from South America to Western Europe: A northern route, via the Azores to Portugal and Spain; a central route through Cape Verde, Madeira or the Canary Islands to mainland Portugal and Spain; and the southern, or African route, from South America to West Africa (UNODC 2011b, 27). On the basis of available data on large seizures, most southern route shipments are believed to have made landfall in West Africa either in Guinea or Guinea-Bissau, or along the Bight of Benin from Côte d'Ivoire to Nigeria.

Most of the product entering the region is not consumed there but trafficked onward for final sale in Europe, as illustrated in the following chart. From 2004 through 2009, UNODC estimates that a total of roughly 221 metric tons of cocaine arrived in Western and Central Africa from South America, of which some 69.1 (31.27%) were consumed locally, 143.5 (64.93%) were trafficked onward to Europe, and 8.3 (3.76%) were seized by authorities in the region⁴⁹.

Though estimating total flows on the basis of amounts seized in South America, Europe and Africa remains an imperfect science, the volume of the trans-West African traffic is believed to have increased steadily from sometime prior to 2004 through 2007, and to have declined thereafter. Major seizures of between 200 and 2500 kg were made off the coasts of Senegal, Guinea-Bissau, Cape Verde, Gambia, Benin and Ghana from 2005-2008, but from late 2008 through December 2011 (the last month for which the present study has data on individual seizures), only two maritime seizures of over 100 kg were made in West African waters. Over the same period the percentage of airline passengers caught smuggling cocaine into Europe on flights originating in West Africa also plummeted, leading authorities to speculate that the southern route to Europe through West Africa had either dwindled in response to tighter interdiction, found much more effective ways of eluding detection, or both. (UNODC 2011b, 12)

In its 2013 TOC threat assessment for West Africa, UNODC estimated the flow of cocaine through the region to have declined from an annual high-water mark of 47 tons in 2007 to somewhere on the order of 18 tons, a quantity worth roughly US\$ 1.25 billion on European wholesale markets. This same report suggests that the supply lines may have shifted from Venezuela and Colombia to Brazil, where Nigerian crime groups have begun sending the product via maritime shipping containers “in addition to their traditional methods of air couriering and postal shipments” and notes “an increase in the use of Benin as a departure point for air couriers.” (UNODC 2013, 1)

Regional Costs and Benefits from Cocaine Trafficking

In West Africa the international cocaine trade directly benefits members of Latin American and West African trafficking groups and the corrupt public officials who aid and abet them, as well as individual “mules” employed or enlisted by trafficking gangs to carry shipments aboard commercial flights to European destinations. Other direct beneficiaries include low-level local employees of the trafficking

⁴⁹ Figure 21

organizations involved in processing and repackaging⁵⁰ the bulk shipments for onward trafficking to Europe and re-sale on domestic markets, as well as the local dealers who directly supply these markets.

Indirect benefits flowing to West African economies from the illicit trade might include increased demand by traffickers and their associates for goods and services supplied by local individuals and firms in licit sectors, benefitting them through increased employment and higher wages and profits; increased investment by traffickers in otherwise legitimate domestic business ventures; and increased public revenues flowing to West African governments from taxes on licit consumption and investment financed by TOC revenues.

On the cost side, the most extreme example to date of cocaine's potentially destabilizing impact is Guinea-Bissau, where the illicit trade involves collaboration between Latin American cartels and the state's military and political leadership and is alleged to have been a factor in the March 2009 assassinations of former President Nino Vieira and Army Chief of Staff Tagme Na Waie.

While drug related violence in West Africa has not reached anything near the levels seen in Latin America, and rates of cocaine consumption remain low relative to those in Western Europe and North America,⁵¹ as long as the region remains a major global transshipment point for the product spillovers from the intercontinental trade are likely to continue feeding growing domestic markets of consumers and increase the risks of violence over control of the trade.

The following sections describe the data and methodology to be used to explore the relationship between various measures of drug trafficking through the West Africa Region and indicators of economic performance and perceived economic, financial and political risk among the region's countries. Due to the difficulty of measuring the benefits of drug trafficking, which are assumed to accrue primarily to those directly or indirectly involved in the trade, the analysis focuses primarily on estimating costs on the region's economies and country risk profiles.

Data and Methodology

Data on social and economic indicators are from the World Bank's World Development Indicators website;⁵² financial data are from the IMF's International Financial Statistics (IFS) database.⁵³ Drug trafficking data are drawn from individual drug seizure (IDS) reports compiled by UNODC.⁵⁴

Drugs seized by the authorities are at best an imperfect proxy for actual flows, since the number of seizures and quantity seized in any country during a given time period are functions not just of total flows but also of the methods employed by traffickers and the effectiveness of interdiction efforts by the authorities. In an effort to mitigate the bias caused by measurement error in the variable of interest, seven proxy specifications are used and results checked for robustness.

⁵⁰ Cocaine is trafficked from West Africa to Europe via several routes and methods (See UNODC 2007, 2008, 2011). The latter range from bulk shipments by private boat and aircraft to smaller shipments sent via container and carried by individual "mules" on commercial flights. While the task of re-packaging bulk shipments of refined cocaine into the smaller units required for transport via commercial air courier has been carried out in West Africa for several years at least, there are more recent reports of chemical processing of crack cocaine occurring in the region, and fears that Latin American drug barons may relocate some of their large-scale refining and processing operations there. *The Telegraph*, 22 September 2014. <http://www.telegraph.co.uk/news/worldnews/africaandindianocean/senegal/3546011/Special-Report-West-Africa-welcomes-Latin-Americas-drug-barons.html>

⁵¹ While data on drug consumption by substance in West Africa are scant and of dubious quality, the latest UNODC World Drug Report estimates cocaine use to be around the global average (UNODC 2014).

⁵² <http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#> Last accessed 26 February 2014.

⁵³ library-data.imf.org/ Last accessed 26 February 2014.

⁵⁴ <https://www.unodc.org/unodc/en/organized-crime/bi-annual-seizure-reports.html> Last accessed 26 February 2014.

In the first set of regression models, referred to below as the “seizure count” models, the variable of interest is the *number of seizures* of all drugs made on commercial flights destined for, arriving in, and having departed from West African countries. These results are therefore *directly* indicative of the effect of drug interdiction efforts by the authorities of drug producing countries, drug transiting countries in West Africa, and drug consuming countries in Europe on the economies of the West Africa region. They are only *indirectly* suggestive of the effect of drug flows on West African countries.

In the second set of regressions, the *quantity of cocaine seized* is considered, rather than the number of seizures. These are referred to as the “quantity seized” models below. A final set of regressions uses the total quantity of cocaine seized from all sources, including maritime and private air shipments in addition to commercial flights. Six of the seven models focus only on commercial air seizures, since these are analytically consistent across countries and over time, in contrast to the occasional, very large seizures occurring at sea and involving private planes. While the quantity seized models may be more likely to pick up the effects of total cocaine flows than the seizure count models, they are subject to the same bias.

Model Specification

The analysis employs an original sixteen-country quarterly panel with country fixed effects. A one-period lag is used to capture the delayed effects of reports of drug seizures on decisions by international investors and risk assessors as well as the impact of narco-dollars on macroeconomic and financial indicators. Quarterly figures are not available for five of the indicators, however.⁵⁵ In these cases the regressions are run using a yearly rather than a quarterly panel and a one-period lag.

In all, eighteen indicators of economic performance and political and economic risk⁵⁶ are included in the analysis as dependent variables. Quarterly dummies are used to control for seasonal effects, with Q1 as the benchmark. Annual controls for 2007-2011, using 2006 as the base year, are intended to capture the effect of time-variant factors common to the entire region such as the global financial crisis of 2008. Finally, the models control for GDP per capita using the same quadratic specification as in Part One.

Model 2

$$(Y)_{it} = \alpha_i + \beta_1(L1. Drug Seizures)_{it} + \beta_2(\log GDP)_{it} + \beta_2(\log GDP^2)_{it} \\ + \beta_4(Quarter)_{it} + \beta_5(Year)_{it} + \varepsilon_{it}$$

Results and Discussion

Seizure Count Models

Turning first to the seizure count models, for seizures made in West African countries on arriving commercial flights results are statistically significant for seven of the eighteen economic, financial and political indicators. Specifically, one additional drug seizure is associated in the following quarter with

⁵⁵ These five are: consumer price index, foreign direct investment, real effective exchange rate index, and remittances from abroad (in current USD and as a percentage of GDP).

⁵⁶ These are: From the PRS Group’s International Country Risk Guide: 1) Composite Risk Rating, 2) Economic Risk Rating, 3) Financial Risk Rating, and 4) Political Risk Rating; from the UN’s Commodity Trade Statistics (Comtrade) database: 5) a “luxury good” indicator created by the author and composed of the total value of quarterly imports of artwork, gold watches, jewelry, and yachts and pleasure craft; from the World Bank’s World Development Indicators database: 6) Consumer Price Index, 7) Foreign Direct Investment (in millions of current USD), 8) Real Exchange Rate Index, 9) Remittances from Abroad (in current USD), and 10) Remittances from Abroad (as a percent of GDP); from the IMF’s International Financial Statistics database: 11) Foreign Assets, 12) Foreign Exchange, 13) Net Foreign Assets, 14) Time Deposits, and 15) Total Reserves Excluding Gold; from the World Economic Forum’s Global Competitiveness Survey database: 16) Costs of Crime and Violence, 17) Judicial Independence, and 18) Costs of Organized Crime.

an improvement in a country's political risk index, a reduction in the perceived costs of organized crime, falling imports of luxury goods, and falling foreign exchange holdings, net foreign assets, and total reserves excluding gold. Annual remittances from abroad also rise in response to these seizures.

It makes sense that successful drug seizures by a West African country's authorities should be positively associated with improvements in the country's political risk and organized crime cost perception indicators, to the extent that more seizures signal more effective law enforcement and respect for the rule of law to international risk assessors and business representatives.

The PRS political risk index is scored 0-100, with higher scores representing lower risk. The mean score among West African countries over the period studied was 54.87, with a standard deviation of 7.74. This result, while significant at the 5% level, is modest in magnitude, suggesting an increase of 0.037 in a country's score – that is, a reduction in its perceived political risk – for every drug seizure made on a commercial flight by the country's domestic authorities. The mean number of in-country drug seizures per country per quarter is 1.06 (sd = 5.55), so the average West African country would see its PRS political risk score improve by just 0.16 of a point on a 100 point scale over the course of an average year.

The WEF perceived costs of organized crime score is scaled from 1-7. The mean West Africa score is 4.69 (s.d.: 0.84) so the estimated effect of a marginal seizure made in country of 0.000671, while significant at the 5% level, is even smaller in magnitude than the effect on the PRS indicator.

The result for imports of luxury goods is significant at the 5% level and suggests a quarterly drop of USD 5,131 – or roughly 1% of the mean quarterly figure for these imports – associated with each drug seizure. While consistent with the hypothesis that drug traffickers' purchases of these goods may fall as a function of revenue lost to interdiction, this result is based on just twenty-six observations drawn from only five countries so should be interpreted with an abundance of caution.

All three of the IMF financial statistics show highly significant downward movement of modest volume associated with drug seizures in the previous quarter. Foreign exchange holdings (mean: 8,978; s.d.: 27,617), drop by USD -489. Net foreign assets (mean: 3.3 million; s.d.: 6.8 million) fall by USD -51,134, and total reserves excluding gold by USD -401.6 (mean: 9331; std. dev: 28257). The result for annual remittance flows is highly statistically significant and seems quite large in absolute terms, rising by USD 7.558 million in association with each additional drug seizure recorded the previous year. But relative to the size of annual remittance flows over the period, which average roughly USD 1 billion per country (Nigeria alone received over USD 20 billion in remittances in 2012), it represents less than a one percent year-to-year change.

TABLE 6:

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Political Risk	Luxury Imports	Foreign Exchange	Net Foreign Assets	Total Reserves	WEF OC Costs
In-country	0.0373**	-5,131**	-489.0***	-51,134***	-401.6***	-0.00671**
Seizures	(0.0133)	(1,262)	(66.66)	(7,248)	(51.03)	(0.00286)
Obs.	312	26	364	120	364	211

R-squared	0.260	0.468	0.205	0.337	0.170	0.331
No. of units	13	5	16	5	16	13

Robust standard errors in parentheses

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

The seizure count model for flights destined for West African countries yields statistically significant results for six of the thirteen quarterly indicators, and all five of the annual series. This specification, using the number of drug seizures in foreign airports on flights destined to a given country, may be a better indicator of actual drug flows than seizures in the country itself, as these events are less directly affected by the quality of policing at the destination. It is thus not surprising to see that drug seizures of this type are associated with relatively large drops in the PRS financial and political risk scores.

Foreign exchange and total reserves excluding gold rise significantly in the quarter following an inbound drug seizure. This is consistent with the hypothesis that rising drug flows to West Africa translate into hard currency earnings for West Africans involved in the trade. Net foreign assets rise at the same time that foreign assets fall, a result that is difficult to explain.

TABLE 7:

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Financial Risk	Political Risk	Foreign Assets	Foreign Exchange	Net Foreign Assets	Total Reserves
In-bound	-0.159*	-0.176**	-99,799**	778.8***	134,556***	448.8***
Seizures	(0.0804)	(0.0672)	(46,817)	(106.8)	(15,051)	(83.08)
Obs.	312	312	343	364	120	364
R-squared	0.407	0.270	0.178	0.102	0.297	0.075
No. of units	13	13	16	16	5	16

Robust standard errors in parentheses

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

The annual consumer price index falls by nearly a full point, a result that runs contrary to the hypothesis that narco-dollars and associated money laundering⁵⁷ could have an inflationary effect on West African economies. Foreign direct investment falls by USD 22.4 million, which is consistent with findings on the depressive effect of cocaine trafficking on FDI in Mexican states. However, the real effective exchange rate index *falls* by 1.357 (mean: 104.59; s.d.: 17.53), which would seem inconsistent with hypotheses linking drug trafficking to Dutch Disease effects in West Africa. Results for remittances from abroad are contradictory and difficult to map to a coherent theory of drug trafficking impact: nominal annual remittance inflows rise by 58.86 million in current USD, while falling by 0.1 as a percent of GDP.

⁵⁷ See a brief discussion on the UNODC website: <https://www.unodc.org/unodc/en/money-laundering/introduction.html>

TABLE 8:

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Consumer Price Index	Foreign Direct Investment	REER Index	Remittances (current USD)	Remittances (% of GDP)
In-bound	-0.976**	-22.41***	-1.357***	-5.886e+07***	0.103**
Seizures	(0.345)	(6.011)	(0.217)	(6.978e+06)	(0.0402)
Obs.	95	96	36	74	74
R-squared	0.556	0.290	0.559	0.734	0.252
No. of units	16	16	6	15	15

Robust standard errors in parentheses

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

For the model using seizure counts in other countries, of all drugs departing from West African countries, of the eighteen impact indicators employed as dependent variables the only statistically significant result is for the annual real effective exchange rate, which appreciates by 0.493. This is consistent with a Dutch Disease model of real exchange rate appreciation resulting from drug trafficking, if one assumes these kinds of seizures to be reasonable proxies for trafficking shipments that made it successfully to West Africa and resulted in significant flows of narco-dollars to these transit states before being interdicted, most often in Spain and Portugal.

TABLE 9:

VARIABLES	(1)
	Real Effective Exchange Rate Index
Out-bound	0.493***
Seizures	(0.0998)
Observations	36
R-squared	0.388
No. of units	6

Robust standard errors in parentheses

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

Quantity Seized Models

Moving to the models using kilograms of cocaine (and not all drugs) seized on commercial air couriers in each country, each incoming kilogram seized is associated with modest improvements the following

quarter in the PRS composite, financial, and political risk ratings as well as the WEF organized crime cost perception score, while the WEF judicial independence indicator deteriorates. Note that the PRS composite and political risk indices are scaled 0-100, while the financial and economic indices are on a scale of 0-50. Quarterly imports of luxury goods fall by USD -3,580, though once again this result flows from just twenty-six observations. Neither the IMF quarterly financial statistics nor annual World Bank macroeconomic indicators show significant results.

TABLE 10:

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Composite Risk	Financial Risk	Political Risk	Judicial Independence	WEF OC Costs	Luxury Imports
In-country kilograms	0.0199*	0.0290**	0.0157**	-0.00247*	-0.00406***	-3,580**
	(0.0103)	(0.0106)	(0.00714)	(0.00137)	(0.00117)	(927.0)
Obs.	312	312	312	211	211	26
R-squared	0.211	0.410	0.257	0.280	0.338	0.469
No. of units	13	13	13	13	13	5

Robust standard errors in parentheses

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

The models employing kilograms of cocaine seized on flights destined for West Africa countries show each kilogram associated with a modest fall in the PRS financial risk rating as well as the WEF judicial independence score, at the same time that the WEF organized crime and costs of crime and violence perception scores actually improve. Net foreign assets rise by USD 68,385 in association with each kilo seized before arriving in the country the preceding quarter, while results from the yearly panel suggest that the real effective exchange rate index falls by -0.482 in response to each kilogram of cocaine seized the previous year.

TABLE 11:

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Financial Risk	Net Foreign Assets	Judicial Independence	WEF OC Costs	WEF Crime & Violence	REER Index
In-bound kilograms	-0.0263**	68,385***	-0.00135***	-0.00231***	-0.00303***	-0.482***
	(0.00952)	(11,772)	(0.000395)	(0.000585)	(0.000621)	(0.106)
Obs.	312	120	211	211	211	36
R-squared	0.406	0.244	0.273	0.317	0.448	0.239

No. of units	13	5	13	13	13	6
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Robust standard errors in parentheses

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

Results for kilograms of cocaine seized on flights having departed from West Africa countries, suggest counter-intuitive quarterly improvements in these countries' composite and financial risk ratings by PRS and a similarly curious fall in the consumer price index. FDI falls by USD 4.465 million in response to each kilogram of cocaine seized, in support of the hypothesis that transnational cocaine trafficking scares foreign investors from West Africa.

TABLE 12:

VARIABLES	(1)	(2)	(3)	(4)
	Composite Risk	Financial Risk	Consumer Price Index	Foreign Direct Investment
Out-bound	0.0332***	0.0297**	-0.145*	-4.465***
Seizures	(0.00885)	(0.0125)	(0.0820)	(0.906)
Obs.	312	312	95	96
R-squared	0.220	0.409	0.569	0.344
No. of units	13	13	16	16

Robust standard errors in parentheses

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

When the quantity of cocaine seized in each country from all sources (land, sea, and private aircraft as well as on commercial flights) is used as the variable of interest, each kilogram is associated with statistically significant but miniscule improvements in the PRS composite and political risk scores, and worsening scores of similarly small magnitude on the WEF survey's judicial independence, cost of organized crime and costs of crime and violence indicators. The World Bank's annual real effective exchange rate index appreciates by 0.01 for each kilo of cocaine seized in country from all sources.

TABLE 13:

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Composite Risk	Political Risk	Judicial Independence	WEF OC Costs	WEF Crime & Violence	REER Index
In-bound	0.000747**	0.000817***	-0.000186**	0.000148*	0.000248**	0.0107***
kilograms	(0.000260)	(0.000236)	(6.98e-05)	(7.08e-05)	(9.17e-05)	(0.00261)

Obs.	312	312	211	211	211	36
R-squared	0.262	0.257	0.287	0.324	0.467	0.362
No. of units	13	13	13	13	13	6

Robust standard errors in parentheses

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

CONCLUSION

This study began with an overview of the simple, negative correlation observed globally between a country's per capita GDP and the WEF survey's perceived costs of organized crime indicator. By this measure, TOC costs are low to moderate among the lowest income countries, rise at transitional levels of GDP per capita, and fall sharply to their lowest levels among the highest-income countries, though deviant cases such as Italy (high income, high TOC) and Ethiopia (low income, low TOC) exist at both ends of the spectrum. This quadratic relationship helps to explain the trend among West African countries, where TOC costs from 2006-2013 have risen with rising GDP per capita: the region's overall growth trajectory has been positive over this period, but entirely within the low- to lower-middle income range where TOC costs are on the rise in the "inverted-U" pattern observed globally. If the global distribution of wealth and TOC is predictive of West Africa's future, the region might expect TOC costs to continue to rise with rising incomes over the short to medium term, and fall thereafter.

Turning to the question why less developed countries might be more susceptible to TOCs than high-income countries, two main causal pathways are explored: one whereby economic development serves to prevent or check the spread of TOCs through its effect on the quality of institutions, especially public institutions commonly associated with the rule of law and control of corruption; and a second channel whereby economic growth leads to job creation and insulates a country from TOC exposure by drying up the pool of available labor for illicit activities.

As hypothesized, institutional strength, and especially the strength of public sector institutions associated with the rule of law, is negatively associated with the perceived costs of organized crime in West Africa, though this relationship tends to be weaker in West Africa than elsewhere.

Poor data quality and availability, and conceptual problems comparing unemployment figures across world regions make it difficult to assess quantitatively the relationship between unemployment and TOC within the West African region, or to draw valid inferences about West Africa from studies made in other parts of the world. To the extent that qualitative studies pointing to a link between male youth unemployment (or underemployment) and various forms of crime and violence in West Africa signal a similar risk for TOC exposure, recent projections by the IMF for labor force demographics and the structure of employment in Africa are not encouraging: the continent's growing youth bulge is expected to far outstrip job growth in the formal wage sector for the foreseeable future.

Part two of the study is a quantitative analysis of the economic impacts of maritime piracy and drug trafficking on West African states, and is intended to test for evidence of specific pathways through which TOCs are hypothesized to affect a country's economic performance in the areas of agriculture, trade, investment, and growth.

Results from the piracy analysis allow for confident rejection of the null hypothesis, that pirate attacks have no effect on trade in West Africa, and suggest that monthly pirate attacks and armed robbery against

ships reported to the International Maritime Bureau depress the value of exports in the country whose coastline is closest to the location of the incident in the following years, an effect that is robust to a range of controls and three different specifications of the variable of interest. Moreover, the magnitude of this effect appears to increase with the severity of the incident. In the basic regression model, each attack of any kind is associated with a 2.89% fall in the value of monthly exports two years later. Each successful attack is associated with a 4.34% drop, and each incident in which a ship and/or its crew is effectively held for ransom, with a 4.48% fall. When annual and seasonal effects, time-variant trade quality controls, and civil war intensity are controlled for, drops in export value range from 2.08% for all attempted attacks, to 8.33% for successful kidnappings for ransom, and remain significant at the 5% level or higher.

Turning to results from the drug trafficking analysis, successful drug seizures by a West African country's authorities are positively associated with statistically significant, modest improvements in the country's political risk and organized crime cost perception indicators the following quarter, supporting the hypothesis that more seizures signal more effective law enforcement and respect for the rule of law to international risk assessors and business representatives.

Drug seizures made in foreign airports on flights destined for West African countries, presented as a crude proxy for actual drug flows, are associated as hypothesized with significant drops in the PRS financial and political risk scores, while foreign exchange and total reserves excluding gold rise significantly in the quarter following an inbound drug seizure. The latter effects are consistent with the hypothesis that rising drug flows to West Africa translate into hard currency earnings for West Africans involved in the trade. Models employing the quantity of cocaine seized, rather than the total number of seizures of all drugs, yield much weaker and less consistent results.

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FIGURE I

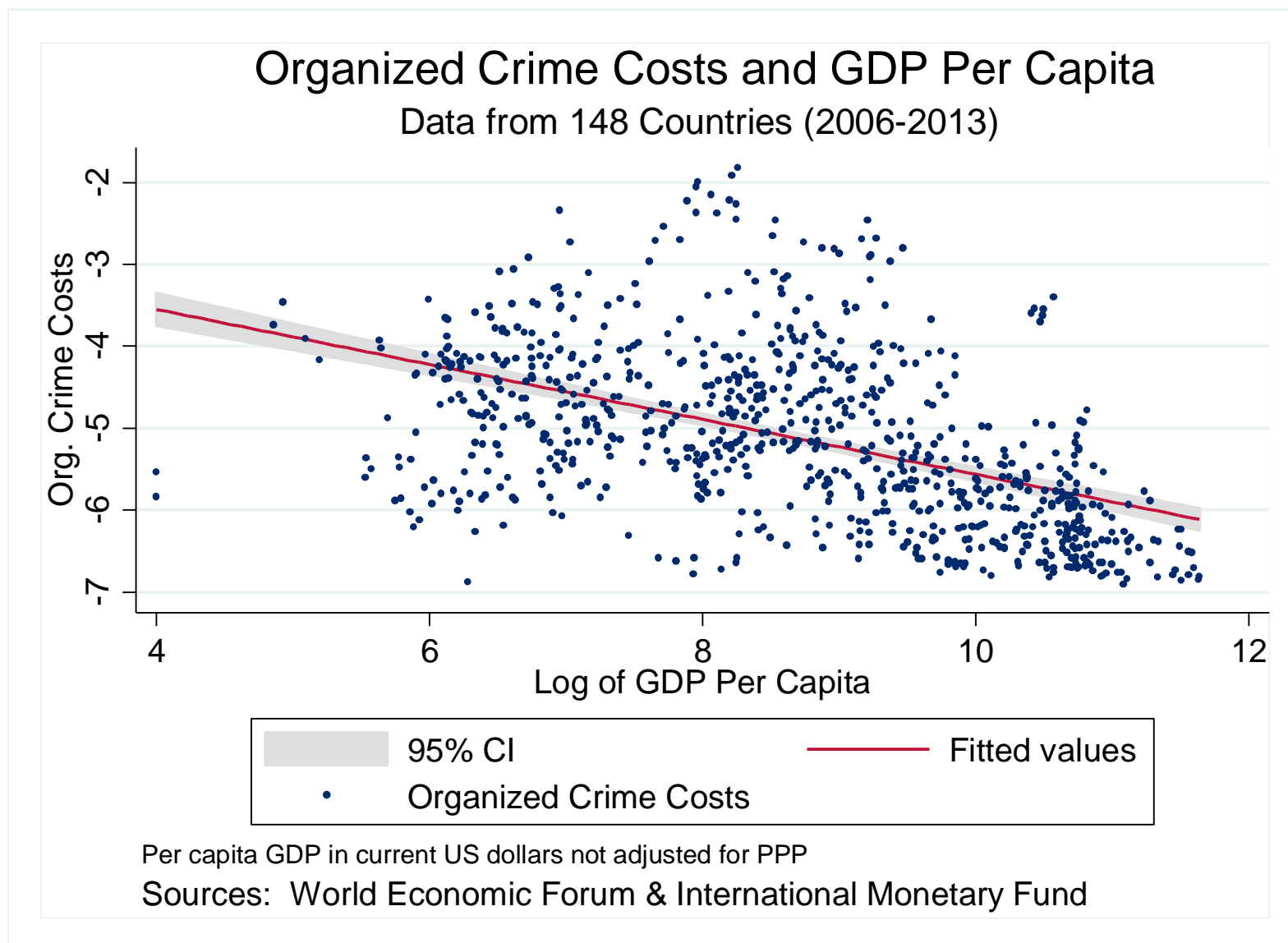


FIGURE 2

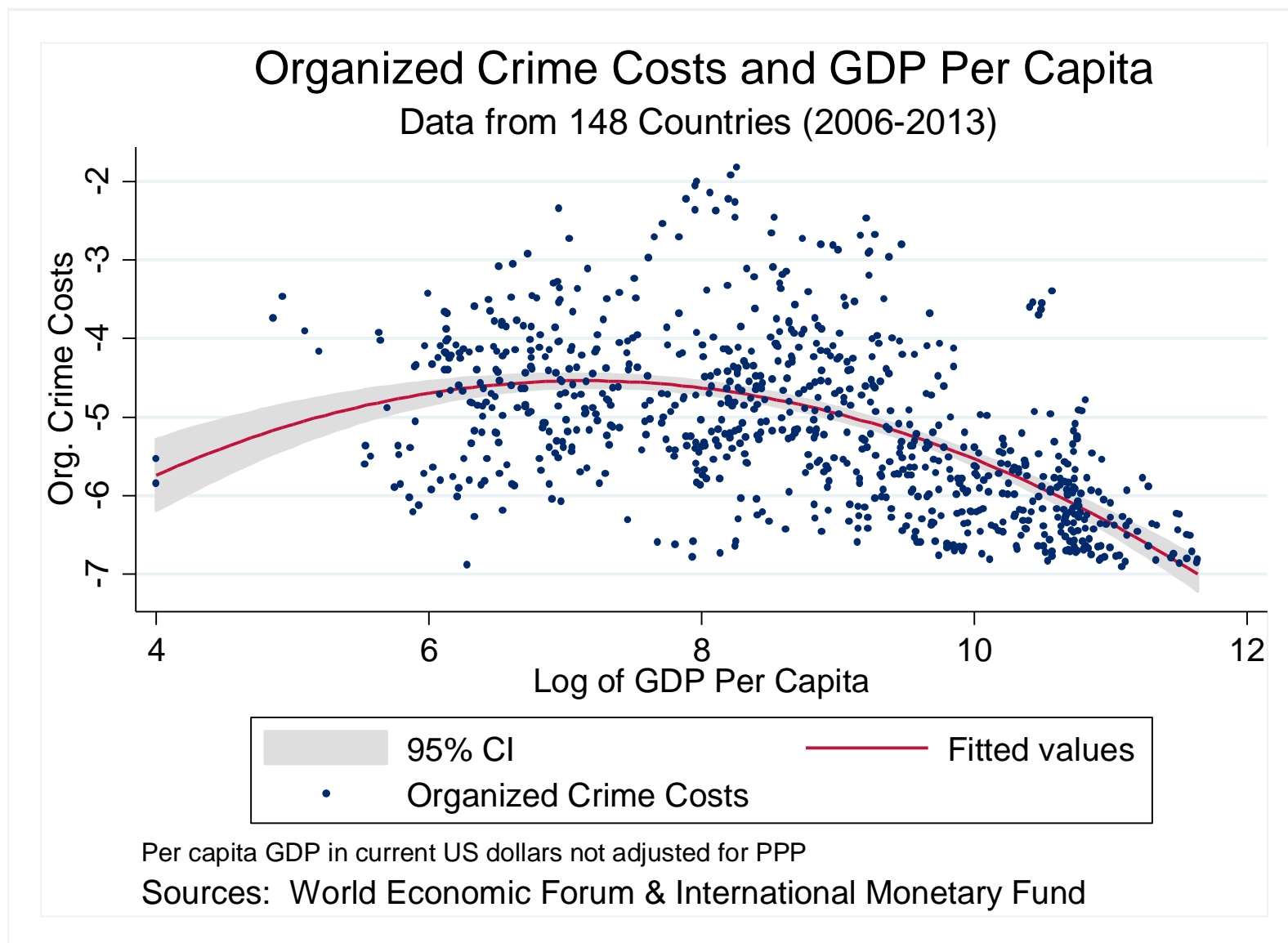


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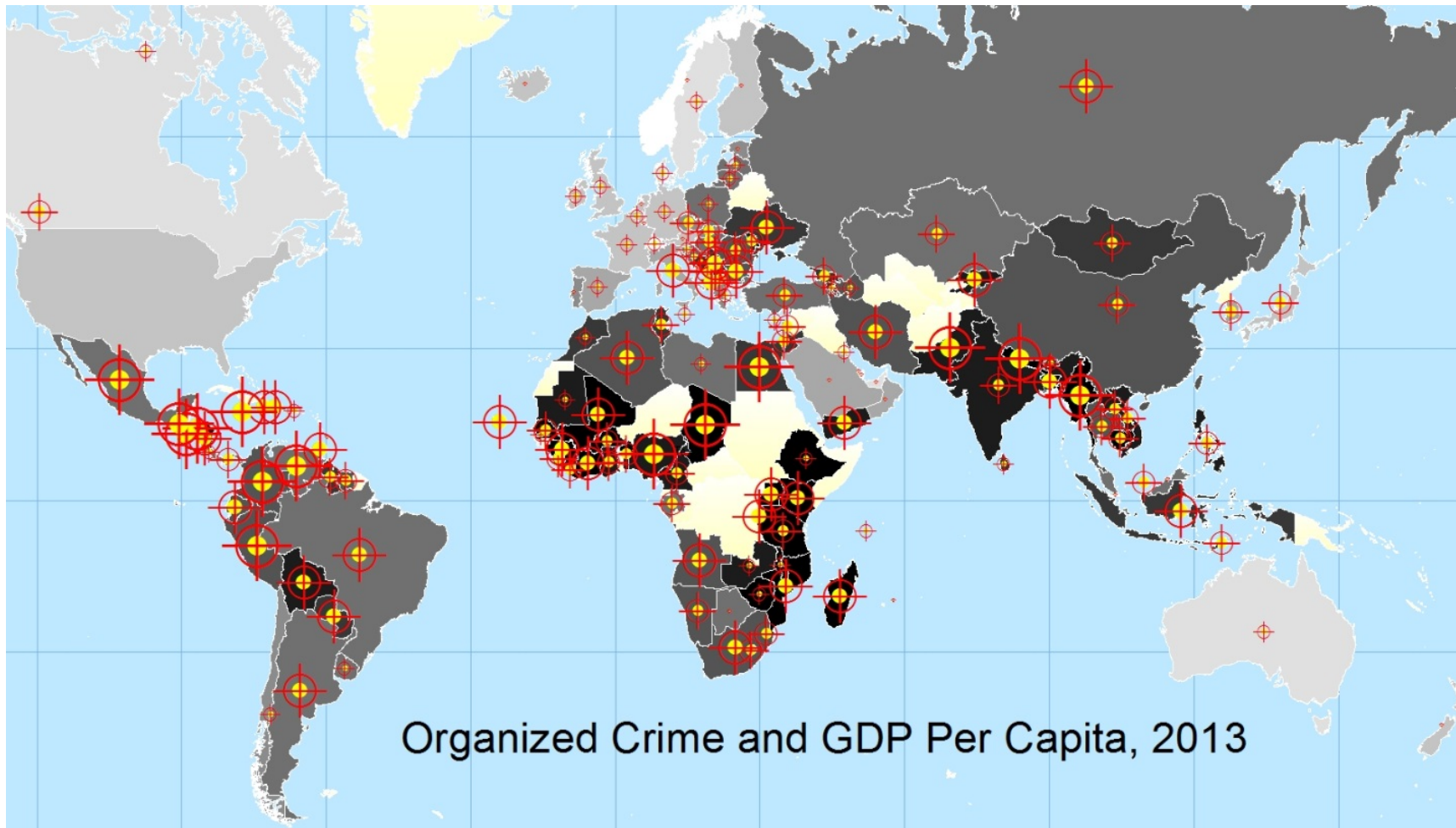


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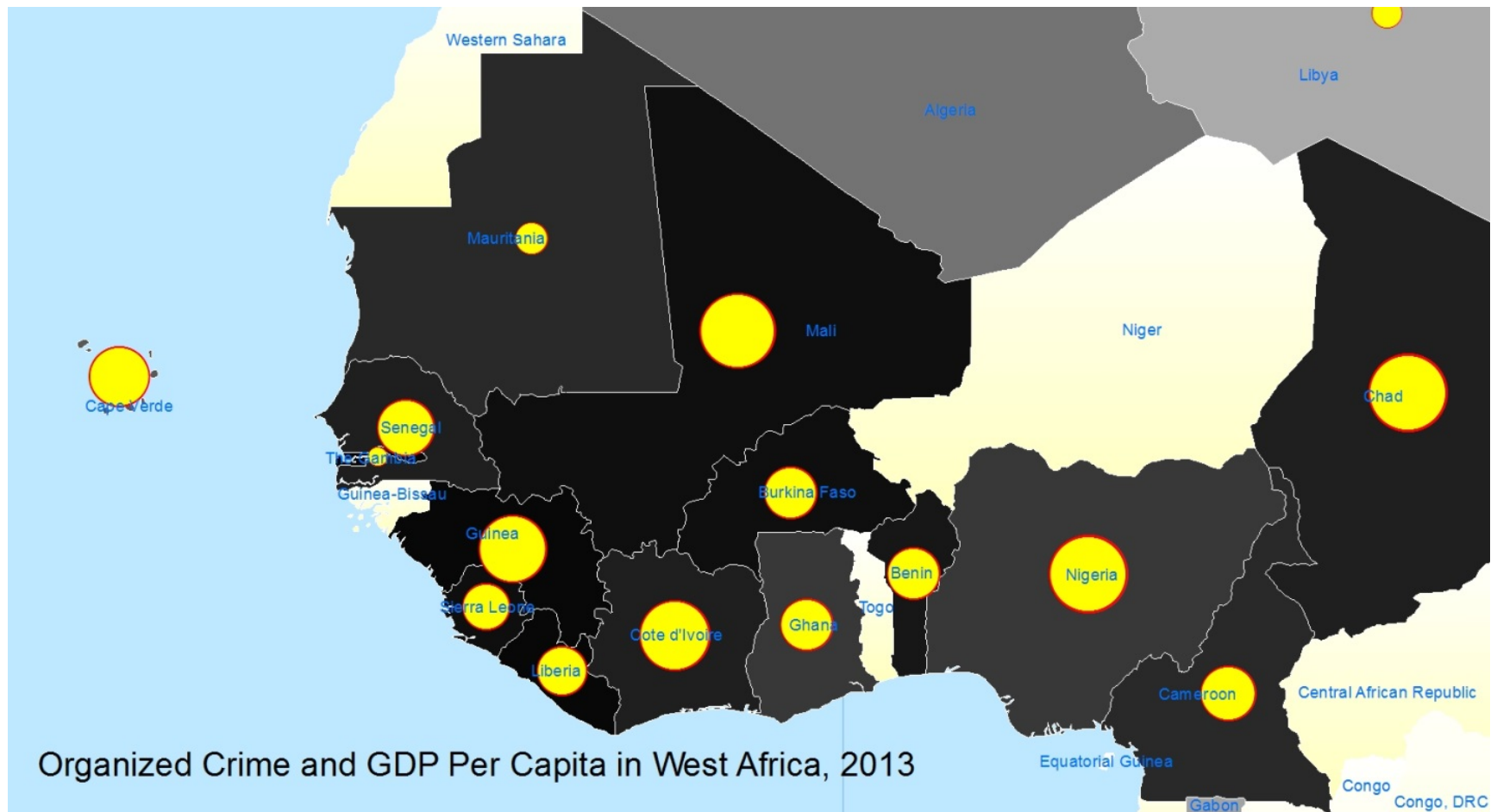


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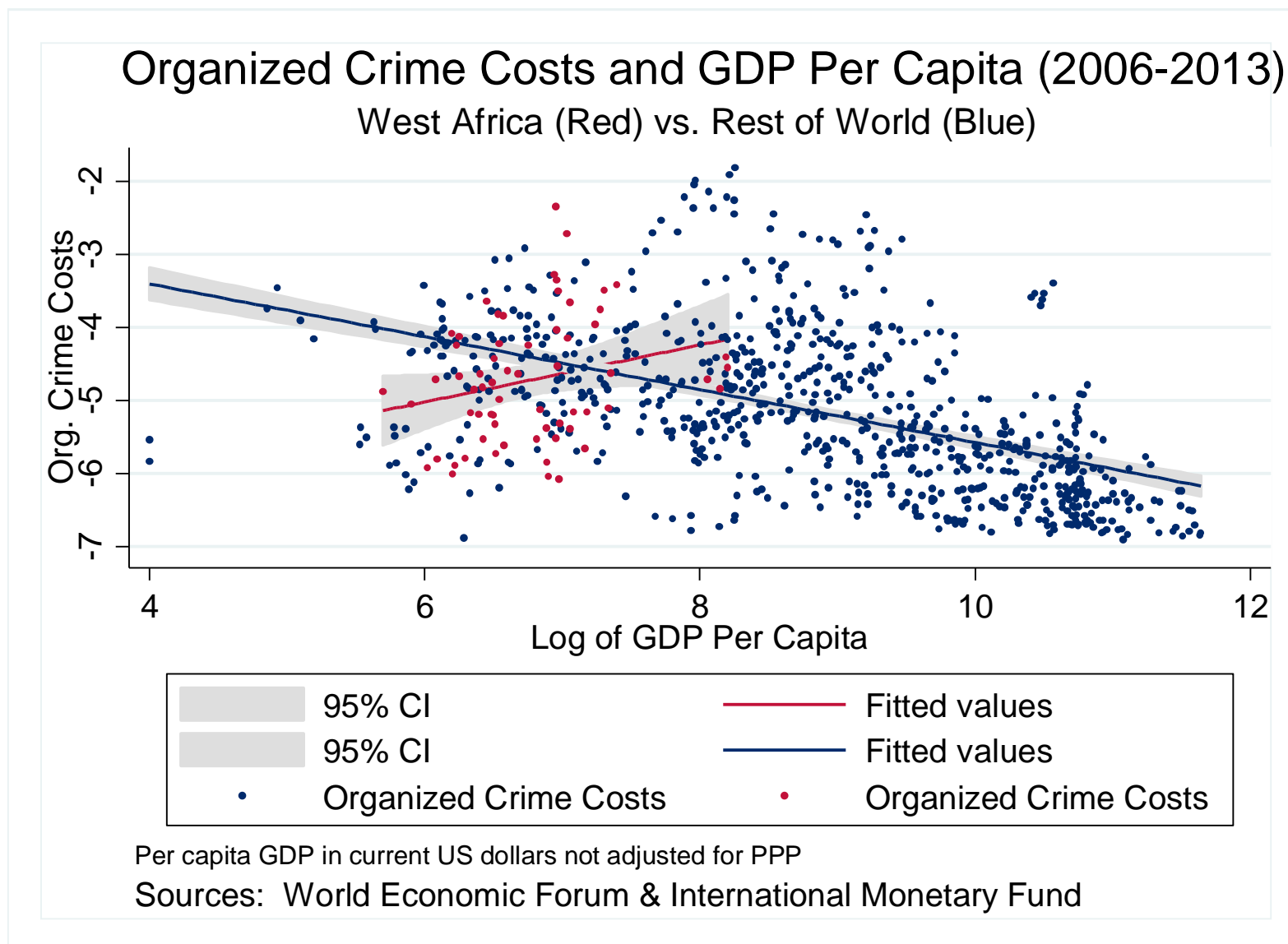


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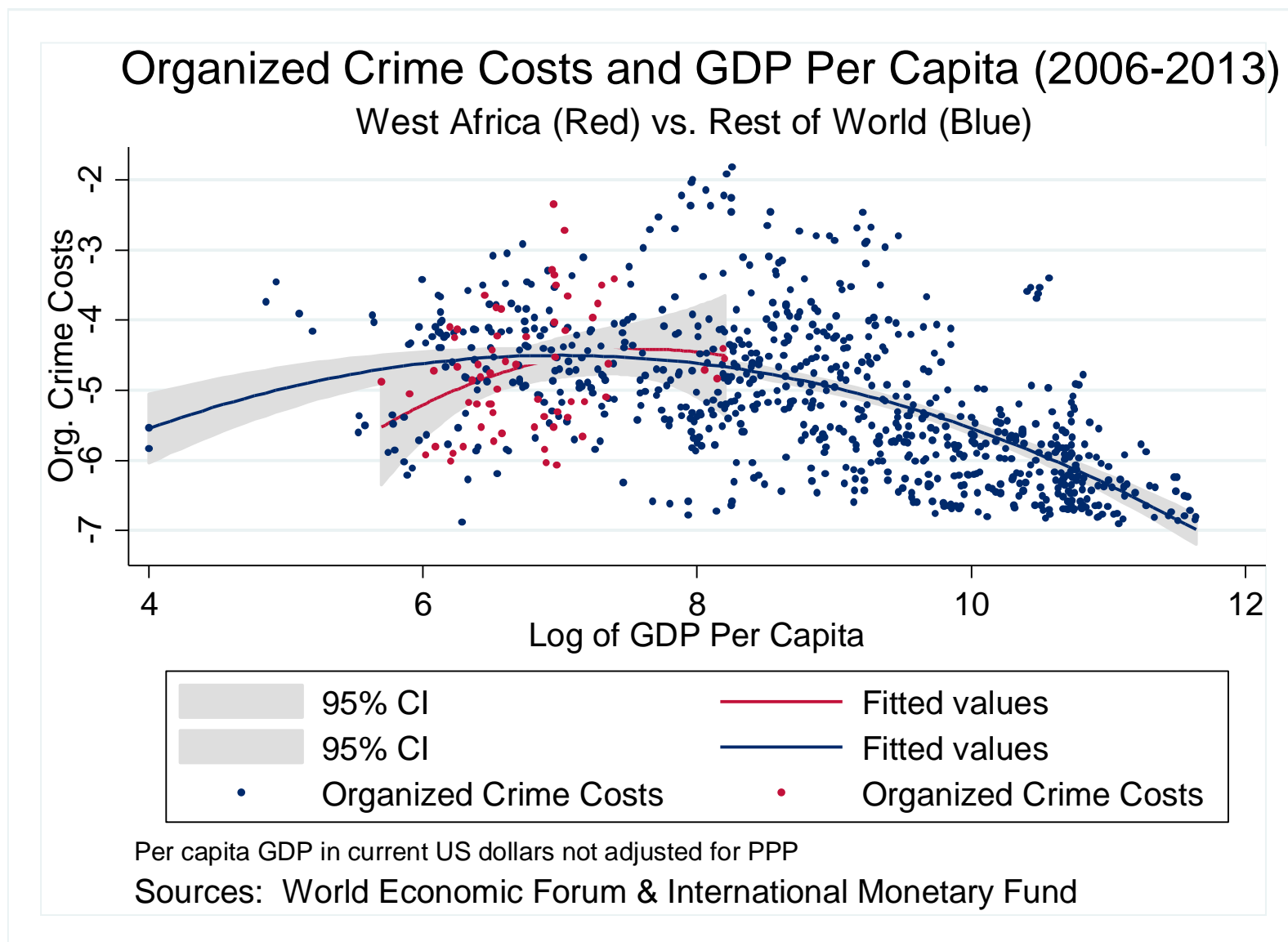


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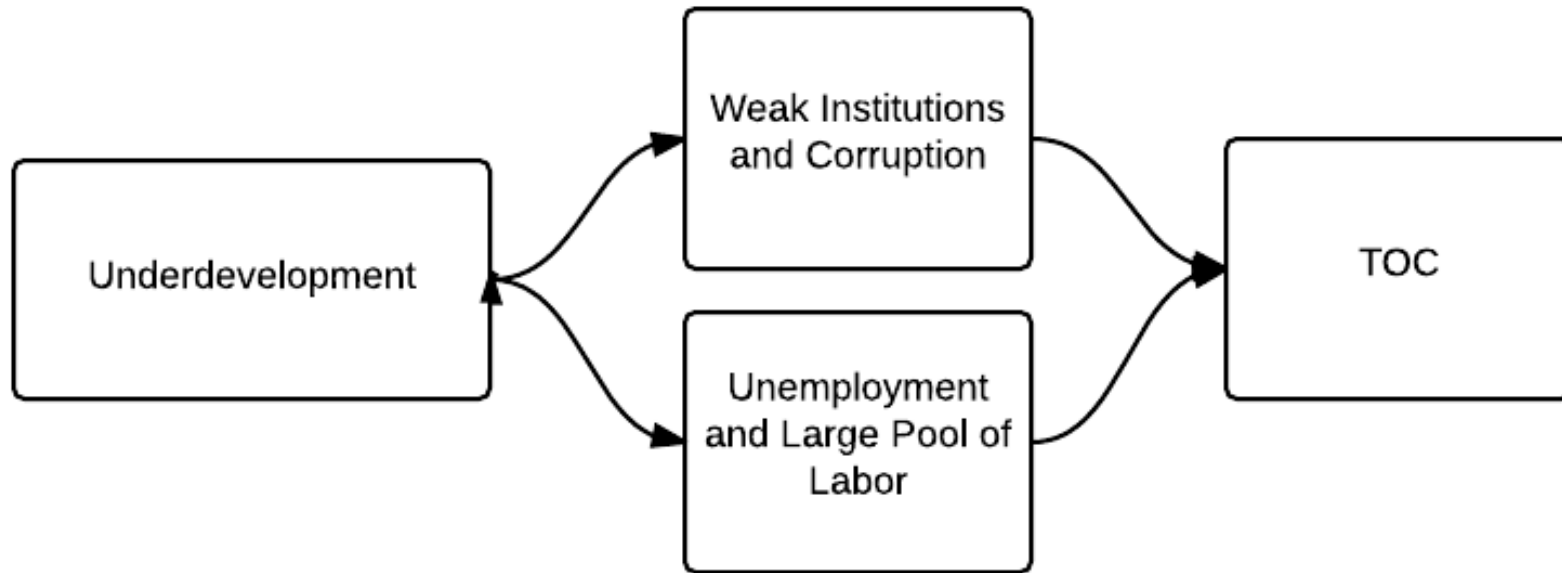


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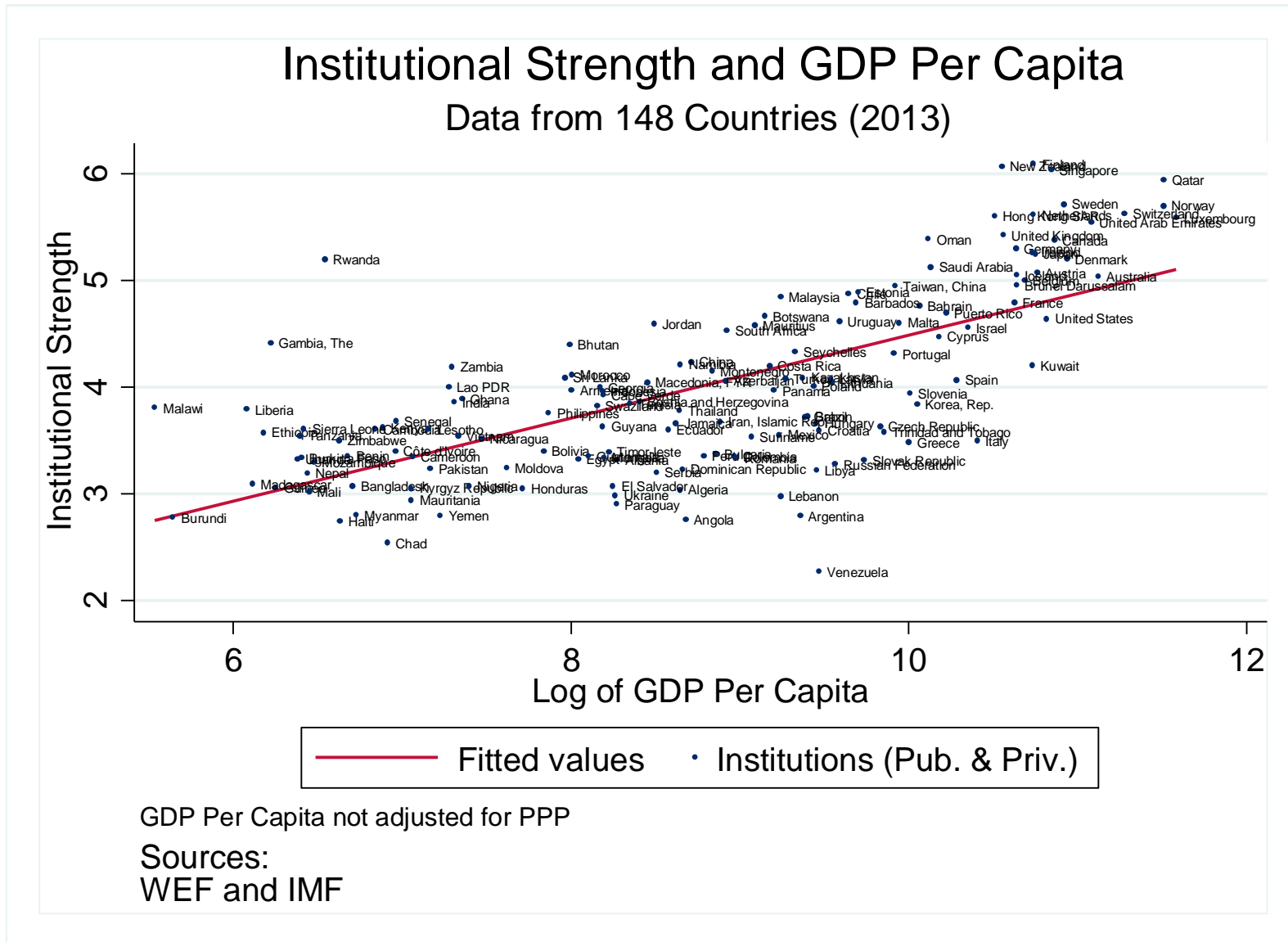
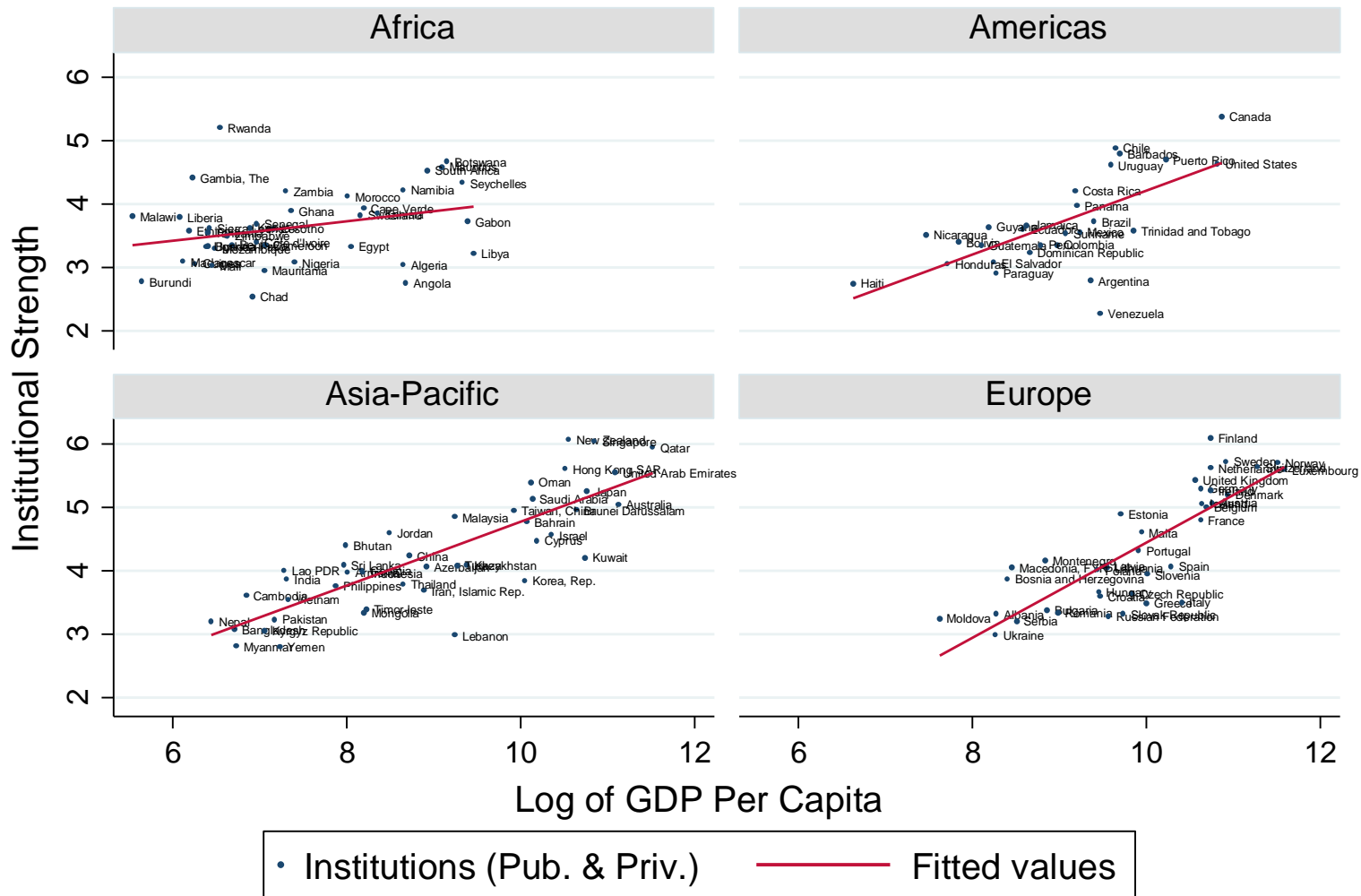
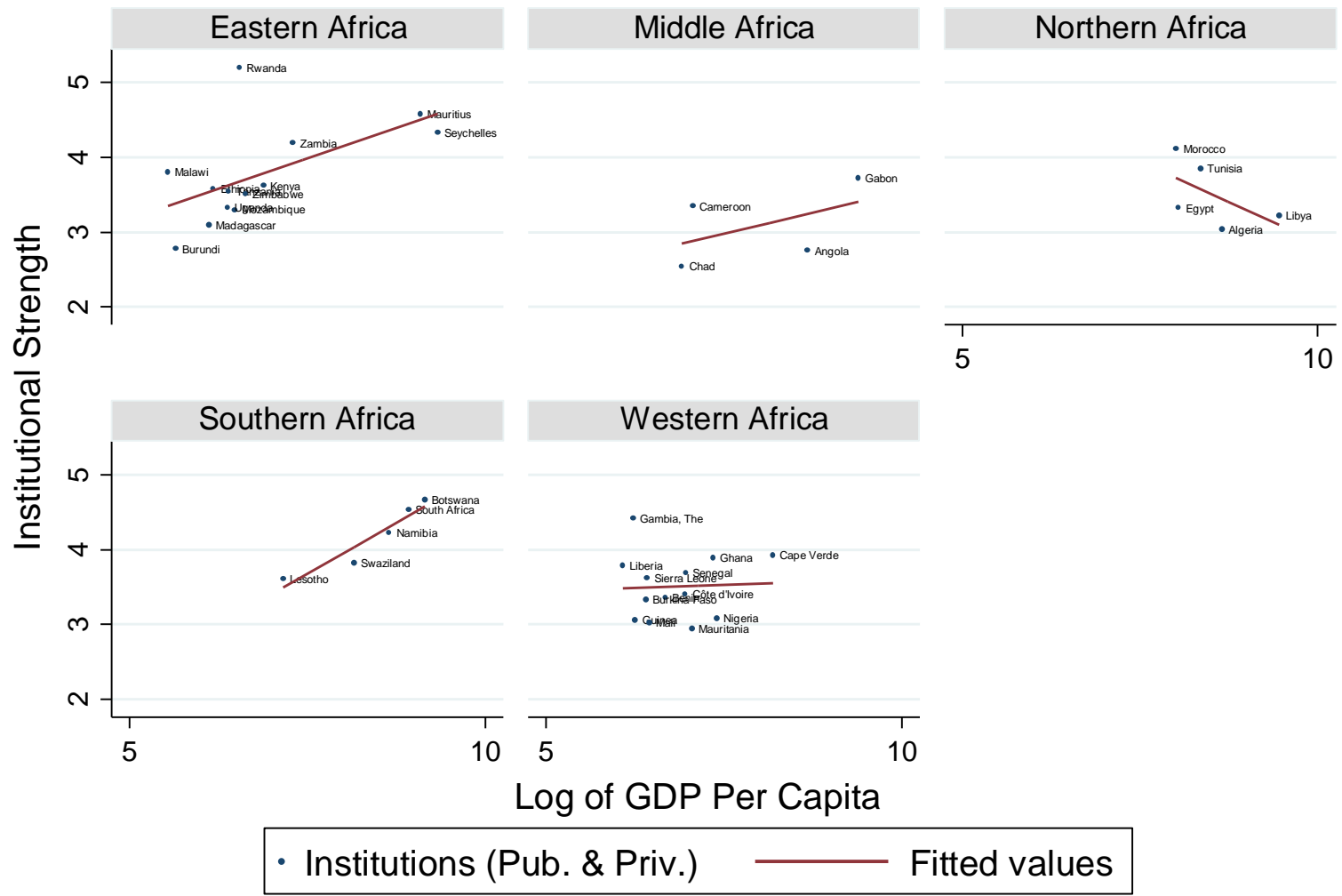


FIGURE 9



Graphs by UNODC World Regions w/ Oceania included in Asia-Pacific

FIGURE 10



Graphs by African Subregions Only

FIGURE 11

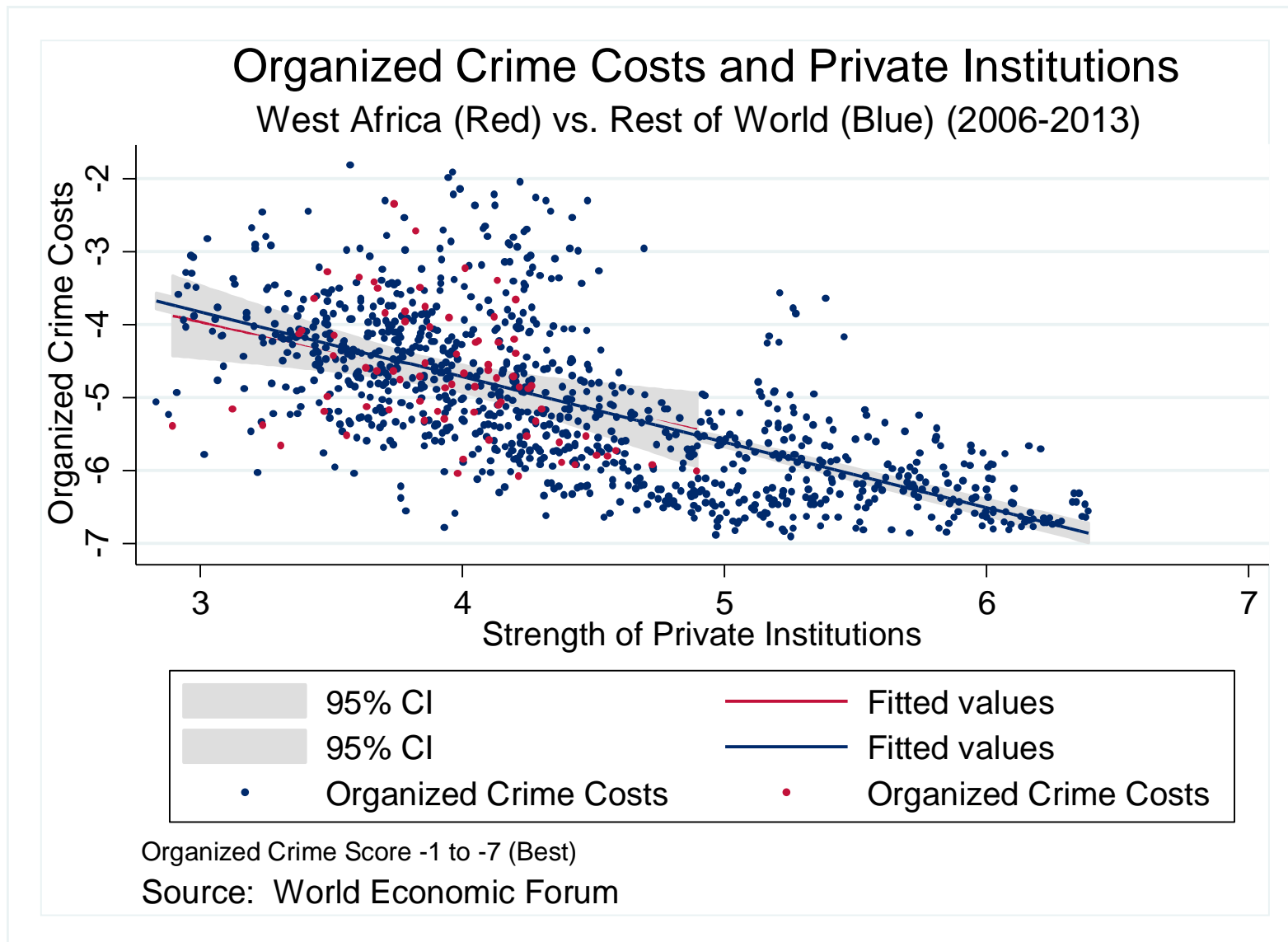


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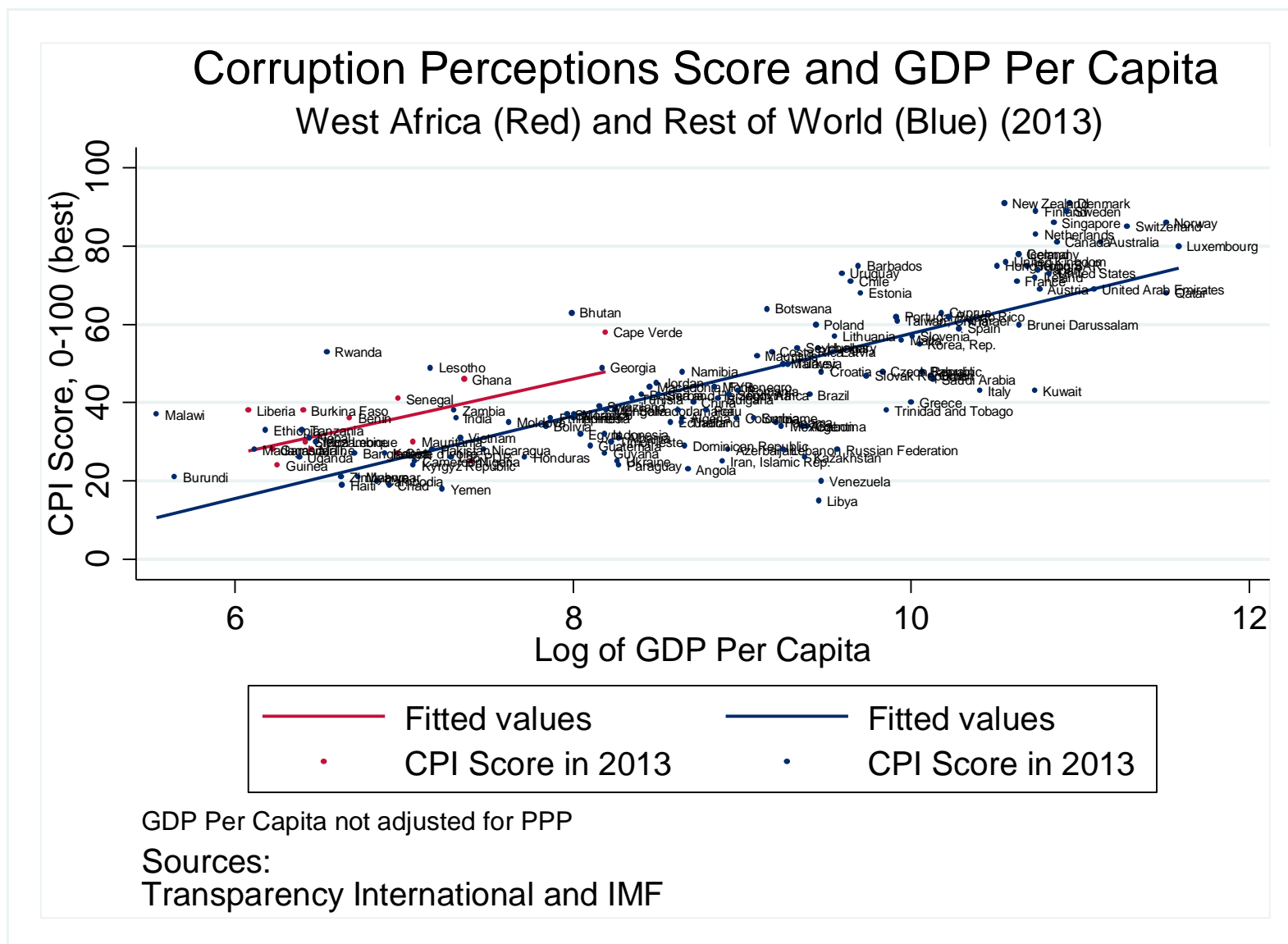
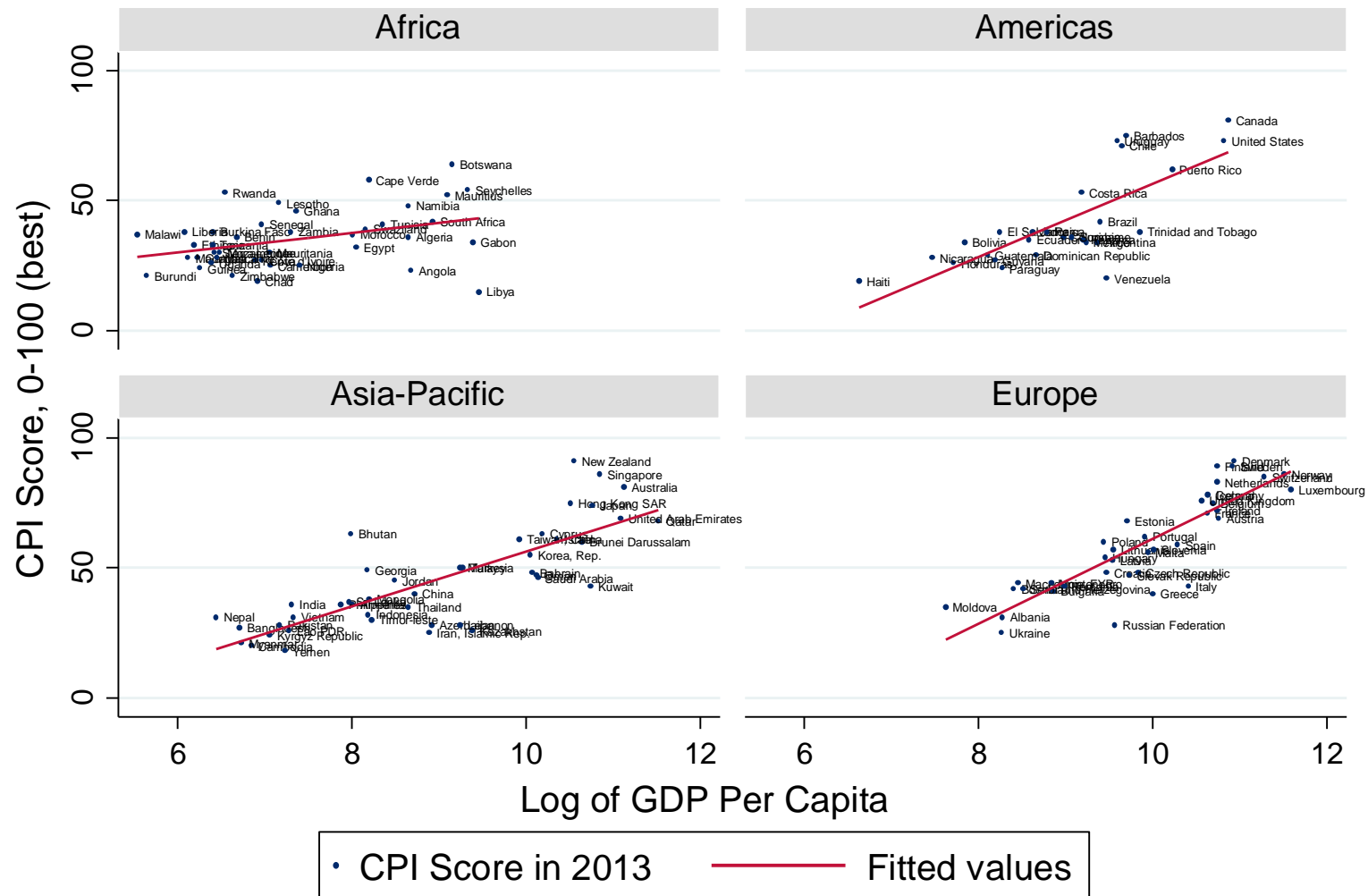


FIGURE 13



Graphs by UNODC World Regions w/ Oceania included in Asia-Pacific

FIGURE 14

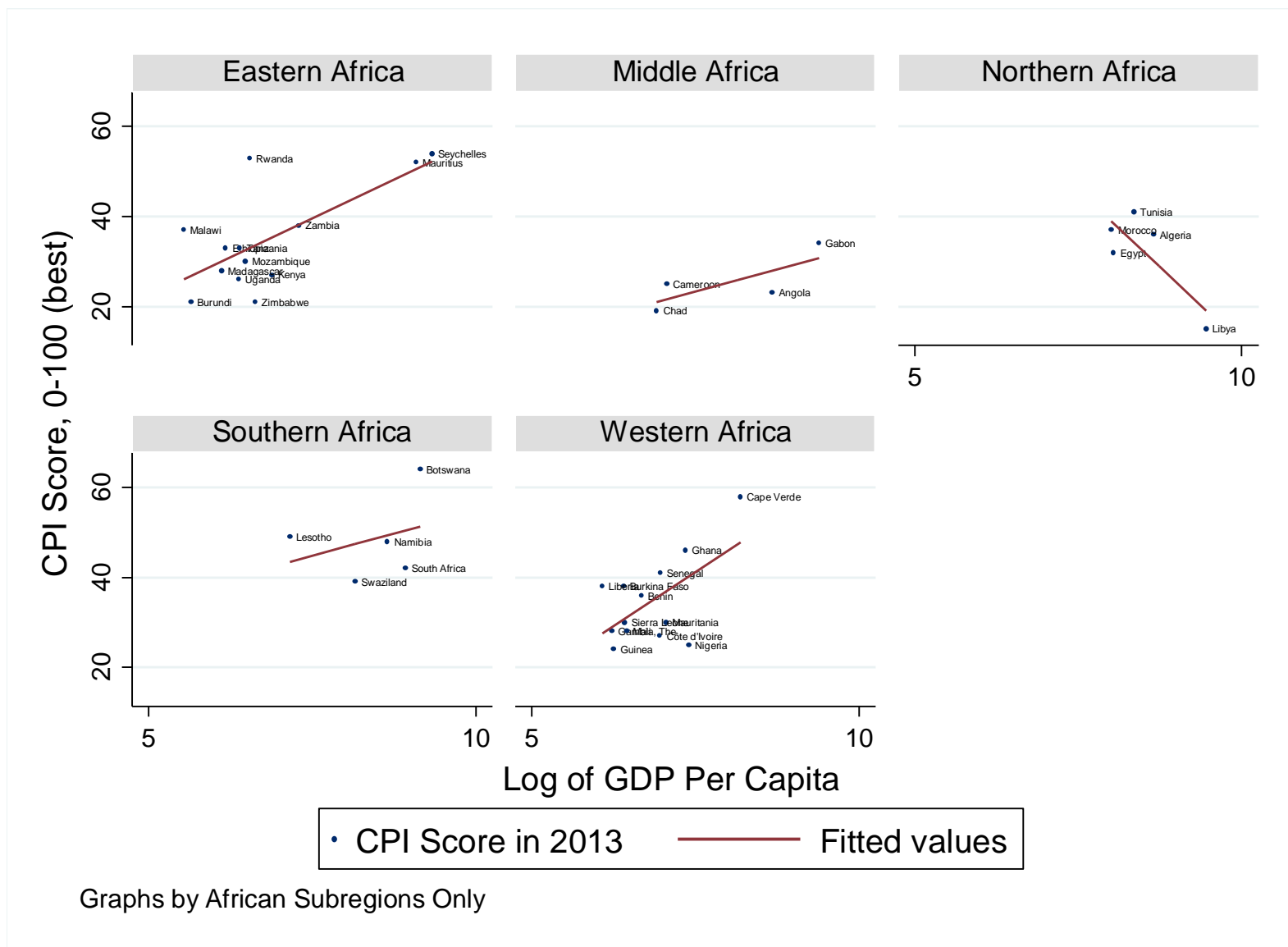


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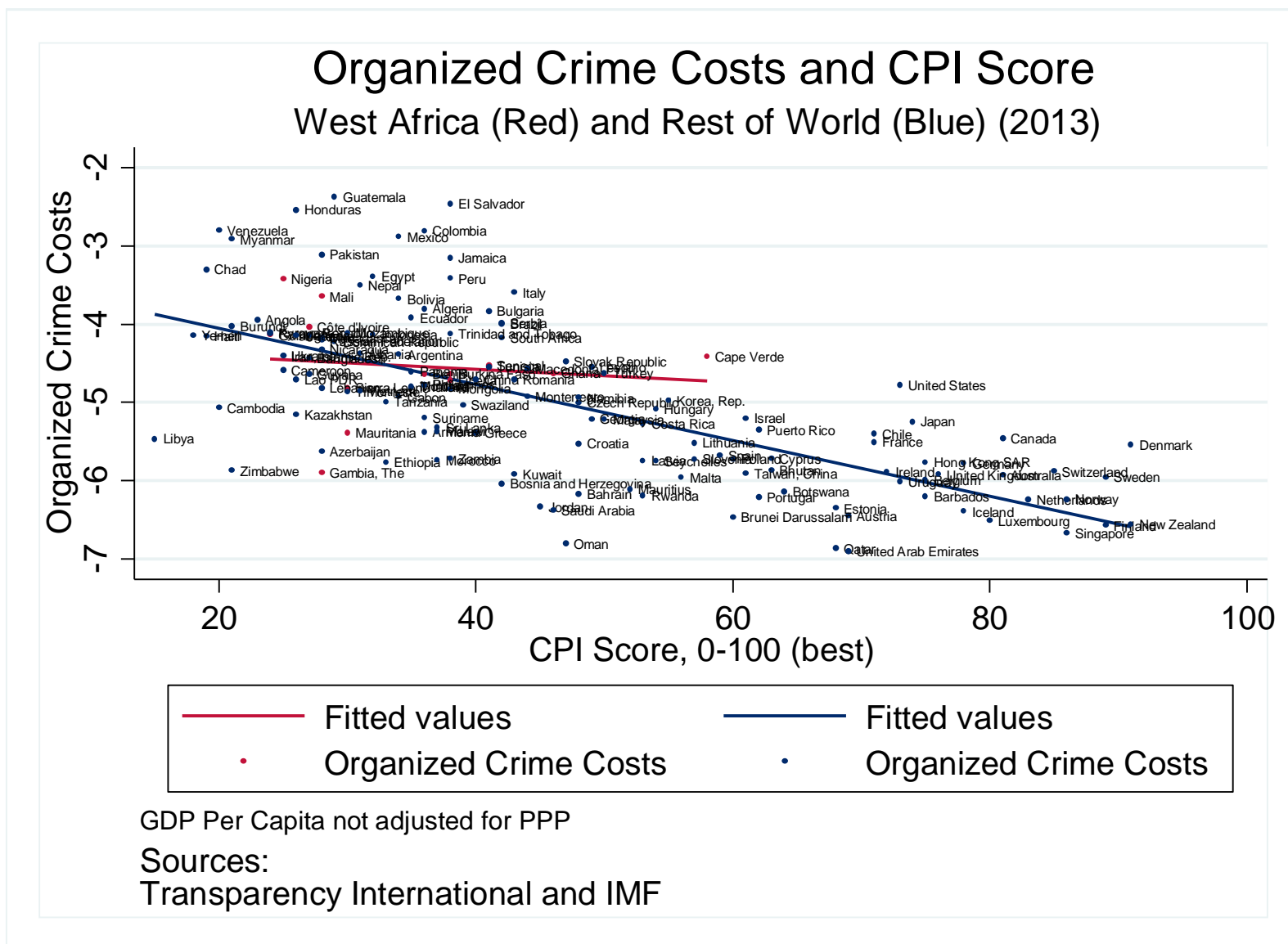


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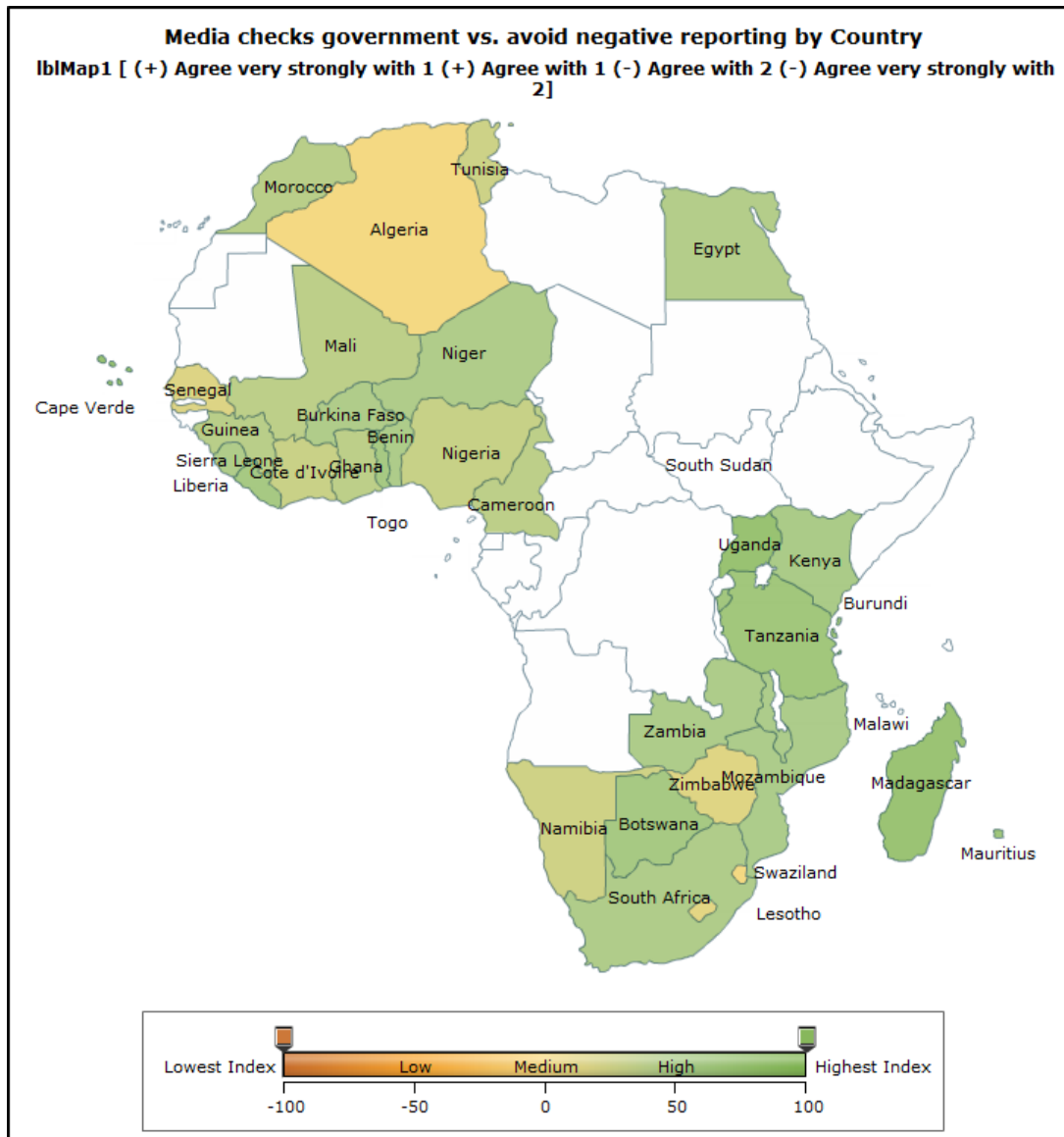


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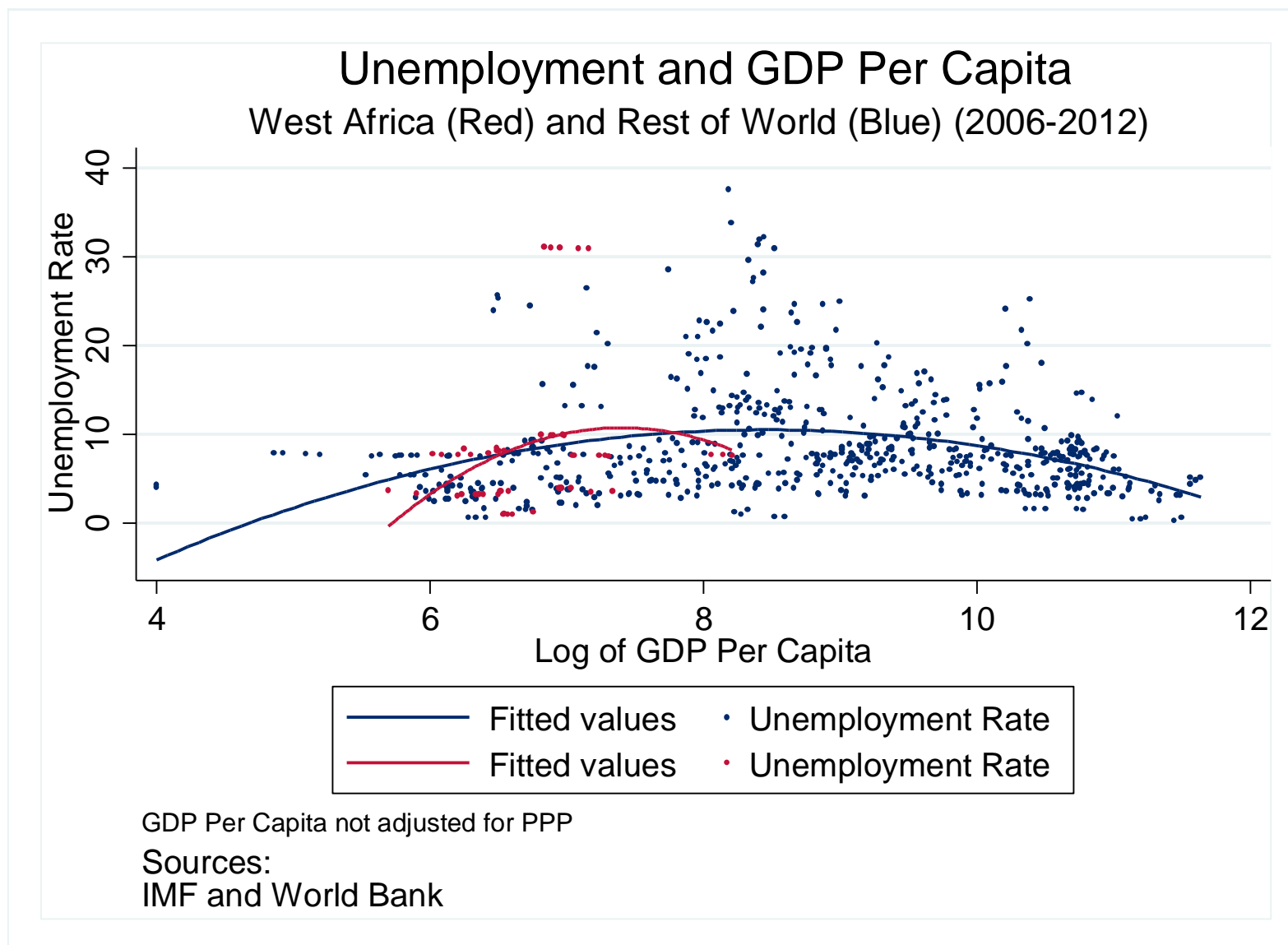


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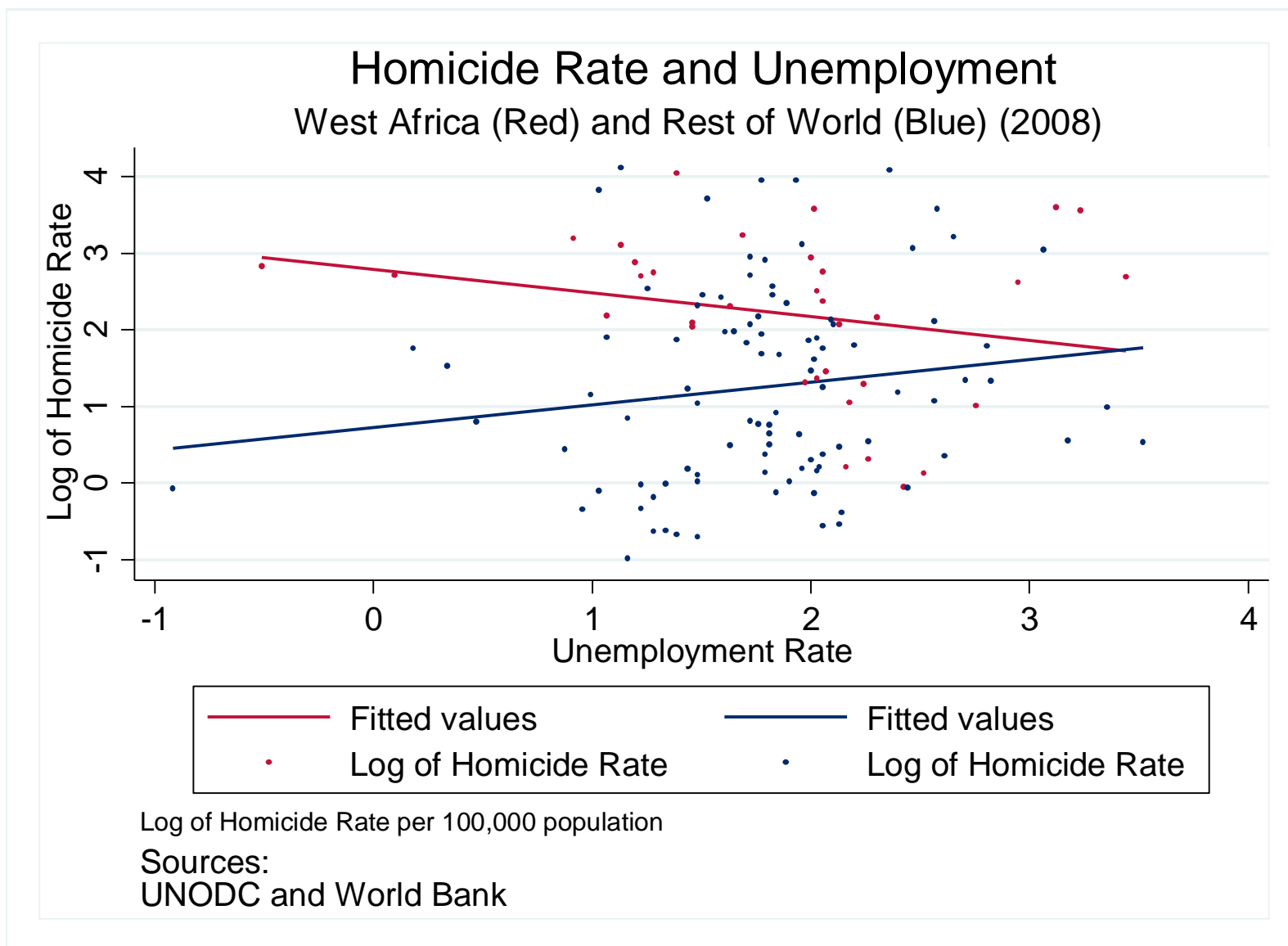


FIGURE 19

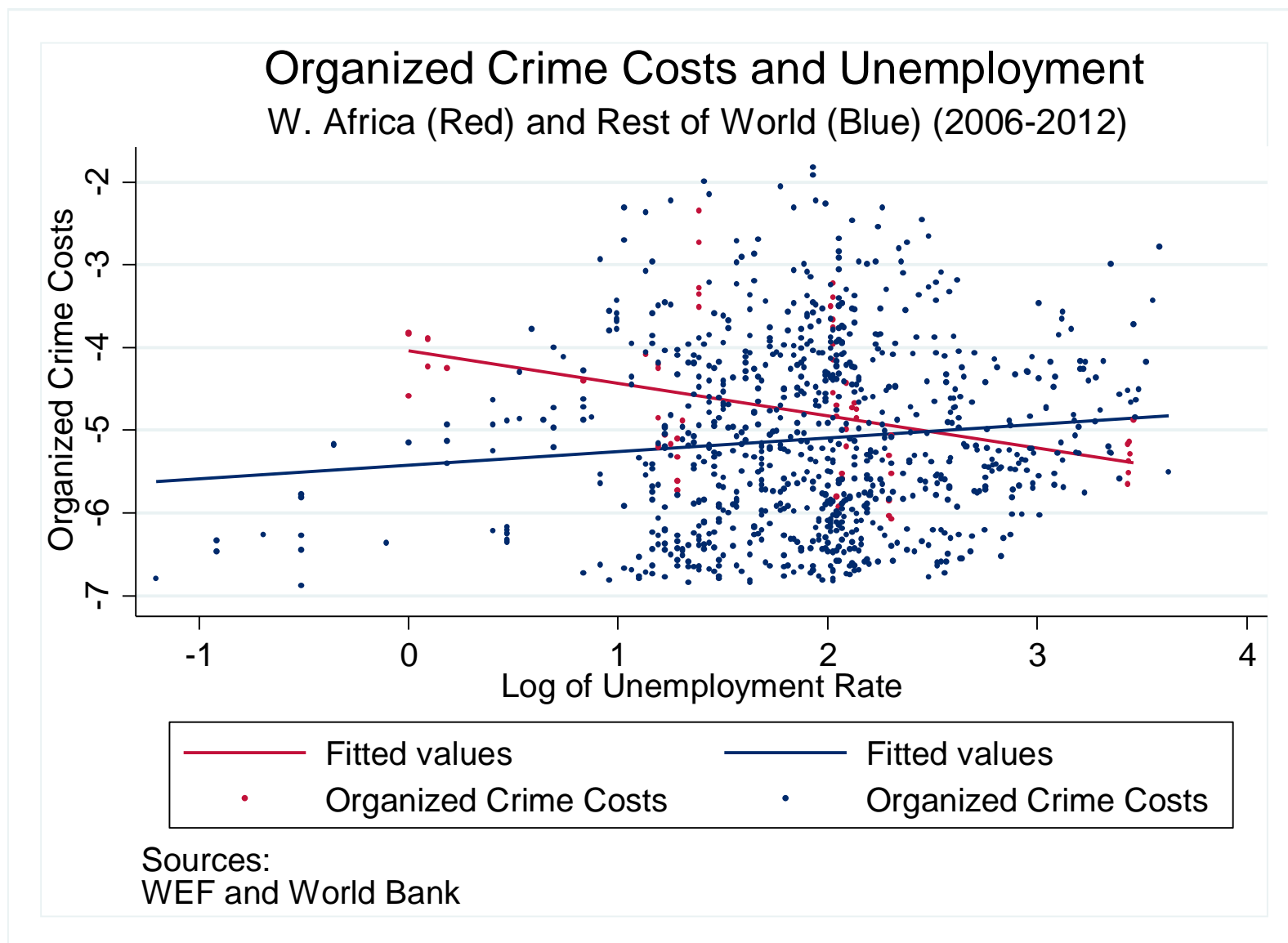


FIGURE 20



FIGURE 21

