Long-Run Growth in Ghana

Determinants and Prospects

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Abstract

Ghana's economic growth picked up in the early 2000s and has been exceptionally strong over the past few years, with price booms of its main commodity exports, gold and cocoa, and the initiation of commercial oil production in 2011. This paper examines recent econometric evidence on Ghana's long-term growth and evaluates its sustainability. The empirical evidence surveyed finds that Ghana's main growth drivers were investment, oil, and mineral rents, while government consumption acted as a growth retardant. Based on various scenarios for its determinants, per capita GDP growth rates are predicted to be between 3.5 and 4.5 percent for 2014–34. Nevertheless, the predictions are subject to considerable uncertainty associated with the expected trends and volatility of the drivers of growth, particularly to sustaining investment levels and external

factors such as commodity prices and international capital flows. A growth decomposition exercise shows that Ghana's past growth was led by capital accumulation, which will be difficult to sustain given the high current account deficits and the volatility of capital flows. Hence, a switch toward a productivity-based growth strategy, instead of the investment-led growth strategy of the past, is the only viable alternative to sustain the recent high growth rates. For that, Ghana needs focus on policies that enhance government effectiveness and public spending efficiency. To mitigate the risk of falling into the so-called growth traps like many other countries, Ghana must resolve its macroeconomic imbalances and resume the institutional reform to enhance the quality of institutions and make growth more inclusive.

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Long-Run Growth in Ghana: Determinants and Prospects

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I. INTRODUCTION

Ghana's economic growth picked up in the early 2000s in line with the overall success story of the African continent. GDP growth has been exceptionally strong during the last five years, averaging 8.7 percent (Figure 1), and reaching a record 15.0 percent in 2011. This has been achieved on the back of strong commodity prices and the start of commercial oil production, which sparked consumption and investment booms as well as capital inflows.

Figure 1: Long-run growth trends in Ghana and Sub-Saharan Africa

Source: 5 year moving averages. World Bank staff estimates.

Favorable external factors have played an important role in Ghana's economic success. Historically, GDP growth has been closely associated with the prices of the country's main commodities, gold and cocoa, which more than tripled in real terms since 2000 (Figure 2). The close correlation between GDP growth and international commodity prices is likely to continue with the projected prominent role of oil and gas in the economy.

To gauge the sustainability of Ghana's growth process and understand the role of policy in it, the World Bank commissioned three background reports. This paper summarizes their results and derives the implications for policy. The background papers use two complementary approaches. Two of the papers use an econometric approach, while the third one uses a growth accounting methodology. The econometric papers employ a variety of techniques, from standard cross-country panel estimation of a single model to estimation of large numbers of models allowing for the uncertainty of the true model that generates the growth process (Raggl, 2013; Moser, 2013). The second approach (Garrido 2013), a growth accounting exercise, decomposes GDP growth into the contributions of its different inputs: human capital, physical capital, and productivity growth.

Figure 2: Long-run growth trends in Ghana and Sub-Saharan Africa
Growth, Cocoa, and Gold Price Trends 1990- 2011
normalized values of 5-year moving averages

Source: World Bank staff estimates. 5 year moving averages, normalized.

This report is organized as follows. Section II summarizes the results of the econometric papers and presents GDP growth projections for the next decade; Section III describes the main results of cross-country regressions. Section IV presents long-term growth projections. Section V discusses the growth accounting results. Section VI examines the two main risks to the long-run growth projections. Section VII concludes.

II. DETERMINANTS OF GROWTH IN GHANA: ECONOMETRIC EVIDENCE

This section summarizes the results of the two econometric background papers, which explore the determinants of GDP growth and project it for the next two decades. Raggl (2013) used a traditional single-model approach in which the researcher arbitrarily limits the number of variables and assumes that the observed growth series is generated by that model. On the other hand, Moser (2013) estimated numerous models to allow for model uncertainty, and took averages of the estimated coefficients in all of them. Raggl (2013) used a standard cross-country panel framework (Barro, 2003), but with critical modifications, such as allowing for fixed country effects and parameter heterogeneity. The country specific fixed effects control for unobserved heterogeneity; they capture effects of variables that do not change over time (for example geographical factors, colonial linkages, cultural factors, or the quality of institutions), are difficult to measure, and are not explicitly included in the set of explanatory variables. Allowing for parameter heterogeneity captures the possibility that some variables, such as oil rents, may affect growth differently depending on their magnitude or their initial level. For instance, oil rents may have a differential impact on growth depending on their magnitude, as countries in which oil is dominant usually have different institutions and economic structures than others. Education may also affect growth differently, depending on the initial level: the gains may be decreasing as the country progresses on educational achievement.

Raggl included variables identified in the empirical growth literature (Barro, 2003), such as education, government consumption, inflation, openness, investment, and an institutional quality variable. The

model also included variables that capture rents from natural resources, critical to explain Ghana's growth. The analysis covered the period 1970-2009 and included the economic, political and institutional characteristics of 151 countries.

As determinants of growth, Raggl included the level of GDP per capita at the beginning of each period to control for (conditional) convergence effects: countries with relatively low GDP per capita are expected to grow faster (holding all other factors constant), and hence the expected sign of the coefficient is negative. Human capital is proxied by the share of the working age population with tertiary education. To capture the degree of a country's openness to international trade, the model included the ratio of imports plus exports to GDP, controlling for the country's population and area (in square-kilometers) as suggested by Barro (2003). Additionally, inflation, government consumption, and investment were added to the basic regression model.

One of Raggl's more interesting innovations is the examination of the impact of natural resources on growth. For this analysis, Raggl used alternative variables. First, she used an aggregation of all natural resource rents including oil, natural gas, minerals, forests, and coal. Subsequently, she differentiated between oil rents and non-oil rents (a critical innovation in Ghana's case). Finally, the author explored the hypothesis that the growth impact of oil rents varied with its relative size and hence the growth impact would be heterogeneous. The author interacted the oil rents variable with a dummy variable for the quartile of the distribution of the size of the oil rents (as a share of GDP) in the entire set of countries for each period.¹

III. MAIN RESULTS OF CROSS-COUNTRY REGRESSIONS

Raggl's results highlight the importance of macroeconomic management and stability for growth, as inflation and government consumption were highly significant in all the model specifications. Investment, trade openness and the initial GDP per capita were also highly significant in all the model specifications. Inflation and government consumption are negatively associated with growth, while trade openness and investment are positively associated. Results also support the *convergence theory* as the significant and negative coefficient of the initial GDP level indicates that countries with relatively low initial income levels grow faster towards their country-specific equilibrium.

Education—measured as the share of tertiary educated working population—is also shown to support growth and the gains from a better educated working age population are higher when the initial income level of a country is lower. For Ghana, Raggl finds that the steady increase in the tertiary education of the working age population between 1970 and 2009 contributed between 0.5-0.9 percentage points to annual GDP per capita growth. The next section discusses further the contribution of human capital to growth in Ghana.

¹ In each period the countries were ranked according to the magnitude of the oil rents, and four dummy variables were created, for each of the quartiles. The dummy variable would take the value of 1 for the quartile in which the country was ranked, and zero otherwise. This variable was interacted with the original oil rents variable.

Rents from natural resources have a positive impact on growth, regardless of whether the aggregate natural resource rents variable or the disaggregated one (differentiating between oil and non-oil rents) is used. The oil rent variable has a positive effect on growth, but its impact decreases as the share of oil rents in GDP increases. There is a vast literature on possible negative effects associated with substantial reliance on natural resources (e.g., Sachs and Warner 2001). Such negative effects—also known as Dutch disease—includes increased vulnerability to international commodity price fluctuations and crowding out of other sectors by the extractives sector. These effects are likely to intensify with the sector’s share in the economy.

One of Raggl’s more interesting results is the uncovering of a strong positive association between the country-specific fixed effects and *the institutional characteristics of countries*, proxied by the Kaufmann, Kraay and Mastruzzi (2010) governance indicators. Recall that the country fixed effects capture the unobserved heterogeneity of countries associated with factors that do not change over time. This parameter can be loosely interpreted as capturing the long-term growth impact of the economic environment of a country defined by slow-changing variables omitted from the regression. Table 1 presents the correlation coefficient between the magnitude of the estimated fixed country effects and the country’s ranking in the Kaufman et al. governance indicators. Figure 3 shows a clear positive association between the country’s institutional quality ranking (horizontal axis) and the magnitude of the estimated fixed effects coefficient (vertical axis). Although no causal interpretation can be inferred from this exercise, the finding strongly supports the hypothesis of the importance of enhancing the quality of institutions to support GDP growth, examined in greater detail in the recent growth literature (e.g., Acemoglu and Robinson, 2012).

Table 1: Correlation coefficients between the estimated fixed effects and indicators of institutional quality (measured in 2000)

	Fixed Effects	Rule of Law	Governm. Eff.	Polit. Stabil.	Corruption	Voice & Acc.
Fixed Effects	1					
Rule of Law	0.71	1				
Governm. Eff.	0.72	0.97	1			
Polit. Stabil.	0.65	0.86	0.84	1		
Corruption	0.72	0.97	0.97	0.83	1	
Voice & Acc.	0.64	0.87	0.88	0.79	0.84	1

Source: Raggl (2013).

Figure 3: Correlation between fixed effects and institutional characteristics

Source: Raggl (2013).

Given the different model specifications in Raggl's paper, it is legitimate to ask about the robustness of the results to the model specification. In a single-model approach, such as the one presented so far, it is implicitly assumed that the observed data is generated from the estimated model. While the estimates identify the most significant coefficients under the single specification, the results might be sensitive to changes in the model specification. This has been identified as a prevalent problem for growth regressions (Levine and Renelt, 1992; Fernández, Ley, and Steel, 2001). To tackle this, Moser (2013) used the Bayesian Model Averaging (BMA) method that estimates a large number of models and averages the coefficients for robustness. Moser's findings confirm that Raggl's results are robust to the model specification and his results are very similar. For example, initial GDP per capita has a significant and negative coefficient indicating that countries with a relatively low initial income grow faster—the *convergence theory*. Also, *trade openness and the rule of law* are both positively associated with growth. Moser also shows that there is a high level of heterogeneity when it comes to the role of natural resources in economic growth. In the sub-Saharan countries in the sample, both oil-rent variable and the share of primary goods (excluding oil) in exports foster economic growth, but the impact of these two variables is actually negative for the whole sample.

IV. LONG-TERM GROWTH PROJECTIONS

The coefficients of the cross-country models were used to project the long-term growth trajectory for Ghana under different assumptions. Raggl predicted Ghana's per capita growth for the period 2014-2024 under three alternative scenarios.

The first one assumed that all the variables—including education, trade openness, investment, non-oil natural resources rents, and government expenditure—remained constant at the 2005-09 level. Under this particular assumption of no further progress in trade openness, or education, and holding investment fixed, the average per capita growth rate is projected at around 4.0 percent in the upcoming decade (Figure 4). In a second scenario, the variables are assumed to evolve as they did in the 1980-

2009 period. The predicted growth rate increases to around 5.5 percent per year. A third scenario incorporates a positive and dynamic oil-rent contribution, based on oil production and price forecasts derived from *Energizing Economic Growth in Ghana* (World Bank, 2013), which show oil production peaking around 2018 at about 230,000 barrels per day (bpd), and decreasing after 2023 (Figure 5). Based on these assumptions, per capita growth rate would reach an average slightly above 6 percent per year over the next two decades.

Figure 4: Actual and fitted GDP per capita growth rates (1970-2009) and predictions under different scenarios (2010-2034)

Source: Raggl (2013).

Figure 5: Oil production projections and corresponding oil-rent estimates (2010-2036)

Source: World Bank (2013) and Raggl (2013).

The growth projections for the period 2014-2024 are driven mainly by four factors: the tailwinds provided by investment, non-oil rents, and oil rents, and the headwind occasioned by government consumption (Figure 6). Using similar assumptions, Mosser projected growth using the model averaging method in a range oscillating between 4.5 and 5.8 percent, slightly lower than Raggl's projections.

Figure 6: Contributory factors to projected GDP growth for 2014-2024

The per-capita growth rate of 6 percent likely represents *the upper-bound for the long-growth* trajectory for Ghana as they are based on the assumption that both investment and non-oil resource rents expand as they did over the last three decades. While this arbitrary assumption makes it easier to interpret the findings, it also adds significant uncertainty to these projections. On the investment side, it will be difficult to increase it further without a substantial rise in domestic savings rising. The investment growth of the recent years has been fully financed by international capital reflected in Ghana's present extraordinarily high current account deficits. This is discussed further in the growth decomposition section (Section 3). Regarding the non-oil natural resource rent—mainly driven by gold, the current trend and projections indicate that the levels that the Raggl's projections are based on are not likely to be sustained in the long-run. After the upward swing in gold prices between 2005 and 2012, gold prices have fallen by 25 percent in 2014, and are expected to weaken further. For instance, in January 2013 when Raggl's paper was written, the World Bank's Prospects Group commodity price projections showed gold prices reaching \$1417 per ounce in 2019, while the October 2014 projection has it 17 percent lower at \$1182 per ounce for the same year.

When Raggl's scenarios are modified to reflect the expected trend in gold prices, the per capita growth rate projected over the next two decades declines by one percentage point (figure 7)². Without the additional support provided by the mining sector, Ghana's per capita GDP growth is projected to average around 5 percent instead of 6 percent in the most optimistic scenario.

Similar to the gold price assumption, the government expenditure assumption that was used in Raggl's scenarios does not reflect the recent trend. Raggl's first scenario assumes all the variables including government expenditure remain constant at the 2005-09 level but Ghana's government expenditure as

² Non-oil rent is kept constant at its 1990-2004 level in all scenarios. The average reflects the non-oil rent to GDP ratio before it peaked in the late 2000s.

a percent of GDP increased by 30 percent during the 2010-14 period³. When the assumption related to the government consumption is updated alongside with the new gold price assumption, Ghana's per capita GDP growth is projected to average around 3.5 percent to 4.5 percent (Figure 8).

Figure 7: Actual and fitted GDP per capita growth rates (1970-2009) and predictions under different scenarios (2010-2034)

Source: Authors' calculation based on Raggl (2013).

Figure 8: Predictions under different scenarios with updated gold prices and government consumption (2010-2034)

³ Government consumption as share of GDP is updated for the 2010-2014 period with a proxy using the actual numbers, and the share is kept constant for all periods in the first scenario. For the other scenarios, same as in Raggl's paper a 4 percent reduction rate is applied for the periods starting in 2015.

V. GROWTH ACCOUNTING

Another approach to exploring Ghana's growth and gauging its sustainability consists in decomposing GDP growth rates into the contributions of factor accumulation (physical and human capital) and total factor productivity (TFP) growth. The procedure is standard: contributions to GDP growth are calculated for physical capital, human capital, and the residual which is called TFP growth. Garrido (2013) tackled the issue for Ghana, noting that the recent growth acceleration coincides with the beginning of oil production. Since the contribution of natural resources is not incorporated in any of the traditional measures of capital utilization, growth increases without a corresponding increase in the use of inputs. Hence, total factor productivity, which is calculated as a residual, shows a step increase. To circumvent this problem Garrido (2013) decomposed only non-oil GDP growth.

The non-oil GDP growth decomposition shows that, historically, the key driver of Ghana's growth has been physical capital accumulation. Only during the period of 2008-2012 does TFP appear as the main driver of non-oil GDP growth in Ghana (Table 2). An alternative way to incorporate the role of Ghana's natural resources on growth would be to include natural resource depletion as part of the consumption of fixed capital. Natural resources constitute an input that is not included in the traditional production function, and their depletion can be considered as part of the consumption of fixed capital.⁴ If that adjustment is made, physical capital results as the main driver of growth, and productivity grows at a yearly average of about 2.0 percent (Table 3), similar to the previous exercise.

Table 2 Ghana Non-Oil GDP growth Decomposition

Period Average	1992- 2000	2000- 2008	2008- 2012
Human Capital	0.3	0.4	1.4
Physical Capital	1.7	2.0	1.0
Total Factor Productivity	-0.5	1.0	2.0
Non-Oil GDP Growth	1.5	3.4	4.4

Source: Garrido (2013)

Table 3 Ghana GDP growth decomposition (including depletion of natural resources)

Period Average	1992- 2000	2000- 2008	2008- 2012
Human Capital	0.3	0.4	1.4
Physical Capital	2.0	2.2	2.9
Total Factor Productivity	-0.8	0.8	1.9
GDP per capita Growth	1.5	3.4	6.0

Source: calculations based on Garrido (2013)

⁴ Depletion of natural resources is taken from Boakye et al. (2012).

The limitation of a capital-accumulation-based-growth strategy emanates from the savings required to finance the investment (capital accumulation). Garrido (2013) presents the framework for the analysis: to achieve a 5.5 percent per capita growth rate with a 1.0 percent per year growth in productivity, the investment ratio needs to be of around 40 percent of GDP, which in turn would require a national savings rate of 30 percent of GDP (Table 4).⁵ If productivity growth is higher, 2.5 percent per year, then a lower investment (and hence, savings) ratio would be required to achieve the 5.5 percent GDP growth rate. As time goes by, after a decade, higher rates of investment and savings would be required to maintain the same 5.5 percent growth rate, given the marginal decreasing productivity of capital.

Table 4 Limits to capital accumulation

Productivity Growth	National saving rate (% of GDP) over time	
	5 Years	10 Years
1.00 % (I =40 % of GDP)	30.0	38.0
2.50 % (I =25 % of GDP)	19	23.0

Source: calculations based on Garrido (2013)

Maintaining a 5.5 percent per capita growth rate will be challenging because, in addition to the limitations to capital accumulation imposed by the availability of domestic savings, the annual productivity growth of about 2 percent is high by international standards and might be hard to sustain (Figure 9). One way to support growth is to promote institutions that will lead to more effective government, in which policies are adopted based on evaluation of their benefits and costs rather than because of pressure from interest groups (Harberger 2005). In fact, the results from the econometric models discussed above (Figure 3) stress the importance of factors such as the rule of law, government effectiveness, and the control of corruption, in the growth process, in spite of their difficulty of measurement.

If Ghana's future growth strategy is to be based on productivity growth, the labor force needs to be able to absorb new technologies. Tables 2 and 3 show that the contribution of human capital to Ghana's growth has not been as significant as that of physical capital or productivity growth, and the growth projections described in the previous section also show that the human capital variable is not among the most important contributing factors to growth (Figure 6). This may be explained by low returns to education (e.g., if quality is low) or by the relatively low participation rates in the labor force. But for sustainable growth to materialize in the future this would have to change. Maloney (2002) makes this point regarding the innovative capacity of a country and the benefits it can extract from the exploitation of natural resources. He argues that high investment in human capital helps countries both take greater

⁵ Garrido assumes the current account deficit (external savings) is 2.5 percent of GDP. A recent external sustainability assessment done by the IMF (IMF 2013 b) finds that the sustainable current account deficit in Ghana can be close to 10 percent of GDP in the short run, but gradually decline to 4 percent in the long run. The results shown in table 4 are based on an assumption of 7 percent, an average between long and short run estimates.

advantage of technological advances abroad and increase productivity growth. Empirical research has shown that the impact of foreign direct investment on growth is conditional on the host country human capital stock: the effect is nil in countries with low human capital while it is positive otherwise (Borensztein, de Gregorio, and Lee, 1998).

Figure 9 Average total factor productivity growth in selected countries

Source: World Bank Development Economics Prospects Group

Besides investing in human capital formation, enhancing the efficiency of public spending will support productivity growth. If total spending of the public sector oscillates between 30 and 40 percent of GDP, a 10 percent efficiency gain could have a significant and permanent impact on GDP levels, as stressed by Harberger (2005). Here, policies oriented towards strengthening the public investment management system or enhancing the delivery of public services by state owned enterprises would reduce the unit costs of provision of public services, which would be supportive of growth.

VI. RISKS TO SUSTAINABLE LONG-TERM GROWTH

The empirical results described in the previous sections highlight the importance of natural resources, investment, macroeconomic management, openness to international trade, education, and institutions as drivers of growth. The likelihood of the predictions materializing rests upon two main factors:

- a) *The validity of the assumptions* regarding the expected future paths of the drivers of growth. Some of the main drivers of growth are subject to volatility, namely commodity prices and capital flows, and others, such as investment, are unlikely to increase substantially without rising domestic savings.
- b) *That Ghana does not fall into a growth-trap*: International experience shows that countries' actual growth rates may fall below the predicted ones for prolonged periods, which have been called *growth traps*. Research has uncovered common characteristics of countries that are more likely to fall into such traps, and Ghana is not exempt from this possibility.

These two main sources of risk are explored in this section.

RISK 1: Global factors are less supportive

Global factors associated with past growth in Ghana, namely international commodity prices, are not likely to be as supportive to Ghana's growth as they were during the last decade. After the sharp increase over the last decade, international commodity prices are forecast to decline in the medium-term (World Bank 2014). These projections show oil prices falling in real terms⁶ due to growing supplies of conventional and unconventional oil, efficiency gains in production, and substitution away from oil towards alternative energy sources (Figure 10). Similarly, gold prices are projected to decline because the supply improvements and improving global financial conditions are expected to limit the demand for gold as a "safe-haven" investment asset.

Figure 10. International commodity prices

Source: World Bank Commodity Annex (January 2014)

While the forecasted decline in oil and gold prices is already factored into Ghana's growth projections discussed above, the short-term volatility of these prices remains a key source of vulnerability for Ghana's long-term growth. Recent sharp price adjustments underline this possibility: the nominal oil prices increased by 14 percent during the first half of 2014 and declined by 21 percent between June and October. Similarly, gold price declined by around 30 percent since early 2013. The comparable experience for many commodity exporters during the 2008-09 financial crisis has shown that some of these negative effects can be partially mitigated when there is adequate fiscal space and economic diversification (World Bank 2011). Many commodity exporters—including Ghana—are yet to rebuild their fiscal buffers, which might be an important policy tool in face of projected structural declines in commodity prices ahead.

Another significant risk emanating from the global economy is the likely increase in the international cost of capital over the coming years. Over the last few years, investment has been financed with mainly

⁶ The projected fall is of 13 percent by 2020 and 20 percent by 2025.

capital inflows, with the increased foreign direct investment (FDI) to its new oil sector and higher foreign portfolio debt flows. Since the global financial crisis, both the access and cost of bond financing—proxied by 10 year US Treasury bond yield plus EMBIG cash bond spread—improved for developing countries, in most part as a result of the loose monetary conditions in high-income economies (Figure 10).

Figure 11 Implicit bond yields for Ghana and developing countries

Source: J.P. Morgan

Figure 12 International bond spreads for Ghana, Nigeria and Emerging Markets

Source: Bloomberg, J.P. Morgan and staff estimate

Consequently, eventual tightening of monetary policy in high-income countries is likely to increase the cost of capital for developing countries and reduce foreign investment in international and local currency bonds. The tightening is likely to increase not only the base rate for developing country international bond financing but also developing-country bond spreads, which tend to rise when the base rates increase (World Bank 2010 and IMF 2013a). In addition to the base rate, individual country risk factors determine international bond spreads there the bond yields. In this context, the international bond spread for Ghana increased by more than 350 basis points since January 2013 reflecting Ghana's current macroeconomic imbalances, and has remained significantly higher than the spread for Nigeria and other emerging economies (Figure 12). The cost of capital for all developing countries is likely to increase further in the medium-term with an inevitable rise of long-term interest rates in high-income countries.

In addition to private debt flows, FDI flows to Ghana might also be adversely affected in the medium-term by the tighter global financial conditions combined with easing commodity prices. In fact, natural resource related FDI flows tend to be volatile because these investments are bulky and sensitive to global commodity prices (Figure 13). Given the large share of such investments in gross capital formation and their influence on exchange rates, volatility may cause further economic difficulties for Ghana. Better *institutions* are found to reduce the FDI volatility in developing countries (Buchanan et al. 2012).

A possible (sharp) decrease in international capital flows can generate challenges for Ghana in terms financing the necessary investment to foster its economic growth and its external financing needs (current account deficit plus debt repayment).

Figure 13 FDI inflows to low and lower middle income countries and selected oil-exporting countries

Source: World Development Indicators and staff estimate

RISK 2: Falling into a growth trap

Many countries that have experienced long periods of growth have suffered growth collapses. A recent paper (Aiyar, Duva, Puy, Wu, and Zhang, 2013) identifies the common characteristics of countries that register these sudden and sustained deviations from the growth path predicted by conditional convergence models (like the ones used to predict Ghana's growth in the previous section).

The authors first identify "slowdown" episodes—sudden and sustained deviations from the predicted growth path—using the GDP per capita growth rates for 138 countries during 1955 to 2009. A quick examination of the distribution of these episodes shows that this type of slowdowns happens more frequently in developing countries, particularly among middle-income economies (the "middle-income trap"), but low income countries can also experience sustained slowdowns. Resource-rich countries are not exempt from slowdowns either: 40 percent of the slowdown episodes happened in resource rich economies. Furthermore, in the long run having oil is no guarantee of success, when one compares the GDP per capita in oil producing countries⁷ in 1970 and in 2011 (Figure 14).

Ayar et al. then investigate which factors are associated with the slowdowns, to determine the probability that a country experiences one. The authors explore a wide range of factors, such as the institutions, infrastructure, demography, economic structure as measured by sectorial composition of GDP, and macroeconomic environment among others. They conclude that *institutions* and *macroeconomic policies* are the more significant variables explaining the slowdowns. A country with

⁷ Relative to the average OECD country GDP per capita.

good rule of law indicators is less likely to suffer a growth slowdown, and so are countries with small governments.⁸ The authors also find that countries with greater social cohesion are less likely to fall into growth traps⁹, in line with similar research that documents that high growth episodes are more likely to be maintained in countries with more equal income distribution (Berg, Ostry, and Zettelmeyer, 2012).

Figure 14 Oil is no guarantee for sustained growth¹⁰

Source: World Development Indicators and staff estimates

Among *macroeconomic factors associated with the probability of a country falling into a growth trap*, Ayar et al. identify the high reliance on gross capital inflows and rapid increase in domestic investment as the main macro determinants of the likelihood of growth falling below the predicted trajectory. The authors interpret the sudden increases in capital flows and investment ratios as signals of unsustainable booms. This fact has been verified in the literature according to which large capital inflows increase significantly the probability of experiencing currency and banking crises at a later date (Furceri, Guichard, and Rusticelli, 2012). Heuristically, it is easy to verify that the growth slowdown episodes identified in the Ayigar et al. paper, match with the currency and debt crises identified by Laeven and Valencia, supporting the importance of macroeconomic stability for sustaining growth in the medium term.

The implications of this research for Ghana and for the projections presented in this paper are straightforward. First, Ghana's progress in institutional quality—proxied by the governance indicators—has been slow over the last five years and when compared to the regional leaders on this matter (Figure 15). Hence, to reduce the likelihood of experiencing a slowdown Ghana needs to improve the regulatory quality, government effectiveness, and control of corruption, two of the Kaufman indicators in which Ghana has regressed in the past 5 years.

⁸ The size of government is measured using several proxies: government spending as a share of GDP, government ownership of SOEs, and the top marginal income tax rate.

⁹ Social cohesion is measured by a proxy of war and civil conflicts. The variable is significant at the .01 level.

¹⁰ The axis measure GDP per capita in different countries, relative to the average OECD level in 1970 (horizontal) and in 2011 (vertical).

Figure 15 Institutional quality in Ghana and other countries 2007-2012

Source: Kaufmann, Kraay, and Mastruzzi (2010)

On social cohesion, Ghana is far ahead from many of its regional peers, but traditional measures of income inequality are increasing. The Gini coefficient, the more common measure of income or consumption inequality has risen from 0.37 to 0.42 between 1992 and 2006 (Coloumbe and Wodon, 2007). Recent evidence indicates that Ghana may lag in this area too (World Bank, 2012). More worrisome than the inequality in consumption is the lack of progress in reducing inequality of opportunities: Ghana is the country with the slowest rate of progress in several indicators of opportunities, measured by the human Opportunity Index (Figure 16, World Bank, 2012). Inequality of opportunities perpetuates poverty, is an obstacle for social mobility, and reduces the likelihood of making growth sustainable to the extent that uneven playing fields produce the wrong incentives in individuals and resources are misallocated.

Figure 16. Ghana lags in the process of leveling the playing field *

*Source: World Bank 2012. Opportunities are measured by a combination of access and disparity between groups in indicators of education, infrastructure, and health. It measures the change between late 1990s and late 2000s.

The other implication of international evidence of countries falling into growth traps for Ghana derives from the finding that countries that rely on international capital flows are more prone to suffer slowdowns, as are countries with large governments. Ghana's large and persistent current account deficits have been financed with capital inflows, which have made the country reliant on external savings to finance the excess national spending over national income. The literature has found that countries that experience large capital inflows are vulnerable to sudden stops, which in turn are associated with currency depreciations and growth slowdowns. Second, the recent increase in government wages has led to an expansion in government consumption spending, leading to a larger government, as measured by the literature on growth traps. Typically this leads to public spending associated with real exchange rate overvaluation and becomes a channel through which Dutch Disease transmits to the economy. Both factors, the excessive capital inflows and the rise in government consumption, are directly associated with the likelihood of Ghana's growth falling below the projected level discussed in the first section of this report.

VII. CONCLUSION AND POLICY OPTIONS

Ghana's economic growth picked up in the early 2000s and has been exceptionally strong during the last five years, based on price booms of its main commodity exports, gold and cocoa, and the initiation of commercial oil production in 2011. Econometric models estimated for this report predict per capita growth rates of 3.5 to 4.5 percent for 2014-34. Nevertheless, the predictions are subject to uncertainty associated with the expected trends and volatility of the drivers of growth: investment, non-oil (mineral) rents, oil rents, education, openness of the economy to international trade, and macroeconomic factors such as inflation and government spending. The volatility of commodity prices and the expectation that the recent historic rising trend will not be maintained constitute the main sources of uncertainty for the projections, while the volatility of the capital flows which have financed investment may also hinder growth in the medium term.

Ghana's growth accounting exercise indicates that capital accumulation has been the main driver of growth. Given the limited domestic savings, this has resulted in current account deficits and the accumulation of external debt which is unlikely to grow at the same speed in the future. The externally funded investment strategy required to sustain the 5.0 percent per capita GDP growth is limited by the willingness of international markets to absorb emerging market liabilities and by reduced domestic savings. Hence, a viable option to sustain the growth rate is to focus on policies that support factor productivity growth. Such policies are directly related to enhancing government effectiveness and public spending efficiency. To achieve productivity growth, the labor force needs to be able to absorb and transform existing technology. Hence, investment in human capital is necessary to support a productivity based growth strategy.

International evidence shows that countries' growth rates may fall persistently below the levels predicted by models such as those used in this report, so-called growth traps. The most significant factors that determine the chances of countries falling into such traps are macroeconomic and institutional, both relevant for Ghana post-oil discovery. The macro imbalances reflected in large fiscal and current account deficits indicate the reliance on capital inflows to finance spending. Capital inflows render the country vulnerable to sudden stops, which are associated with currency depreciations and growth slowdowns. Depreciation is associated with inflation. Both government consumption spending and inflation are important growth determinants in the long run, and are shown here to be the main headwinds in Ghana's growth projections.

Finally, Ghana's recent slow progress enhancing the quality of institutions is also a risk factor contributing to the likelihood of actual growth falling below the predicted level. However, it should be acknowledged that the general nature of institutional measurements used in quantitative cross-country analysis makes the associated recommendations generic and more work is needed to identify the precise institutional measures that would, for instance, make government more effective or enhance the rule of law, which is required to sustain Ghanaian long-term growth. But there is little doubt that reducing inequality and improving social cohesion are also critical elements of any policy agenda of making Ghana's growth sustainable in the medium term, to make the positive forecasts presented in this report a reality.

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