

McKinsey Global Institute



June 2010

Lions on the move: The progress and potential of African economies



The McKinsey Global Institute

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Preface

Africa's collective economy grew very little during the last two decades of the 20th century. But sometime in the late 1990s, the continent began to stir. GDP growth picked up and then bounded ahead, rising faster and faster through 2008. Today, while Asia's tiger economies continue to expand rapidly, we foresee the potential rise of economic lions in Africa's future.

Lions on the move: The progress and potential of African economies is the result of a joint research project by the McKinsey Global Institute (MGI) and McKinsey & Company's Africa offices to look at the continent's economies. We sought to examine the sources behind Africa's economic growth acceleration since 2000, analyze the prospects for future growth, and identify some of the most compelling business opportunities ahead. We also developed a framework for understanding how growth challenges and opportunities will differ for Africa's 53 individual countries.

MGI leaders Charles Roxburgh and Susan Lund and Africa office partners Norbert Dörr, Acha Leke, Amine Tazi-Riffi, and Arend van Wamelen directed the research. Mutsa Chironga led the project team, which comprised Tarik Alatovic, Charles Atkins, Nadia Terfous, Sanya van Schalkwyk, and Till Zeino-Mahmalat. Nell Henderson provided editorial support. The team would like to thank MGI's operations and communications team, Deadra Henderson, Rebeca Robboy, and Tim Beacom, as well as Sarah-Ann Wiltshire for her overall support of the project.

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Vijaya Ramachandran, a senior fellow at the Center for Global Development; and Vera Songwe, an economist at the World Bank. We are also grateful to many other experts who shared their knowledge with us: J.P. Landman, an independent South African economist; Iraj Abedian, economist and chief executive of Pan-African Capital Holdings; Eric Kacou, managing director of OTF Group; Alex-Handrah Aime, a director at Emerging Capital Partners; Tope Lawani, a founding partner of Helios Investment Partners; Ngozi Edozien, head of West Africa for Actis; and J. Kofi Bucknor, managing partner at Kingdom Zephyr.

Our aspiration is to provide business leaders and policy makers with a fact base to better understand the most important trends shaping the global economy today. As with all MGI projects, this research is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

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Africa today

\$1.6 trillion

Africa's collective GDP in 2008,
roughly equal to Brazil's or Russia's

\$860 billion

Africa's combined consumer
spending in 2008

316 million

the number of new mobile phone
subscribers signed up in Africa since 2000

60%

Africa's share of the
world's total amount of
uncultivated, arable land

52

the number of African cities with
more than 1 million people each

20

the number of African companies
with revenues of at least \$3 billion

Africa tomorrow

\$2.6 trillion

Africa's collective GDP in 2020

\$1.4 trillion

Africa's consumer spending in 2020

1.1 billion

the number of Africans
of working age in 2040

128 million

the number of African households
with discretionary income in 2020

50% the portion of
Africans living
in cities by 2030

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Executive summary

Africa's economic pulse has quickened, infusing the continent with a new commercial vibrancy. Real GDP rose 4.9 percent per year from 2000 through 2008, more than twice its pace in the 1980s and '90s. Telecom, banking, and retail are flourishing. Construction is booming. Foreign investment is surging.

To be sure, many of the 50-plus individual African economies face serious challenges, including poverty, disease, and high infant mortality. Yet Africa's collective GDP, at \$1.6 trillion in 2008, is now roughly equal to Brazil's or Russia's, and the continent is among the world's most rapidly growing economic regions. This acceleration is a sign of hard-earned progress and promise.

While Africa's increased economic momentum is widely recognized, less known are its sources and likely staying power. This prompted the McKinsey Global Institute and McKinsey & Company's four African offices to launch a joint research project. We sought to understand the causes of Africa's growth acceleration, the economic outlook for the years ahead, and the emerging opportunities for businesses. While poor government policies, wars, and other events could disrupt growth in individual countries, our analysis suggests that Africa's long-term economic prospects are quite strong. Global businesses cannot afford to ignore the potential. Among our key findings:

- Africa's growth acceleration resulted from more than a resource boom. Arguably more important were government actions to end political conflicts, improve macroeconomic conditions, and create better business climates, which enabled growth to accelerate broadly across countries and sectors.
- Africa's future growth will be supported by external trends such as the global race for commodities, Africa's increased access to international capital, and its ability to forge new types of economic partnerships with foreign investors.
- Long-term growth also will be lifted by internal social and demographic trends, particularly Africa's growing labor force, urbanization, and the related rise of middle-class consumers.
- For companies, our analysis suggests that four groups of industries together will be worth \$2.6 trillion in annual revenue by 2020. These are consumer-facing industries (such as retail, telecommunications, and banking); infrastructure-related industries; agriculture; and resources.

Each African country will, of course, follow a unique growth path. We developed a framework for understanding the opportunities and challenges in different countries. Though imperfect, this framework can help guide business executives and investors developing strategies for the continent and policy makers working to sustain growth.

MORE THAN A RESOURCE BOOM

To be sure, Africa benefited greatly from the surge in global commodity prices over the past decade. Oil rose from less than \$20 a barrel in 1999 to more than \$145 in 2008. Prices for minerals, grain, and other raw materials also soared on rising global demand.

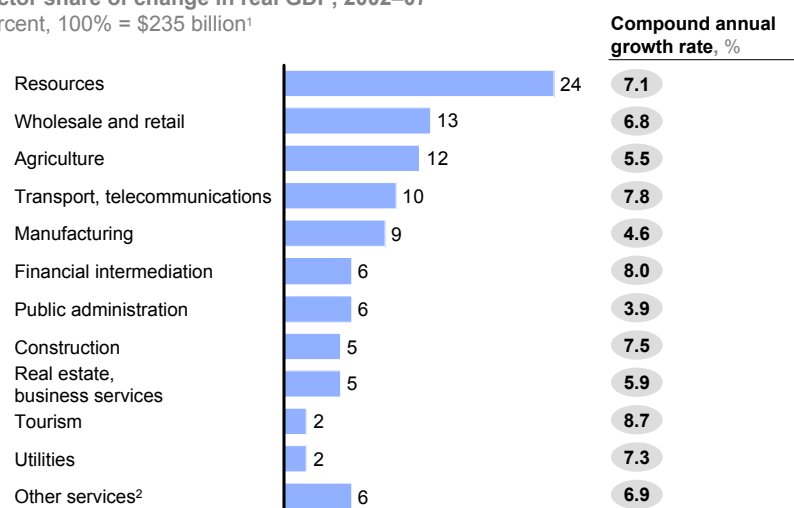
Yet the commodity boom explains only part of Africa's growth story. Natural resources directly accounted for just 24 percent of Africa's GDP growth from 2000 through 2008.¹ The rest came from other sectors, including wholesale and retail trade, transportation, telecommunications, and manufacturing (Exhibit A). Economic growth accelerated across the continent, in 27 of its 30 largest economies. Indeed, we find that GDP grew at similar rates in countries with and without significant resource exports.

Exhibit A

Africa's growth was widespread across sectors

Sector share of change in real GDP, 2002–07

Percent, 100% = \$235 billion¹



¹ In 2005 dollars. The total is the sum of 15 countries for which data were available, and that together account for 80 percent of Africa's GDP: Algeria, Angola, Cameroon, Egypt, Ethiopia, Kenya, Libya, Morocco, Nigeria, Senegal, South Africa, Sudan, Tanzania, Tunisia, Zimbabwe.

² Education, Health, Social Services, Household Services.

SOURCE: Global Insight; Arab Monetary Fund; African Development Bank; McKinsey Global Institute

The key reasons behind Africa's growth surge were improved political and macroeconomic stability and microeconomic reforms. To start, several African countries halted their deadly hostilities, creating the political stability necessary to foster economic growth. Next, Africa's economies grew healthier as governments lowered inflation, trimmed their foreign debt, and shrunk their budget deficits. Finally, African governments increasingly adopted policies to energize markets. They privatized state-owned enterprises, reduced trade barriers, cut corporate taxes, and strengthened regulatory and legal systems. Although many governments still have a long way to go, these important first steps enabled a private business sector to emerge.

¹ In addition, resources contributed indirectly to growth through government spending. We estimate this was equivalent to an additional 8 percent of the GDP growth since 2000. We did not calculate the contribution of increased labor income from resources, since employment has changed only minimally in Africa's oil, gas, and mining sectors (and is declining in many countries).

Together, these structural changes helped fuel an African productivity revolution by helping companies to achieve greater economies of scale, increase investment, and become more competitive. After declining through the 1980s and 1990s, labor productivity started rising, and it has climbed by a robust 2.7 percent annually since 2000.

PROMISING LONG-TERM GROWTH PROSPECTS

Looking ahead, a critical question is whether Africa's surge represents a onetime event or an economic takeoff. The continent's growth also picked up during the oil boom of the 1970s but slowed sharply when oil and other commodity prices collapsed during the subsequent two decades. Today, while individual African economies could suffer many setbacks, our analysis suggests that the continent's long-term growth prospects are strong, propelled by both external trends in the global economy and internal changes in the continent's societies and economies.

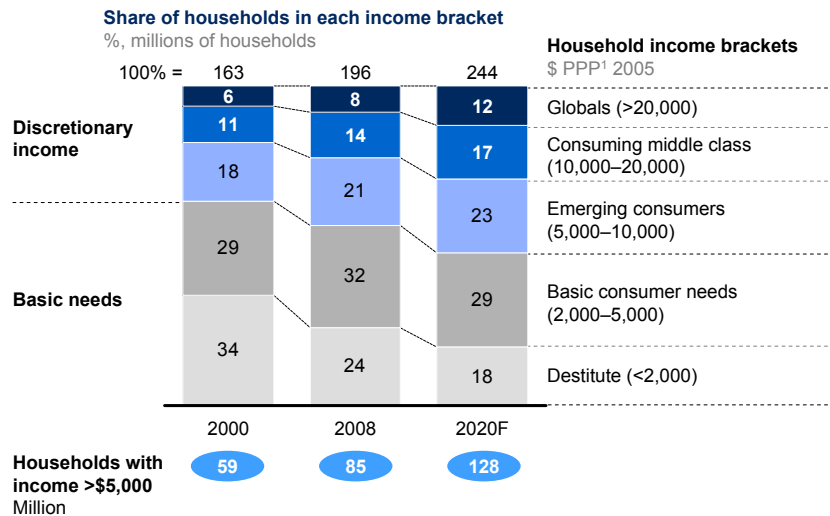
To begin, Africa will continue to profit from rising global demand for oil, natural gas, minerals, food, arable land, and other natural resources. The continent boasts an abundance of riches, including 10 percent of the world's reserves of oil, 40 percent of its gold, and 80 to 90 percent of the chromium and the platinum group metals. Demand for raw materials is growing fastest in the world's emerging economies, which now account for half of Africa's total trade. As trade patterns have shifted, African governments are forging new types of economic partnerships in which buyers from these countries provide up-front payments, make infrastructure investments, and share management skills and technology. Foreign direct investment in Africa has increased from \$9 billion in 2000 to \$62 billion in 2008—almost as large as the flow into China, when measured relative to GDP.

Africa's long-term growth also will increasingly reflect interrelated social and demographic trends that are creating new engines of domestic growth. Chief among these are urbanization and the rise of the middle-class African consumer. In 1980, just 28 percent of Africans lived in cities. Today, 40 percent do—a portion close to China's and larger than India's—and this share is projected to increase. And as more Africans move from farmwork to urban jobs, their incomes are rising. In 2008, roughly 85 million African households earned \$5,000 or more²—the level above which they start spending roughly half their income on items other than food. The number of households with discretionary income is projected to rise by 50 percent over the next 10 years, reaching 128 million (Exhibit B). By 2030, the continent's top 18 cities could have a combined spending power of \$1.3 trillion.

2 Measured in terms of purchasing power parity (PPP), which takes into account the relative prices of nontradable goods in different countries.

Exhibit B

By 2020, more than half of African households will have discretionary spending power



¹ Purchasing power parity adjusts for price differences in identical goods across countries to reflect differences in purchasing power in each country.

SOURCE: Canback Global Income Distribution Database (C-GIDD); McKinsey Global Institute

Meanwhile, Africa's labor force is expanding. By 2040, it is projected to reach 1.1 billion, overtaking China's or India's. If Africa can provide its young people with the education and skills they need, this large workforce could account for a significant share of both global consumption and production.

AFRICA'S DIVERSE GROWTH PATHS

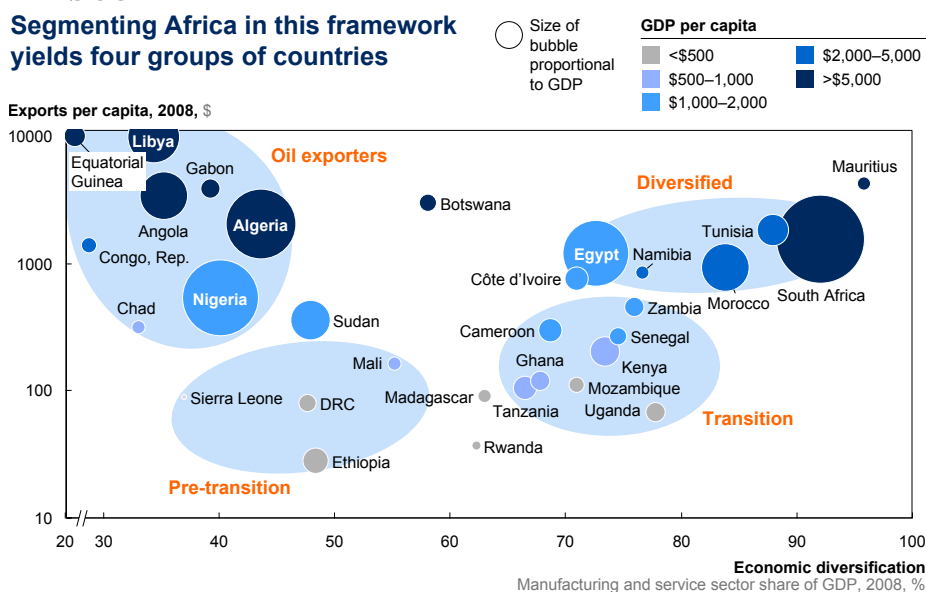
While Africa's collective long-term prospects are strong, the growth trajectories of individual countries across the continent will differ. To understand how growth opportunities and challenges vary, we classify countries³ according to their levels of economic diversification and exports per capita. This highlights progress toward two related objectives: developing diverse sources of economic growth in addition to resources and agriculture, and generating export revenue to finance the imported capital goods necessary for investment. History shows that as countries develop, they move closer to achieving both of these objectives.

Within this framework, most African countries today fall into one of four broad clusters: diversified economies, oil exporters, transition economies, and pre-transition economies (Exhibit C). Although countries within each cluster differ in many ways, their economic structures and challenges are similar. This framework is useful for assessing growth potential across a heterogeneous continent.

³ We focused on 31 of the largest economies, or countries that had GDP of \$10 billion or greater in 2008 or real GDP growth of at least 7 percent a year from 2000 to 2008. These countries accounted for 97 percent of African GDP in 2008.

Exhibit C

Segmenting Africa in this framework yields four groups of countries



NOTE: We include countries whose 2008 GDP was approximately \$10 billion or greater, or whose real GDP growth rate exceeded 7% over 2000–08. We exclude 22 countries that accounted for 3% of African GDP in 2008.
 SOURCE: Organisation for Economic Co-operation and Development; World Bank World Development Indicators; McKinsey Global Institute

Diversified economies: Africa’s growth engines. Africa’s four most advanced economies—Egypt, Morocco, South Africa, and Tunisia—already have significant manufacturing and service industries. Over the past decade, service sectors such as construction, banking, telecom, and retailing accounted for more than 70 percent of their GDP growth. Their cities have gained more than ten million additional residents since 2000, and real consumer spending grew by 3 to 5 percent per year. Today, 90 percent of all households have some discretionary income. These economies have the least volatile GDP growth in Africa and stand to benefit greatly from increasing ties to the global economy. However, Africa’s diversified economies today have higher unit labor costs⁴ than China or India and must move toward competing in higher-value industries. Looking ahead, they face the challenges of expanding exports to both global and regional markets, improving education to create the skilled workforce essential in advanced industries, and building the infrastructure needed to support growth.

Oil exporters: Enhancing growth through diversification. Africa’s oil and gas exporters have the continent’s highest GDP per capita but the least diversified economies. Rising oil prices have lifted their export revenue significantly; the three largest producers—Algeria, Angola, and Nigeria—earned \$1 trillion from petroleum exports from 2000 through 2008, compared with \$300 billion in the 1990s. However, manufacturing and services remain relatively small, accounting for just one-third of GDP on average. These countries have strong growth prospects if they can use petroleum wealth to finance the broader development of their economies. The experience of other developing countries, such as Indonesia, shows this is possible. Continued investments in infrastructure and education will be essential. Africa’s oil exporters face challenges common to others around the world, including maintaining political stability and momentum for economic reforms; resisting the temptation

⁴ Unit labor costs are defined as wages divided by labor productivity.

to overspend and overinvest, which would create vulnerability to commodity price declines; and creating a business environment that enables companies across industries to flourish.

Transition economies: Building on recent gains. Africa's transition economies—including Ghana, Kenya, and Senegal—have lower GDP per capita than the countries in the first two groups, but their economies are growing rapidly. The agriculture and resource sectors together account for as much as 35 percent of GDP and two-thirds of exports. However, these countries increasingly export manufactured goods, particularly to other African countries. Successful products include processed fuels, processed food, chemicals, apparel, and cosmetics. Expanding intra-African trade and creating larger regional markets will be one key to the future growth of the transition economies. These countries could also compete globally with other low-cost emerging economies if they improve their infrastructure and regulatory systems. And while their service sectors are expanding rapidly, the penetration rates of key services such as telecommunications, banking, and formal retail remain far lower than those in the diversified countries, creating an opportunity for businesses to satisfy the unmet demand. Finally, several transition economies are likely to increase their resource exports in coming years, which could turbo-charge growth. Ghana and Uganda, for instance, will benefit from recent oil finds, generating additional revenue that—if invested wisely—could spur further diversification.

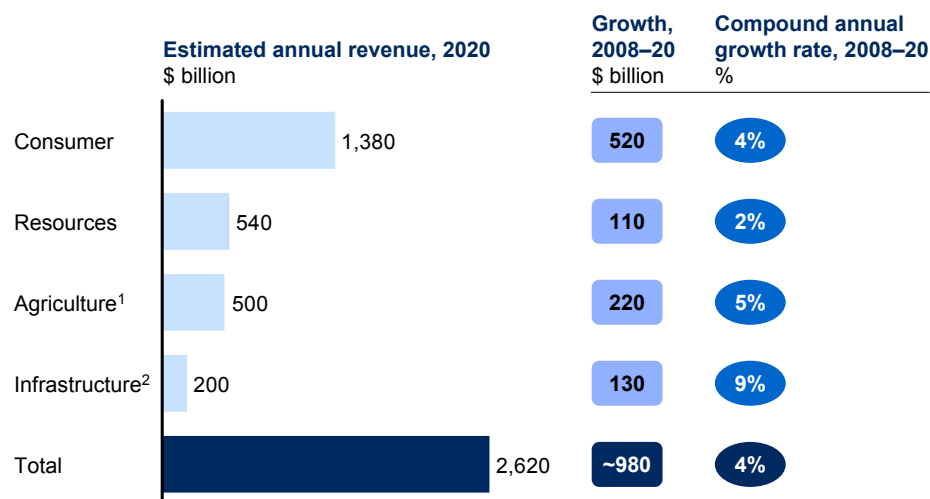
Pre-transition economies: Strengthen the basics. The pre-transition economies are very poor, with annual GDP per capita of just \$353, but some are growing very rapidly. Three of the largest—the Democratic Republic of the Congo, Ethiopia, and Mali—grew, on average, 7 percent a year since 2000, after collectively not expanding at all in the 1990s. Even so, their growth has been erratic at times and could falter again. Although the individual pre-transition economies differ greatly, their common problem is a lack of the basics, such as strong, stable governments and other public institutions, good macroeconomic conditions, and sustainable agricultural development. The key challenges for this group include maintaining political stability, getting the economic fundamentals right, and creating a more predictable business environment. International agencies and private philanthropic organizations have an important role to play.

AFRICA'S \$2.6 TRILLION BUSINESS OPPORTUNITY

Africa's economic growth is creating substantial new business opportunities that are often overlooked by global companies. Our projections show at least four categories of opportunities that together could be worth \$2.6 trillion in annual revenue by 2020 (Exhibit D).

Exhibit D

Four groups of industries could have combined revenue of \$2.6 trillion by 2020



¹ We took the 2030 value of \$880 billion and calculated straight-line equivalent for 2020.

² Represents investment. Assumes need remains as same share of GDP through 2020.

SOURCE: McKinsey Global Institute

Africa's consumer-facing sectors (consumer goods, telecom, and banking, among others) present the largest opportunity and are already growing two to three times faster than those in countries belonging to the Organisation for Economic Co-operation and Development (OECD). The continent's households spent a combined \$860 billion in 2008, more than those in India or Russia. This is projected to rise to \$1.4 trillion over the next decade if real GDP continues to grow at its current pace. Food and beverage spending is projected to increase more in absolute terms than any other consumer category, though spending patterns will shift toward higher quality goods. Consumption will grow even faster in other categories as household incomes rise, with the most rapid increases occurring in retail banking, telecom, and housing. This growth will create more consumer markets large enough to be attractive to multinational companies. The continent's five largest consumer markets in 2020—Alexandria, Cairo, Cape Town, Johannesburg, and Lagos—will each have more than \$25 billion a year in household spending and be comparable in size to Mumbai and New Delhi. More than a dozen other African cities (among them Dakar, Ibadan, Kano, and Rabat) will develop consumer markets worth more than \$10 billion each per year.

Africa's agriculture holds enormous potential for companies across the value chain. With 60 percent of the world's uncultivated arable land and low crop yields, Africa is ripe for a "green revolution" like the ones that have transformed agriculture in Asia and Brazil. The barriers to raising production in Africa are well-known and complex, including lack of advanced seeds and other inputs suited to the continent's ecological conditions; inadequate infrastructure to bring crops to market; perverse trade barriers and tax incentives; unclear land rights; and lack of technical assistance

and finance for farmers. But if Africa could overcome these barriers—and some countries are creating credible plans to do so—we estimate that agricultural output could increase from \$280 billion per year today to as much as \$880 billion by 2030.⁵ Growth of this magnitude would increase demand for upstream products such as fertilizers, seeds, and pesticides, while spurring growth of downstream activities such as grain refining, biofuels, and other types of food processing. Together, these could be worth an additional \$275 billion in revenue by 2030.

The outlook for further growth in Africa's resource sectors remains promising. Our analysis suggests that the continent's production of oil, gas, and most minerals, measured by volume, may continue to grow steadily at between 2 percent and 4 percent per year. Even at current prices, this would raise the value of resource production from \$430 billion today to \$540 billion by 2020. Higher global commodity prices could lift this even further. However, with the entrance of China and other new players, the field of buyers is getting more crowded. More common are deals that now include foreign investment in infrastructure and resource processing in addition to extraction. By our count, nearly one-quarter of the major resource deals over the past four years included such components, compared with just 1 percent in the 1990s.

Finally, we see large opportunities for companies in building Africa's infrastructure. Currently, African governments and private sources combined are investing about \$72 billion a year in new infrastructure across the continent.⁶ Africa's private infrastructure investment accounts for 13 percent of the emerging market total, up from 7 percent in 2000. However, Africa still faces huge unmet needs—particularly in the provision of power, water, and transportation—that will require at least \$46 billion more in spending per year. We calculate that this goal could be met through a combination of higher spending by African governments, private companies, and non-OECD investors, along with regulatory reforms aimed at boosting operational efficiency.



If recent trends continue, Africa will play an increasingly important role in the global economy. By 2040, Africa will be home to one in five of the planet's young people and will have the world's largest working-age population. Global executives and investors cannot afford to ignore the continent's immense potential. A strategy for Africa must be part of their long-term planning. Today the rate of return on foreign investment in Africa is higher than in any other developing region. Early entry into African economies provides opportunities to create markets, establish brands, shape industry structure, influence customer preferences, and establish long-term relationships. Business can help build the Africa of the future.

5 This estimate assumes resource prices remain at 2008 levels.

6 This figure includes spending on the construction and maintenance of infrastructure, not spending by users for infrastructure services (such as revenues of port operators or utilities).

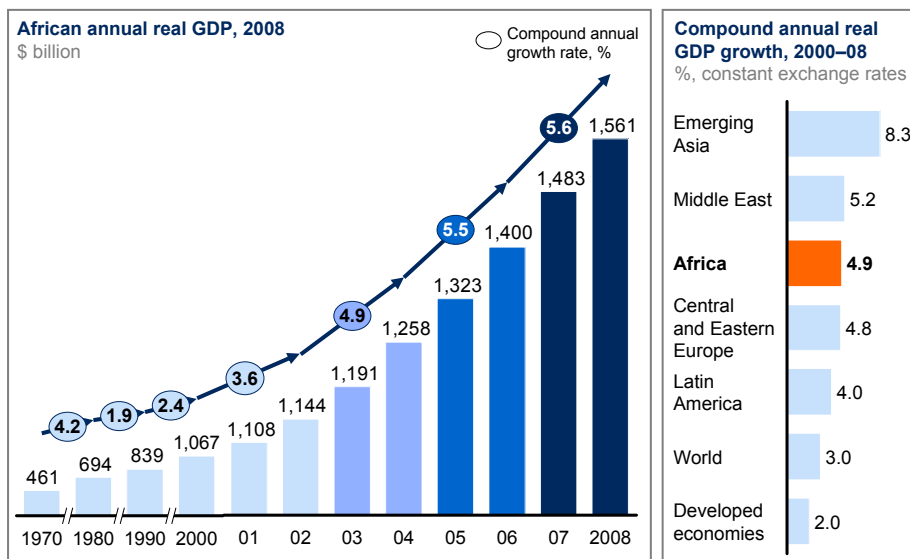
Lions on the move: The progress and potential of African economies

Africa's economies are on the move. The continent's GDP rose by 4.9 percent a year from 2000 through 2008, more than twice its pace in the 1980s and '90s (Exhibit 1). Today, Africa ranks among the fastest-growing economic regions in the world. It is home to 20 domestic companies with revenue of at least \$3 billion each and 52 cities with over 1 million people—more than double the number in 1990 and the same number as in Western Europe.

Looking ahead, government and business leaders are asking whether this economic growth will continue and where future commercial opportunities will arise. To address these questions, the McKinsey Global Institute (MGI) and McKinsey & Company's four African offices undertook a joint research project.

Exhibit 1

Africa's economic growth accelerated after 2000, making it the world's third-fastest growing region



SOURCE: International Monetary Fund; World Bank World Development Indicators; McKinsey Global Institute

We find that Africa's economic growth surge was widespread across countries and sectors and that its roots extend far beyond the global commodity boom. While wars, natural disasters, and poor government policies could halt growth in any individual country, several trends indicate that the continent's long-term growth prospects are strong. Africa's business opportunities are potentially very large, particularly for companies in consumer-facing industries (such as retail, telecommunications, and banking); infrastructure-related industries; across the agricultural value chain; and in resource-related industries. Global executives and investors cannot afford to ignore the continent's immense potential.

Of course, Africa is a diverse continent, and many of its 53 countries face considerable political, social, and economic challenges, including extreme poverty, disease, and civil strife. Each economy will follow its own growth path. To understand the prospects across a heterogeneous continent, we developed a framework for understanding the opportunities and challenges in different countries. We hope this report will help guide executives as they devise business strategies for the continent and policy makers as they work to sustain growth.

The report is organized as follows. In the first section, we document Africa's growth acceleration over the past decade and identify the key sources of growth. Next we examine the long-term structural trends in the global economy and within Africa's domestic economies that may support continued economic expansion. In the third section, we present a framework for understanding the growth opportunities and challenges in different countries. And in the last section, we analyze the size and scope of business opportunities in consumer-facing industries and in the agriculture, resources, and infrastructure sectors.

UNDERSTANDING AFRICA'S RECENT GROWTH

Africa's collective GDP growth accelerated over the past decade, reaching \$1.6 trillion in 2008—a level similar to Brazil's or Russia's. But while this increased economic momentum is widely recognized,⁷ less understood are its reach and sources. Our analysis shows that growth accelerated across the continent and across all sectors, supporting the view that it did not result primarily from the resource boom. Rather, Africa's growth surge can be attributed in large part to internal structural changes that created political and macroeconomic stability and to microeconomic reforms aimed at creating a more market-driven business environment. Together, these shifts enabled the beginning of a dynamic cycle of domestic growth.

More than a resource boom

Certainly, Africa has profited from soaring global demand for commodities. Oil prices climbed from less than \$20 a barrel in 1999 to more than \$145 in 2008, enriching Algeria, Libya, and Nigeria and other producers. Prices for minerals, grain, and other raw materials also rose. Not only have African producers benefited from rising global prices, but they also have increased production.

However, commodities explain only part of Africa's broader growth story.⁸ Our analysis shows that oil and other natural resources directly accounted for just 24 percent of Africa's GDP growth from 2000 through 2008. (Government spending from resource-generated revenue was equivalent to an additional 8 percent of GDP growth over the period). Other sectors accounted for most of the growth surge. From

7 See John Page, "Africa's growth turnaround: From fewer mistakes to sustained growth," Commission on Growth and Development, working paper number 54, 2009; Delfin S. Go and John Page, eds., *Africa at a Turning Point? Growth, Aid, and External Shocks*, Washington, DC: The World Bank, 2008; Edward Miguel, *Africa's Turn?*, Cambridge, Mass.: The MIT Press, 2009.

8 This finding is broadly consistent with the academic literature on the role of resources in explaining Africa's growth. See, for instance, Laura N. Beny and Lisa D. Cook, "Metals or management? Explaining Africa's recent economic growth performance," *The American Economic Review: Papers & Proceedings 2009*, Volume 99, Number 2, 268-74. Or Paul Collier, "The case for investing in Africa," *McKinsey on Africa: A continent on the move*, McKinsey & Company, June 2010.

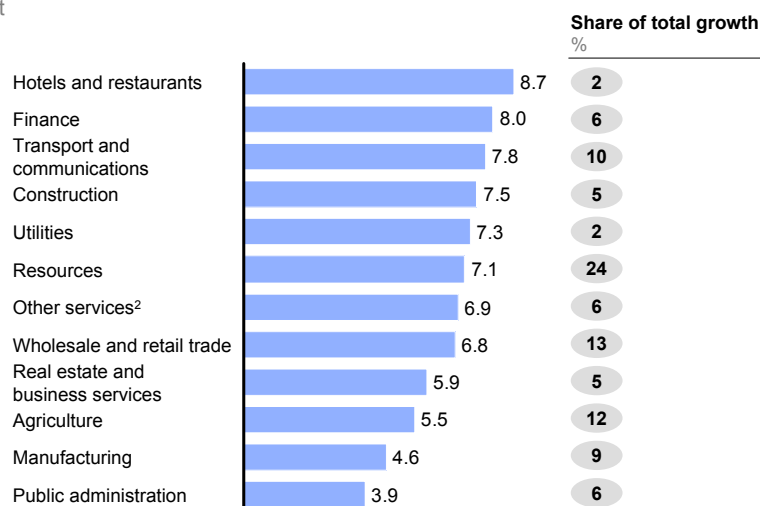
2002 through 2007, tourism, banking, and telecommunications grew the fastest (Exhibit 2). Even slower growing sectors, such as manufacturing and agriculture, are expanding more rapidly than at the start of the decade.

Exhibit 2

Growth rates were robust across sectors

Compound annual growth of real GDP by sector¹, 2002–07

Percent



1 Due to data constraints, comprises 15 countries that account for 80 percent of Africa's GDP: Algeria, Angola, Cameroon, Egypt, Ethiopia, Kenya, Libya, Morocco, Nigeria, Senegal, South Africa, Sudan, Tanzania, Tunisia, Zimbabwe.

2 Education, Health, Social Services, Household Services.

SOURCE: Global Insight; Arab Monetary Fund; African Development Bank; McKinsey Global Institute

Moreover, Africa's growth acceleration was widespread, occurring in 27 of Africa's 30 largest economies.⁹ We find that GDP grew rapidly both in countries with significant resource exports¹⁰ (5.4 percent) and in those without (4.6 percent).

Africa's recent growth was so solid that the continent was one of just two economic regions—along with Asia—where GDP rose during the global recession of 2009. Its economic growth rate is already rebounding, from 1.4 percent in 2009 to a projected 4.5 percent by 2011.¹¹

Political and macroeconomic stability and microeconomic reforms unleashed growth

The key reasons behind Africa's growth surge include government moves to end armed conflicts, improve macroeconomic conditions, and adopt microeconomic reforms to create a better business climate. In every country where these shifts occurred, they correlated with faster GDP growth.

9 The 30 countries are Algeria, Angola, Botswana, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Egypt, Equatorial Guinea, Ethiopia, Gabon, Ghana, Kenya, Libya, Madagascar, Mali, Mauritius, Morocco, Mozambique, Namibia, Nigeria, Republic of the Congo, Senegal, South Africa, Sudan, Tanzania, Tunisia, Uganda, and Zambia. Of these, the three whose growth did not accelerate in the 2000s relative to the 1990s are Botswana, Côte d'Ivoire, and Mauritius.

10 We follow the International Monetary Fund (IMF) practice of defining resource-intensive countries as those with resource rents greater than 10 percent of GDP. In Africa, these are Algeria, Angola, Botswana, Cameroon, Chad, Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Libya, Namibia, Nigeria, São Tomé and Príncipe, Sierra Leone, Sudan, and Zambia.

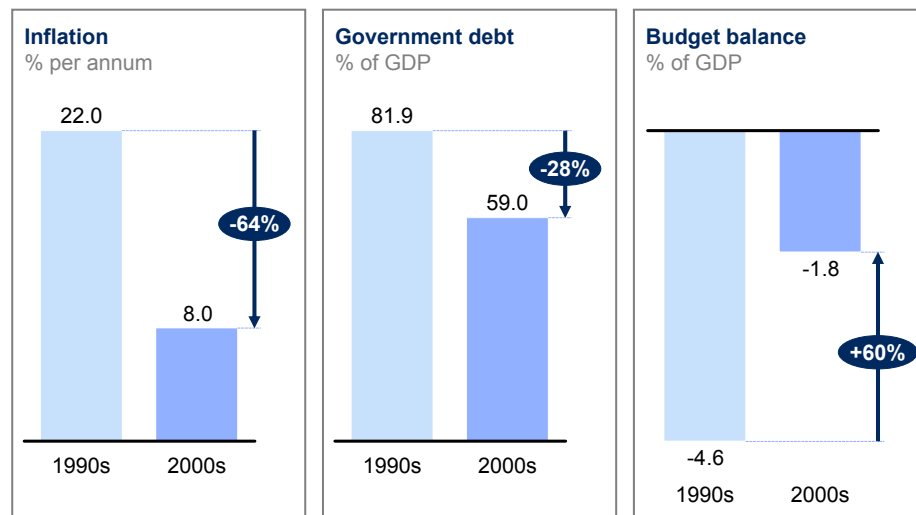
11 We use GDP projections by Global Insight.

To start, several African countries, such as Angola and Mozambique, ended their deadly hostilities, creating the political stability necessary to foster economic growth. The average number of such serious conflicts in Africa (defined as those in which deaths exceeded 1,000 people per year) declined from an average of 4.8 each year in the 1990s to 2.6 in the 2000s. Economies experiencing major conflicts on average did not grow at all, and some even shrank. But after the conflicts ended, growth rebounded to an average of 5.3 percent a year.

Furthermore, Africa's governments improved the continent's macroeconomic stability significantly (Exhibit 3). The continent reduced its collective inflation rate from 22 percent in the 1990s to 8 percent after 2000. Governments cut their combined foreign debt from 82 percent of GDP to 59 percent. And they shrunk their budget deficits from 4.6 percent of GDP to 1.8 percent.

Exhibit 3

African governments have significantly improved macroeconomic stability

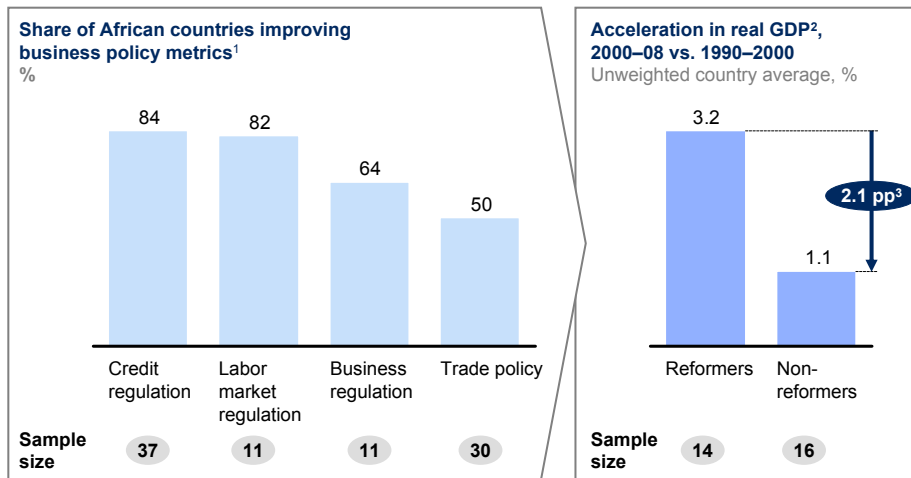


SOURCE: World Bank World Development Indicators; Political Risk Services; McKinsey Global Institute

Finally, African governments began adopting economic policies aimed at energizing markets. They privatized state-owned enterprises, allowed more business competition, opened trade, lowered taxes, and strengthened regulatory and legal systems. Nigeria, for example, privatized more than 116 enterprises between 1999 and 2006. Morocco and Egypt struck free-trade agreements with major export partners. And Rwanda established commercial courts to settle business disputes. Although many African governments have a long way to go in improving their business climate, these important first steps enabled a private business sector to emerge. In the countries that adopted such policy reforms, GDP growth accelerated three times as fast as in the non-reforming countries (Exhibit 4).

Exhibit 4

Many countries enacted microeconomic reforms, and this was correlated with more rapid growth



1 Each business policy metric is measured along a variety of dimensions that are aggregated into an index for each metric. Improvements in each metric are measured as an increase in the index level.
 2 Reformers are defined as countries that improved along credit, labor and business regulations, and trade policy. The non-reformers have improved along only a subset of dimensions (14 countries) or none at all.
 3 Percentage points.
 SOURCE: Fraser Institute; World Bank World Development Indicators; McKinsey Global Institute

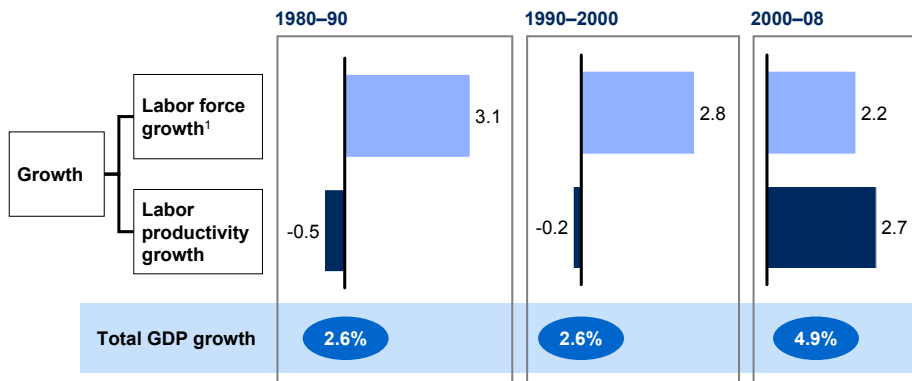
A dynamic domestic African economy is emerging

These internal structural changes helped fuel an African productivity revolution. They enabled and prompted companies to achieve greater economies of scale, face increased competition, and employ new technologies. After declining through the 1980s and 1990s, the continent’s productivity started growing again in 2000. The pace of productivity gains even accelerated over time, reaching 2.7 percent in the 2000–2008 period (Exhibit 5).

Exhibit 5

Africa’s labor productivity grew for the first time in decades

Real GDP growth, Africa
%



1 Used working-age population (15-64) as a proxy for labor force.
 SOURCE: Conference Board World Economy database; McKinsey Global Institute

As a result, a dynamic African business sector is emerging. The continent has more than 1,400 publicly listed companies. It boasts more than 100 companies with revenue greater than \$1 billion. Telecom firms have signed up more than 316 million new mobile phone subscribers on the continent since 2000—more than the total US population. Banking and retail are flourishing as household incomes climb. And construction is booming as new cities rise.

Africa's growth acceleration has started to improve conditions for its people. During the past decade, Africa's poverty rate and child mortality rate declined, primary school enrollment increased, and a greater share of the population gained access to clean water. To be sure, many countries have far to go by these and other measures of economic and social welfare. On some Millennium Development Goal targets, such as combating disease, Africa has lost ground in recent years.¹² The continent will need to sustain or increase its recent pace of economic growth to lift living standards broadly.

AFRICA'S LONG-TERM GROWTH PROSPECTS ARE PROMISING, THOUGH RISKS REMAIN

A critical question is whether Africa's recent growth surge represents a onetime event or an economic takeoff. The continent's growth also picked up during the oil boom of the 1970s but slowed sharply when petroleum and other commodity prices collapsed during the subsequent two decades. Today, while individual African economies could suffer many disappointments and setbacks, we can identify four structural trends that could support continued growth over the long term.

Three of these trends are already under way: Africa's evolving global economic ties, its growing access to international capital, and the emergence of an urban African consumer. Another is a possible development—an African “green revolution” in agriculture. Together, these trends are likely to sustain Africa's growth and could even accelerate it.

Evolving global economic ties

Although African growth is due to more than resources, the continent will continue to profit from rising global demand for oil, natural gas, minerals, food, arable land, and other natural resources. MGI research projects that over the next decade, the world's liquid-fuel consumption will increase by 25 percent—twice the pace of the 1990s.¹³ Projections of demand for many hard minerals show similar growth. At the same time, the global supply of energy and hard minerals is under strain as the highest-quality and lowest-cost reserves are depleted. Existing reserves are becoming less productive while major finds are becoming less frequent, smaller in size, and more costly to access.

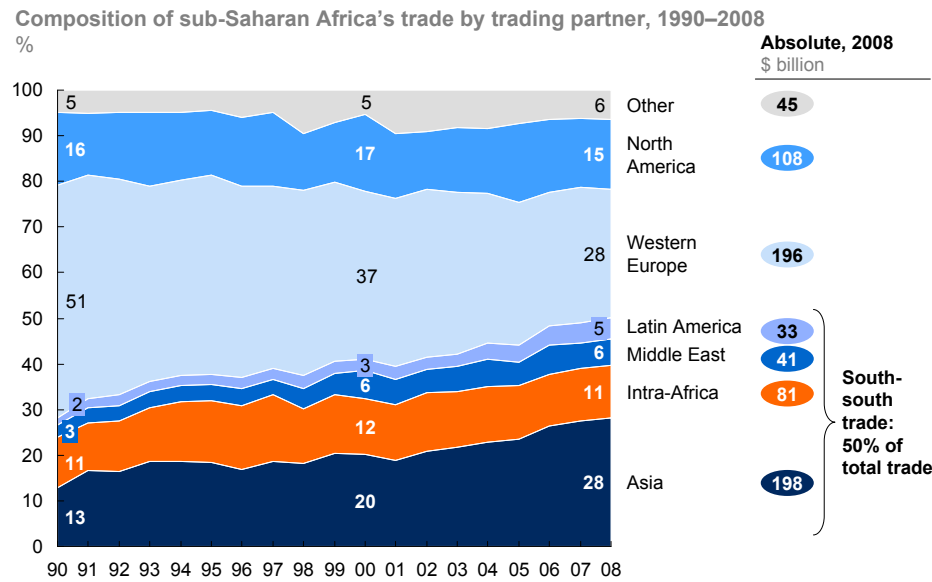
¹² Under the auspices of the United Nations, 150 heads of state agreed in 2000 to eight Millennium Development Goals to be achieved by 2015. The eight goals break down into 21 quantifiable targets that are measured by 60 indicators.

¹³ See *Averting the next energy crisis: The demand challenge*, McKinsey Global Institute, March 2009. Available at www.mckinsey.com/mgi.

These trends play into Africa’s favor, as the continent boasts an abundance of resource riches: 10 percent of the world’s reserves of oil, 40 percent of its gold, and 80 to 90 percent of the chromium and the platinum metal group. And those are just the known reserves; no doubt more lies undiscovered.¹⁴

Demand for commodities is growing fastest in the world’s developing economies, particularly those in Asia and the Middle East. Despite long-standing commercial ties with Europe, sub-Saharan Africa now conducts half its total trade with developing economic regions (“South–South” exchanges). From 1990 through 2008, Asia’s share of sub-Saharan Africa’s trade doubled to 28 percent, while Western Europe’s portion shrank from 51 percent to 28 percent (Exhibit 6).

Exhibit 6
Trade with other developing countries accounts for more than half of sub-Saharan Africa’s trade

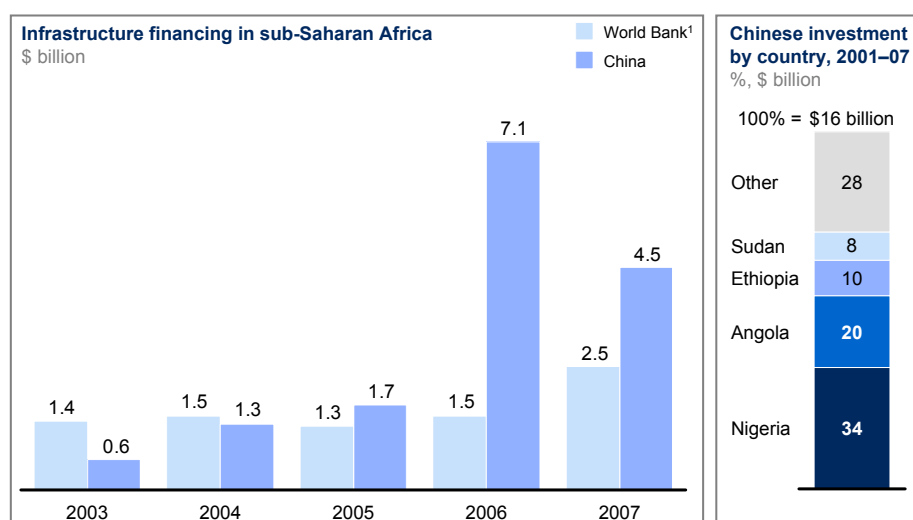


SOURCE: International Monetary Fund Direction of Trade Statistics; McKinsey Global Institute

This geographic shift has given rise to new types of economic partnerships. China, for example, has bid for access to ten million tons of copper and two million tons of cobalt in the Democratic Republic of the Congo in exchange for a \$6 billion package of infrastructure investments,¹⁵ including mine improvements, roads, rail, hospitals, and schools. Indeed, since 2005, China’s total infrastructure commitments in sub-Saharan Africa have exceeded the World Bank’s infrastructure commitments in the region (Exhibit 7). Other recent examples include Arcelor Mittal’s commitment to build rail and port infrastructure in Senegal, Vale’s plans to spend \$5 billion to \$8 billion on mines, ports, and railways in Guinea and Liberia; and China’s memorandum of understanding with Nigeria to invest up to \$23 billion on oil refineries in hopes of future access to the country’s vast crude reserves.

14 Paul Collier argues that Africa is one of the world’s largest unexplored resource basins. Its average mineral and energy deposits amount to just \$23,000 per square kilometer, compared with \$114,000 for the well-explored countries of the OECD. This implies that future discoveries could be multiples of today’s reserves. See Paul Collier, *The Plundered Planet: Why We Must—and How We Can—Manage Nature for Global Prosperity*, New York: Oxford University Press, April 2010.

15 Aspects of this agreement have been challenged in court because of disputes over the mining rights. The deal was originally valued at \$9 billion. As of this writing, \$6 billion has been finalized and \$3 billion in funding is under discussion.

Exhibit 7**China's infrastructure commitments in sub-Saharan Africa have surpassed the World Bank's on a yearly basis since 2005**

¹ Annual commitments for energy and mining; water and sanitation; transportation; and information and telecommunications.
SOURCE: World Bank, "Building bridges: China's growing role as infrastructure financier for sub-Saharan Africa," 2008; World Bank annual reports; McKinsey Global Institute

The intensifying competition for global commodities is giving African governments newfound bargaining power, and they are negotiating better deals to capture more value from their resources. Buyers are sometimes willing to make up-front payments in addition to paying resource extraction royalties, share management skills and technology, and build infrastructure in return for access to raw materials. Governments are playing a larger role in such deals, bringing a unique ability to coordinate multiple suppliers across industries, secure financing, and strike multiple long-term deals at once. Africa's resource wealth could turbo-charge economic growth—provided the new wealth is used well.

Growing access to international capital

Africa is also gaining increased access to international capital flows.¹⁶ Total capital flows to the continent—including foreign direct investment, bank lending, and investor purchases of equity and debt securities from African issuers—increased from just \$15 billion in 2000 to a peak of \$87 billion in 2007, surpassing both aid and remittances in scale (Exhibit 8). Foreign direct investment, one component of the total, increased from \$9 billion in 2000 to \$62 billion in 2008—relative to GDP, almost as large as the flow into China. While Africa's oil, gas, and mining sectors have historically attracted the majority of new foreign capital, new investments are also being made in banking, tourism, textiles, construction, telecommunications, and other sectors. More than 20 African countries received at least \$500 million each of foreign investment in 2008. And returns to foreign direct investment in Africa surpass those in any other region of the world (Exhibit 9).¹⁷

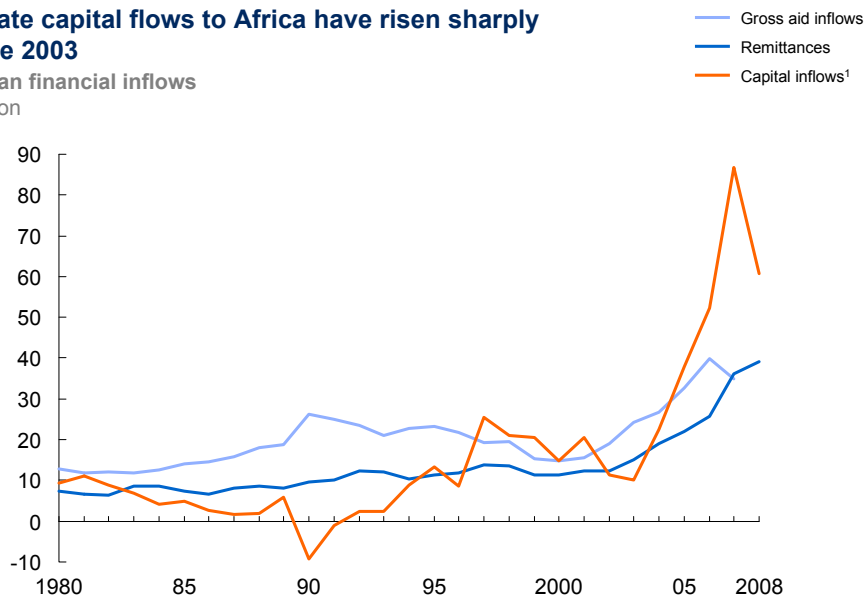
¹⁶ For a broader look at the evolution of global capital flows, see *Global capital markets: Entering a new era*, McKinsey Global Institute, September 2009.

¹⁷ This is consistent with anecdotal evidence, as well as academic findings that returns on invested capital (whether foreign or domestic) are very high in Africa compared with other emerging markets. See Jean-Louis Warnholz, "Is investment in Africa low despite high profits?" Center for the Study of African Economies, Oxford University, August 2008.

Exhibit 8

Private capital flows to Africa have risen sharply since 2003

African financial inflows
\$ billion



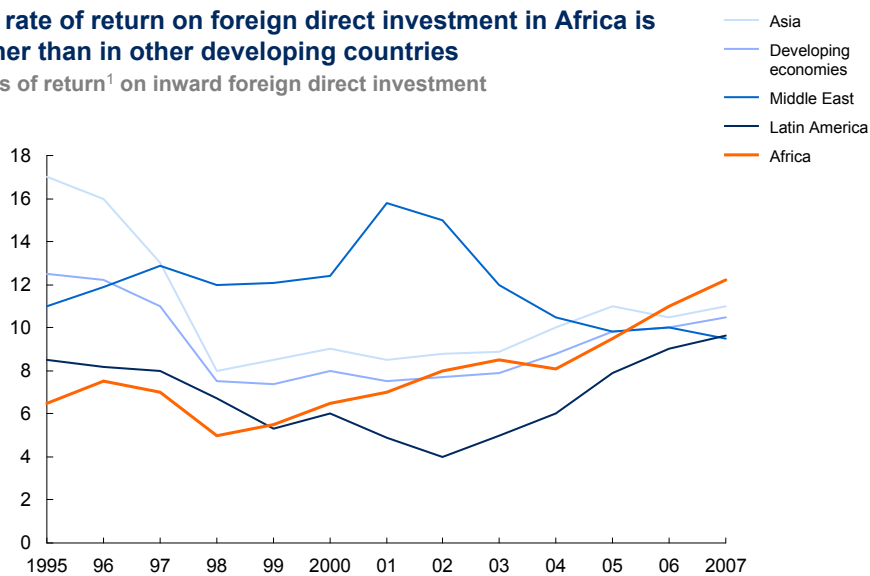
¹ Capital inflows are defined as net foreign direct investment (FDI), equity, debt, and other flows into Africa from foreign investors.

SOURCE: World Bank World Development Indicators; McKinsey Global Institute Capital Flows Database

Exhibit 9

The rate of return on foreign direct investment in Africa is higher than in other developing countries

Rates of return¹ on inward foreign direct investment
%



¹ The rate of return is calculated as direct investment income for the current year divided by the average of FDI stock of the previous year and the current year. The figures for 2007 rates of return are based on 39 countries in Africa, 33 in Latin America and the Caribbean, 11 in West Asia, and 18 in Asia.

SOURCE: United Nations Conference on Trade and Development; McKinsey Global Institute

This bodes well for the continent's growth. Foreign direct investment is now equivalent to around 16 percent of Africa's gross fixed capital formation. Moreover, MGI research has found substantial benefits for recipients.¹⁸ Foreign companies supply not just capital, but also new management methods, skills, and technology, and they increase competition in the local market. As a result, businesses improve the quality and variety of products and services they offer and may lower prices, which in turn boosts demand for the products and can spur job growth. Although local businesses may lose market share in early years to more agile foreign companies, domestic firms often learn to compete and hone their skills. For instance, foreign direct investment was key to the development of Kenya's thriving and sophisticated horticulture sector, which has increased its exports from \$275 million in 2000 to \$700 million in 2007. Renault's plan to open a plant in Morocco to produce 400,000 low-cost Logan cars—90 percent of which will be made for export—could give Morocco's automotive sector a similar boost.

The rise of the African urban consumer

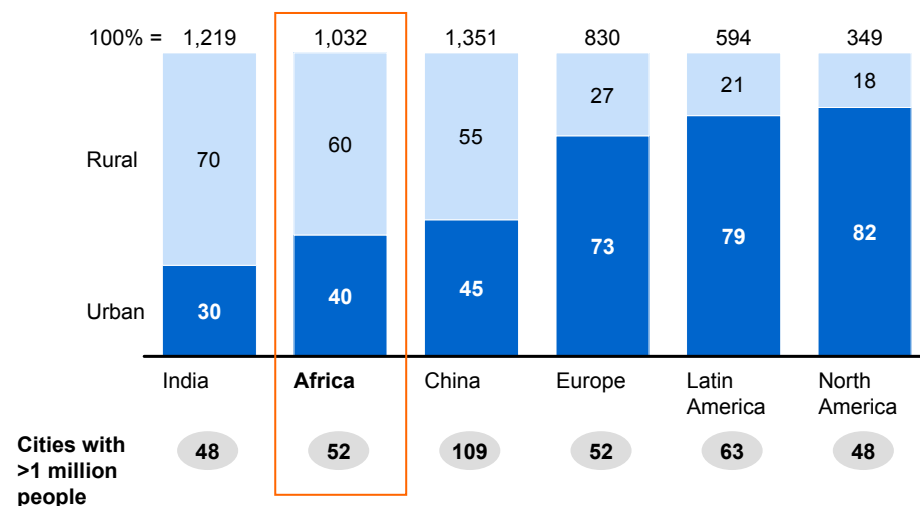
Africa's long-term economic expansion will increasingly reflect interrelated social and demographic changes creating new domestic engines of growth. Key among these will be urbanization, an expanding labor force, and the rise of the middle-class African consumer.

In 1980, just 28 percent of Africans lived in cities. Today, 40 percent of the continent's 1 billion people do—a portion close to China's and larger than India's, and one that will expand further (Exhibit 10). We estimate that by 2030, the continent's top 18 cities could have a combined spending power of \$1.3 trillion.

Exhibit 10

Africa is almost as urbanized as China and has as many cities of 1 million people as Europe

Share of rural vs. urban population by region, 2010
%, million



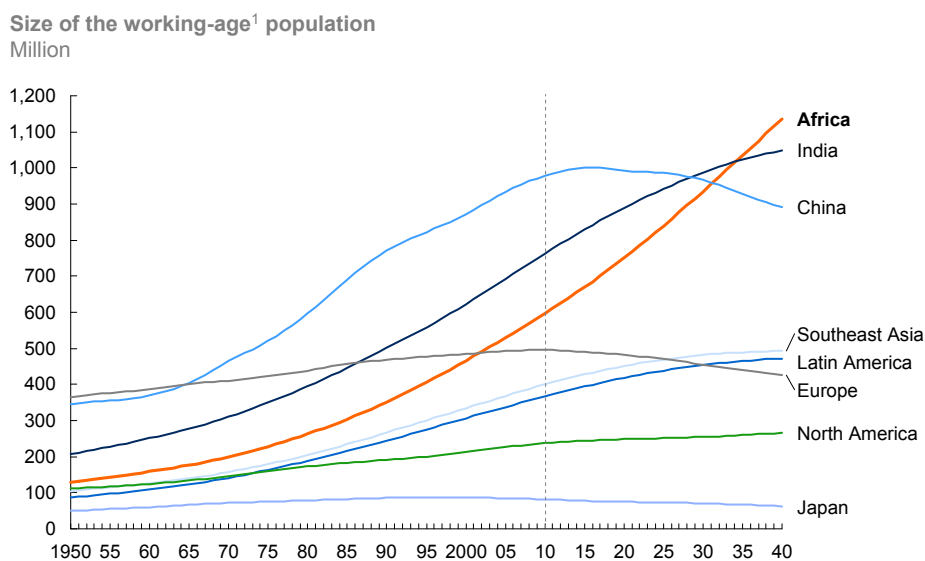
SOURCE: United Nations; McKinsey Global Institute

18 See Diana Farrell, Jaana Remes, and Heiner Schulz, "The truth about foreign direct investment in emerging markets," *The McKinsey Quarterly*, February 2004.

To be sure, urbanization can breed misery if it creates slums. But in many African countries, urbanization is boosting productivity (which rises as workers move from agricultural work into urban jobs), demand, and investment. Companies achieve greater economies of scale by spreading their fixed costs over a larger customer base. In some countries, we find that the shift from rural to urban employment accounts for 20 to 50 percent of productivity growth. And urbanization is spurring the construction of more roads, buildings, water systems, and the like. Since 2000, Africa’s annual private infrastructure investments have tripled, averaging \$19 billion from 2006 to 2008. Nevertheless more investment is required if Africa’s new megacities are to provide a reasonable quality of life for Africa’s growing urban population.

Meanwhile, Africa’s labor force is expanding more rapidly than anywhere in the world. The continent has more than 500 million people of working age (15 to 64 years old). By 2040, that number is projected to exceed 1.1 billion—more than in China or India (Exhibit 11). Over the past 20 years, three-quarters of the continent’s increase in GDP per capita came from an expanding workforce, the rest from higher labor productivity. If Africa can provide its young people with the education and skills they need—a major challenge—this large workforce could become a significant engine of global consumption (see sidebar, *Africa’s education challenge*).

Exhibit 11
Africa’s workforce will become the world’s largest by 2040



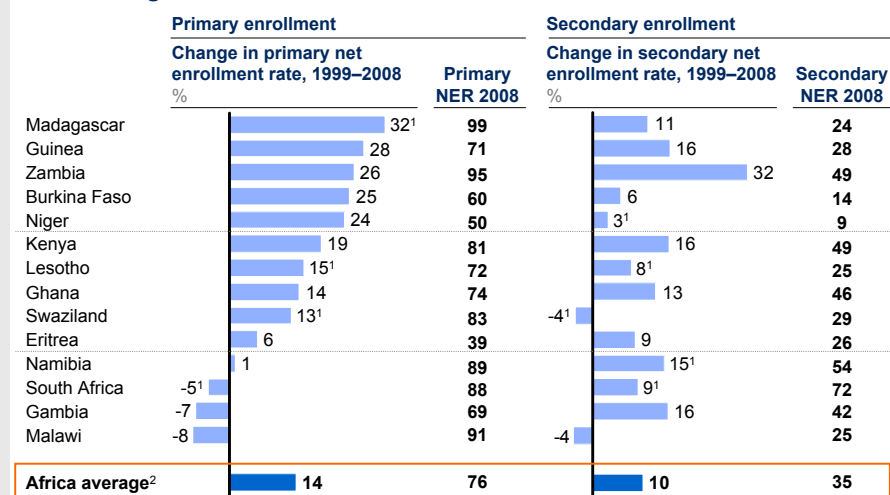
¹ Population aged 15–64.
 SOURCE: United Nations World Population Prospect; McKinsey Global Institute

Africa's education challenge

Africa has made important strides in education, albeit from a low base. The rate of net primary school enrollment in Africa reached 76 percent in 2008, a 14 percentage point gain since 1999 (Exhibit 12).¹ The secondary school enrollment rate reached 35 percent, still low, though up 10 points from 1999.

Exhibit 12

African countries have made significant progress in increasing access to schooling



1 2007 data used for 2008 because 2008 data are not available for these countries. For Kenya, 2000 secondary NER used in lieu of 1999.

2 Based on the 14 countries listed here, which were chosen based on data availability.

SOURCE: World Bank World Development Indicators; Millennium Development Goals Monitor; McKinsey

Along with other emerging markets that have increased enrollments, Africa has significant challenges ahead in improving the quality of its education.² There is mounting evidence from surveys in Africa and in other developing countries that basic skills in reading and mathematics remain low. In some African countries, student test scores have stagnated or even declined (Exhibit 13).³ In a South African survey, just 37 percent of respondents correctly answered more than half of a set of “real-life” math questions.⁴

While African countries have less to spend per capita than most other countries, the continent does spend a relatively large share of its resources on education. Africa spent an amount equivalent to 5 percent of its combined GDP in 2008, a smaller portion than the OECD countries' 6 percent, but more than in Latin America or some Asian countries. And Africa devotes about 20 percent of its government spending to education, almost double the OECD's 11 percent.

1 Net enrollment measures just the portion of elementary school-aged children who are enrolled in elementary school, excluding older children who may be enrolled in elementary school.

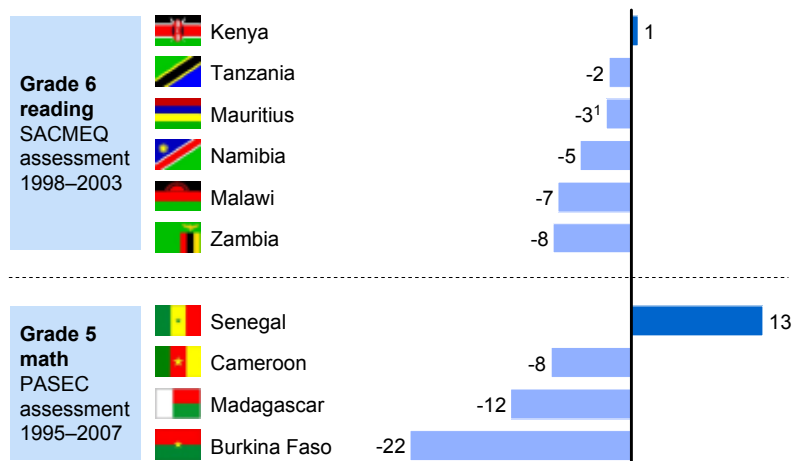
2 For a fuller discussion of why some of the world's school systems consistently perform better and improve faster than others, see *How the world's best-performing school systems come out on top*, McKinsey & Company, September, 2007.

3 See Deon Filmer, Amer Hasan, and Lant Prichett. “A millennium learning goal: Measuring real progress in education,” Center for Global Development working paper number 97, Center for Global Development and The World Bank, August 2006.

4 For example, “A shop has 126 liters of milk. 87 liters are sold. How many liters remain?”

Exhibit 13**Student achievement levels in Africa have regressed****Student achievement**

% change in average achievement scores on respective assessment



1 Percent change used to make Southern and East African Consortium for Monitoring Education Quality (SACMEQ) and Program on the Analysis of Education Systems (PASEC) comparable, because they have different scales.

SOURCE: World Bank World Development Indicators; SACMEQ; Confemen (PASEC); McKinsey Global Institute

However, African countries could get more from their current education spending. For example, Morocco spends about the same amount per capita on education as Thailand, yet has much lower student scores. Similarly, Botswana's per capita education spending is comparable to South Korea's (not including private spending), yet the scores of Botswana students lag far behind those of South Korean students. Studies show that simply adding teachers or other resources to schools in developing countries is not always enough to improve student learning.⁵ Governments also need to ensure there are consistent minimum teaching standards and school management practices throughout the system. This means providing better teacher training, more detailed and scripted lesson plans, strong school leadership, and performance management systems.

Although the challenges are great, several African countries provide examples of the progress that is possible. Ghana and Tunisia recorded the largest gains in the world in science scores from 2003 through 2007 and among the largest gains in math scores, although more remains to be done.⁶ Continuing to improve education must be among the highest priorities for African government and civil leaders.

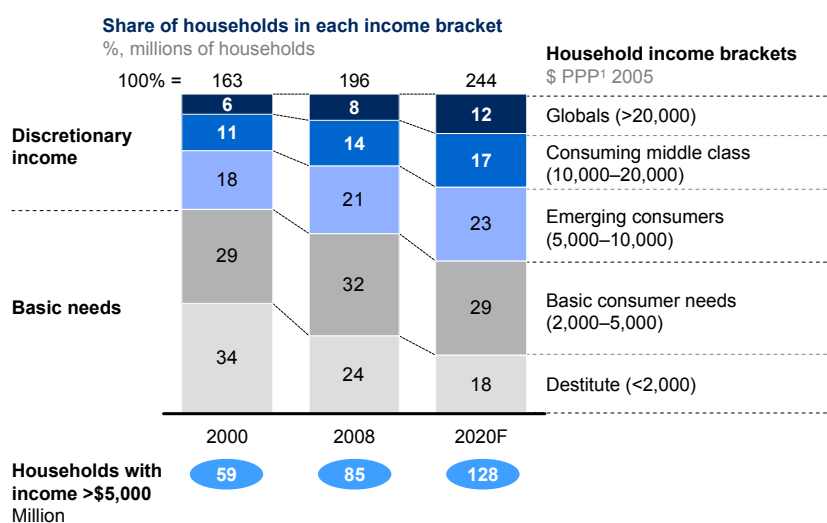
5 See Paul Glewwe and Michael Kremer, "Schools, teachers, and education outcomes in developing countries," in Erik Hanushek and Finis Welch, eds., *Handbook of the Economics of Education*, Volume 2, Amsterdam: North-Holland (an imprint of Elsevier B.V.), 2006.

6 According to the Trends in International Mathematics and Science Study, or TIMSS.

Finally, many Africans are joining the ranks of the world's consumers. In 2008, roughly 85 million households on the continent earned \$5,000 or more¹⁹ a year. This amount is significant because it is the level above which people start spending roughly half their income on items other than food. The number of such African households is projected to increase by an additional 43 million over the next decade, reaching 128 million by 2020 (Exhibit 14). Africa already has more middle-class households (defined as those with incomes of \$20,000 or above) than India. The rise of the African urban consumer is serving as a new engine of domestic growth.

Exhibit 14

By 2020, more than half of African households will have discretionary spending power



1 Purchasing power parity adjusts for price differences in identical goods across countries to reflect differences in purchasing power in each country.

SOURCE: Canback Global Income Distribution Database (C-GIDD); McKinsey Global Institute

African green revolution

The trends described above are all supporting Africa's growth today. One possible development that has yet to occur—but which could have potentially enormous implications—would be an African “green revolution” in agriculture in which production increases significantly through the use of new technologies and infrastructure. The complex issue of how to drive such a green revolution has been studied extensively by many parties.²⁰ In this brief discussion, we seek merely to frame the problem and contribute an approach to thinking about the economic potential.

According to United Nations projections, world food production may need to rise by 70 percent from 2005–07 levels over the next 40 years to feed the growing population.²¹ Africa could be an important part of the solution. It has almost 600 million hectares of potentially suitable land that is not currently under cultivation, representing about 60 percent of the world's total available cropland (Exhibit 15). At least a portion of this land could be brought into cultivation in an environmentally sustainable way. And Africa's major crop yields are currently well below world averages, with the potential to rise.

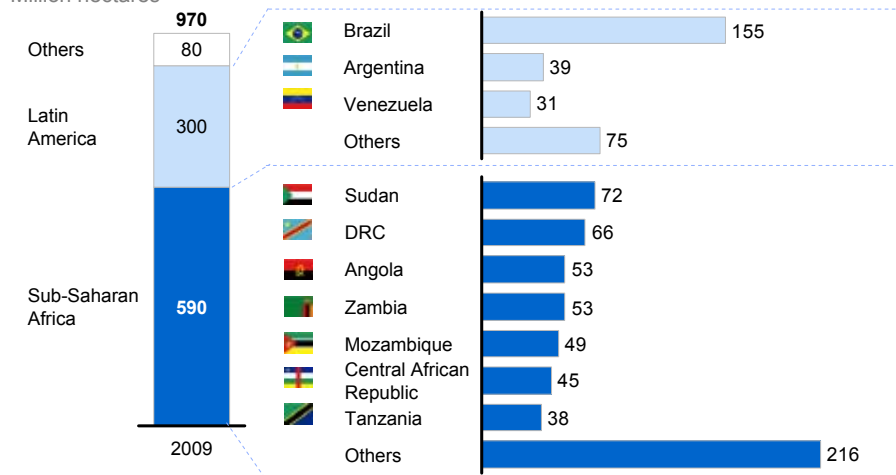
19 Measured in terms of purchasing power parity (PPP), which takes into account the relative prices of non-tradable goods in different countries.

20 See, for example, *Awakening Africa's Sleeping Giant*, The World Bank/Food and Agricultural Organization, 2009.

21 “How to Feed the World in 2050,” UN Food and Agriculture Organization, 2009.

Exhibit 15**Africa represents about 60 percent of the potentially available cropland in the world**Additional available cropland, 2009¹

Million hectares



¹ Cropland defined as land producing output greater than 40% of maximum yield under rain-fed conditions, excluding forest areas.

SOURCE: World Bank/Food and Agriculture Organization, *Awakening Africa's sleeping giant*, McKinsey Global Institute

Many factors explain this poor performance. Africa is still a land of widespread subsistence farming on relatively small plots, and its ecological characteristics are unique. Assembling larger parcels is difficult because of administrative hurdles and the lack of clear land rights. Transporting agricultural products is costly because of poor infrastructure. And purchasing expensive machinery, high-yield seeds, and fertilizers is impossible for many farmers because of inadequate finance systems.

Despite the daunting challenge of transforming Africa's agriculture, there are hints that big changes may be on the way. First, Africa's governments have increased investment in agriculture²² and are involving the private sector. Several countries have developed new national plans to raise agricultural output dramatically.²³ Malawi shows what can be achieved, even among holders of small plots. Malawi started a program in 2005 that enabled farmers to buy fertilizer and improved seeds at roughly one-third of the market price. As a result, Malawi's average maize yields have more than doubled, reaching levels similar to Mexico's. While the program is now under pressure due to higher fertilizer prices and lower corn prices, it clearly demonstrates the potential to increase yields.

In addition, new donor organizations are getting involved. Brazil's agricultural research agency, Embrapa, transformed that country's cerrado region—a vast savanna long viewed as inhospitable to agriculture—into Brazil's greenbelt in less than a generation.²⁴ Embrapa has opened a research office in Ghana and is supporting a similar effort in Mozambique, in recognition that parts of Africa have

²² Some governments have made commitments to increase spending on agriculture to 10 percent of public budgets under the Comprehensive Africa Agriculture Development Program framework. Rwanda was the first, and several other countries are expected to follow in 2010.

²³ Examples include plans for the Beira Agricultural Growth Corridor in southern Africa and the Southern Agricultural Growth Corridor of Tanzania.

²⁴ See *Awakening Africa's Sleeping Giant*, The World Bank/Food and Agricultural Organization, 2009.

similar ecological conditions. The G-20's Global Agriculture and Food Security Program aims to raise \$20 billion for agricultural grants, some of which Africa could tap. Bilateral and multilateral donors are increasing their investments in agriculture. The Bill & Melinda Gates Foundation, for example, is awarding millions of dollars worth of grants annually for African agriculture, focused on providing improved technologies for small plot holders.

The potential impact of a green revolution on Africa would be enormous in terms of raising rural incomes, boosting GDP growth, and creating huge new business opportunities.²⁵ As we'll discuss later, we estimate that Africa's agricultural output would nearly triple in value over the next 20 years if the barriers to production were eliminated.

AFRICA'S DIVERSE GROWTH PATHS

While Africa's collective long-term prospects are strong, the growth trajectories of individual countries will differ. To analyze patterns of growth, economists have traditionally grouped countries by region, language, or income level.²⁶ We take another approach, classifying Africa's largest countries²⁷ according to their levels of economic diversification and exports per capita. This highlights progress toward two related objectives:

- **Economic diversification:** In the shift from agrarian to urban economies, multiple sectors contribute to growth. Agriculture and resources shrink as a share of GDP, while the manufacturing and service sectors expand. We find that on average, each 15 percent increase in manufacturing and services as a portion of GDP is associated with a doubling of income per capita.
- **Boosting exports to finance investment:** Emerging markets require large investment to build the infrastructure of a modern economy. Exports are the primary means for earning the hard currency needed to import capital goods, such as machinery and equipment. In Africa, imported capital goods account for roughly half of investment, making exports a critical enabler of future growth. This is not to say that African countries must follow an Asian model of export-led growth and trade surpluses. But they do need some exports to fund the investment required for diversification.

History shows that countries improve on both these measures as they develop (Exhibit 16). When classified this way, most African countries today fall into one of four broad clusters: diversified economies, oil exporters, transition economies, and pre-transition economies (Exhibit 17). The countries within each segment differ in many ways, yet they also have broadly similar economic structures. Our framework is useful for understanding how growth opportunities and challenges vary across a heterogeneous continent. Though imperfect, it can guide business leaders and investors as they develop their "Africa strategies." And it can provide new perspectives for Africa's policy makers.

25 See Xinshen Diao et al. (February 2010); Paul Dorosh and James Thurlow (November 2009); Clemens Breisinger et al. (August 2009); and Karl Pauw and James Thurlow (January 2010).

26 For example, in the IMF's Regional Economic Outlook for Africa, it divides countries in sub-Saharan Africa into four distinct groups based on oil and income levels: oil exporters (7 countries), middle-income (8 countries), low-income (15 countries), and fragile (14 countries).

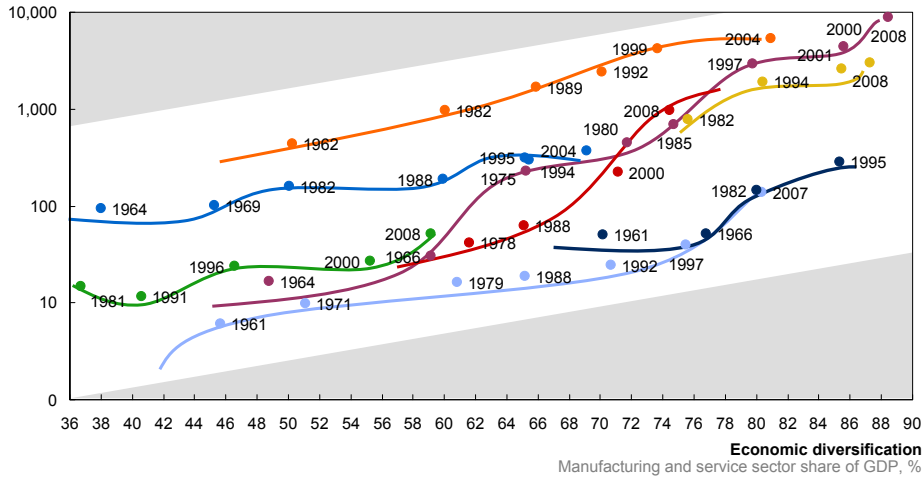
27 These countries had either GDP of roughly \$10 billion or greater in 2008, or a GDP growth rate of at least 7 percent per year from 2000 to 2008. We chose these countries because they have the most opportunities for businesses, a key focus of this report. Together, these countries account for 97 percent of Africa's GDP.

Exhibit 16

Increasing diversification and exports have been an important feature of countries' growth paths

Exports

Real exports per capita, 2005 \$ (log scale)

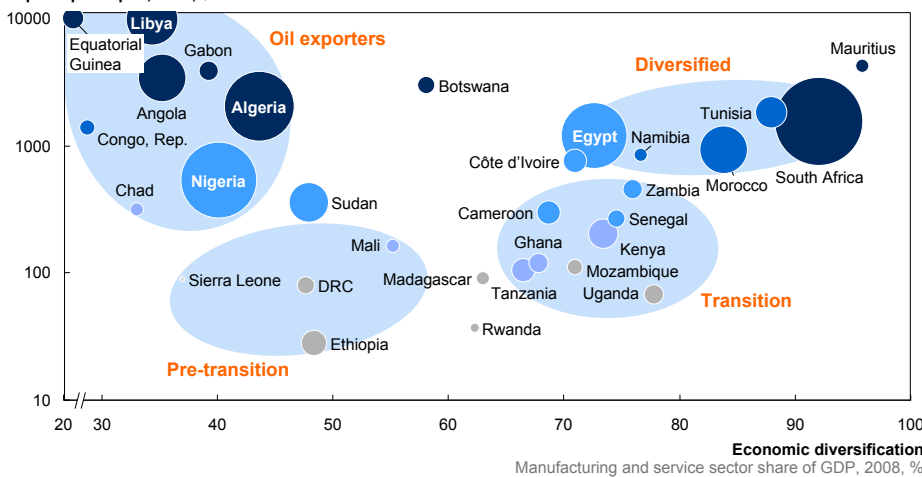


Note: We use the World Bank estimate of manufacturing and service sector share of GDP. This measure excludes utility and construction sectors, which are included in the measure of service sector GDP as used in our African segmentation.
SOURCE: World Bank World Development Indicators; McKinsey Global Institute

Exhibit 17

Segmenting Africa in this framework yields four groups of countries

Exports per capita, 2008, \$



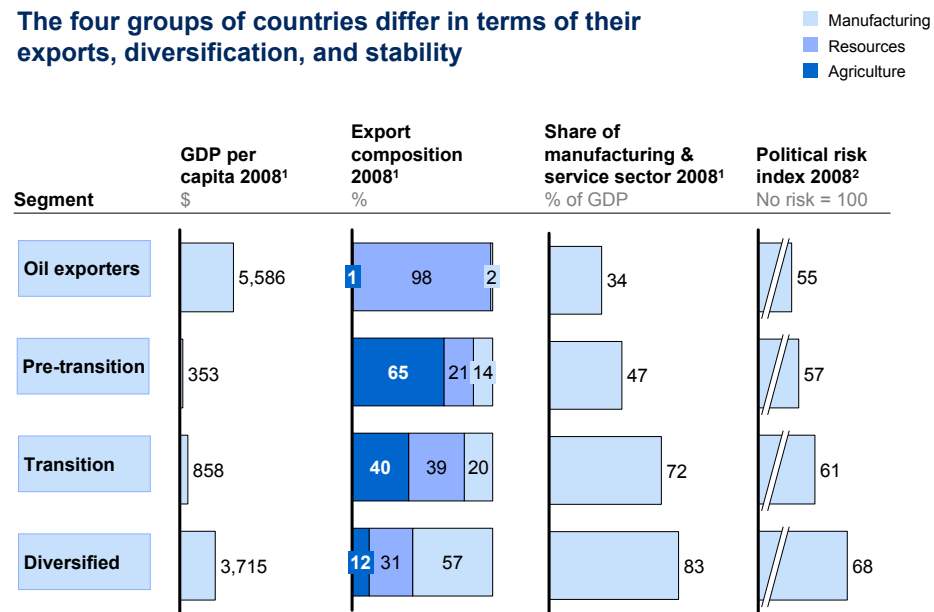
NOTE: We include countries whose 2008 GDP is approximately \$10 billion or greater, or whose real GDP growth rate exceeds 7% over 2000–08. We exclude 22 countries that account for 3% of African GDP in 2008.
SOURCE: Organisation for Economic Co-operation and Development; World Bank World Development Indicators; McKinsey Global Institute

Diversified economies: Africa's growth engines

Africa's four most advanced economies—Egypt, Morocco, South Africa, and Tunisia—have already built significant manufacturing and service sectors. They are among the continent's richest economies, and they have the least volatile GDP growth and the lowest political risk (Exhibit 18). With all the necessary ingredients for further expansion, they stand to benefit greatly from increasing ties to the global economy.

Exhibit 18

The four groups of countries differ in terms of their exports, diversification, and stability



1 Unweighted average of countries in each segment. GDP is measured at market exchange rates.

2 Measured by Political Risk Services.

SOURCE: World Bank World Development Indicators; Political Risk Services; McKinsey Global Institute

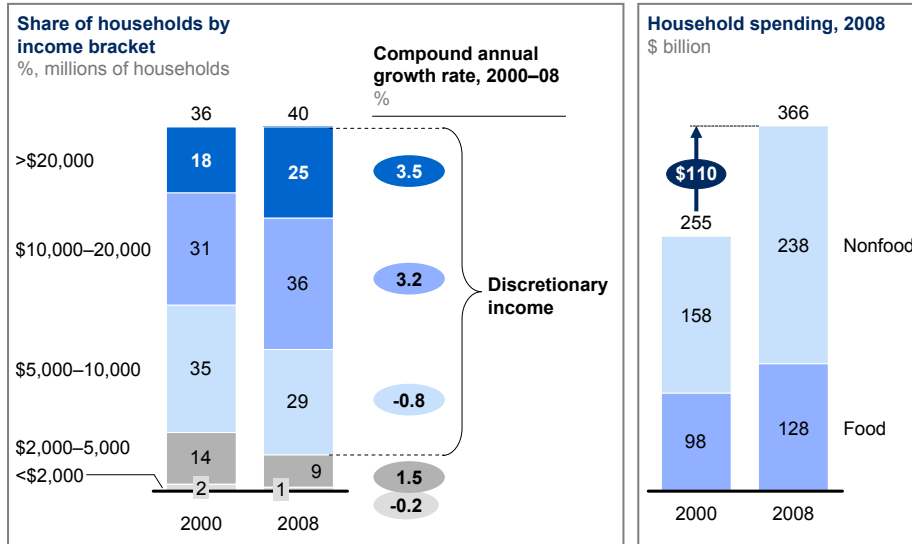
Growth in these countries is fueled mainly by a rising urban middle class. Real consumer spending has grown 3–5 percent annually since 2000, and 90 percent of households have at least some discretionary income (Exhibit 19).²⁸ Urbanization has contributed to growing consumption. The cities in these countries gained more than 10 million households during the past decade, the result of both rural emigration and internal growth. And urban dwellers account for larger shares of the total populations in these countries than in many others in Africa—for example, 57 percent in Morocco and 62 percent in South Africa.

28 Defined as household income of \$5,000 or more (measured in terms of purchasing power parity), the level above which people begin spending more than half of their income on items other than food.

Exhibit 19

Diversified economies have a fast-growing consumer class with discretionary income

Based on 2005 PPP dollars



SOURCE: Canback Global Income Distribution Database (C-GIDD); Euromonitor; McKinsey Global Institute

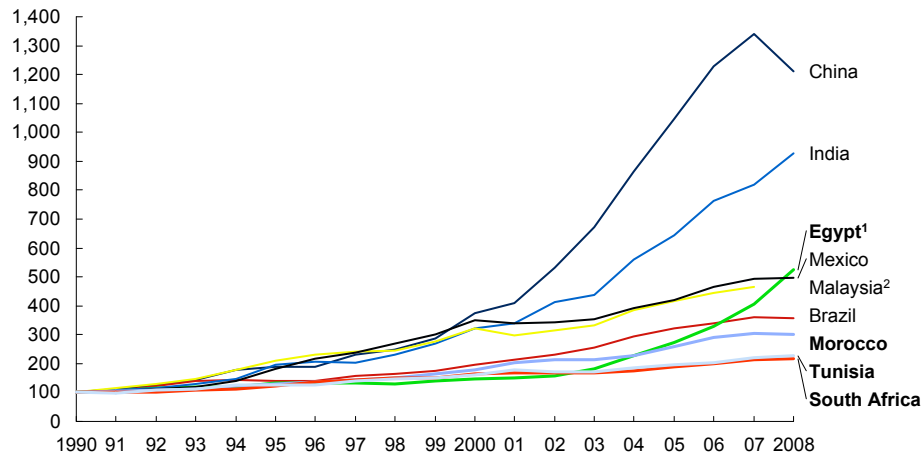
As a result, consumer-facing sectors such as retail, banking, and telecom are growing rapidly. Banking assets have more than doubled since 2000 and mobile telecom revenue has grown 85 percent since 2004, although there is room for further penetration and growth in all of these sectors. Urbanization has also triggered a boom in construction, which accounted for around one-third of net employment gains since 2000.

Looking ahead, the diversified economies face several challenges. One is to continue expanding exports. Apart from Egypt, these countries' exports have grown much more slowly than those of other emerging markets (Exhibit 20). This is in part because these countries' unit labor costs (wages divided by output per worker) are two to four times as high as those in China and India (Exhibit 21).²⁹ Like other middle-income countries, such as Mexico, Malaysia, or Brazil, the African diversified economies must move toward producing higher-value goods. They have started: witness automotive industry exports in South Africa and Morocco. But they should continue to build on their comparative advantages. These include their proximity to Europe for bulky goods and items that require fast turnaround, and their facility with European languages for offshore services and tourism.

29 See Vijaya Ramachandran, Alan Gelb, and Manju Kedia Shah, *Africa's private sector: What's Wrong with the Business Environment and What to Do About It*, Washington, DC: Center for Global Development, 2009.

Exhibit 20**Export growth in the diversified economies has lagged behind that of other emerging markets****Growth of real exports of goods and services, 1990–2008**

1990 = 100, 2000 \$



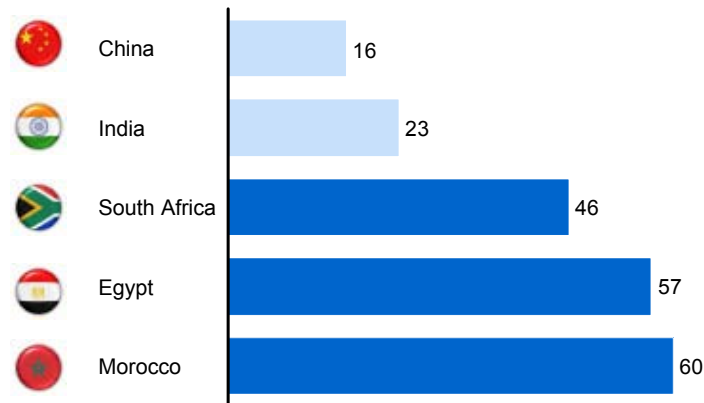
1 Egypt experienced rapid growth in exports after 2000, driven in part by a strong increase in natural gas and petroleum exports, which constituted 44% of goods exports in 2008.

2 Computed over 1990–2007.

SOURCE: World Bank World Development Indicators; McKinsey Global Institute

Exhibit 21**Diversified economies' unit labor costs are much higher than in China or India****Unit labor costs¹**

Wages/value added per worker



1 Unit labor costs are defined as the wages divided by the output per worker and are computed by taking the average of a large sample of firms in a particular country.

SOURCE: Enterprisesurveys.org; Ramachandran, Gelb, and Shah (2009); Kinda, Plane et al (2009); McKinsey Global Institute

These countries also can expand manufacturing for local and regional markets, particularly in food processing and construction materials. South Africa is already a dominant producer of goods for the southern Africa region, selling 17 percent of its manufactured wares to nearby countries. Trade between countries in North Africa is much smaller at 2 percent of their total trade, and so has plenty of room to grow.³⁰

³⁰ Algeria, Libya, Mauritania, Morocco, and Tunisia created the Maghreb Union in 1989 to promote cooperation and economic integration in a common market. In 1994, they created the Maghreb Free Trade Zone, but it has not been put into effect.

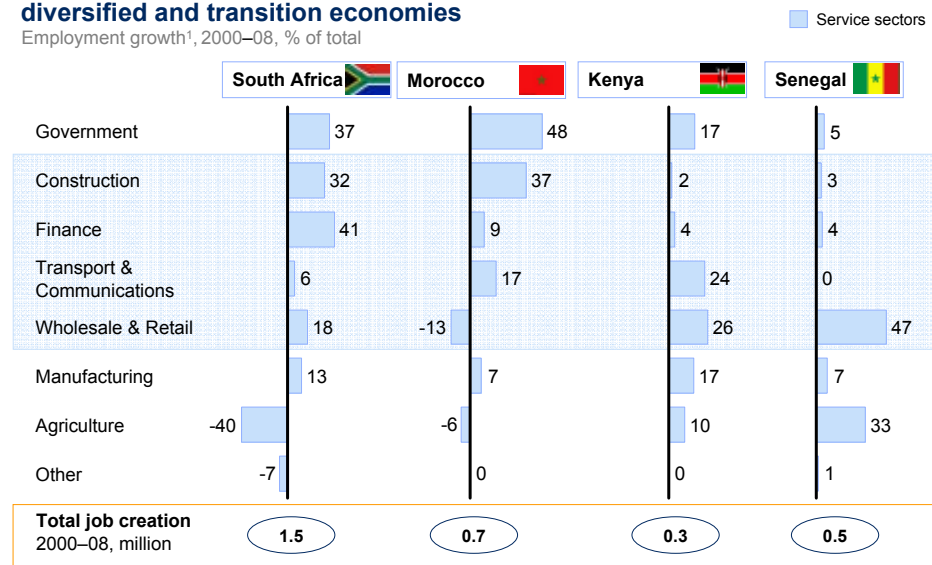
By making it easier, and less expensive, to sell across borders, greater regional economic integration would lower the cost of goods for producers and provide a boost for regional trade.

Another priority for the diversified economies is to continue building their domestic service sectors, which will be important sources of future employment. These include retail and wholesale, banking, telecom, business services, and construction. MGI research finds that domestic services account for virtually all net job creation in high-income countries and 85 percent of net new jobs in middle-income countries.³¹ For Africa’s diversified economies (and also for many of its transition economies), most net new jobs have been created in service sectors (Exhibit 22).

Exhibit 22

Service sectors account for the majority of employment creation in diversified and transition economies

Employment growth¹, 2000–08, % of total



¹ Due to data availability, data for Morocco are computed over 2002–08; Kenya over 2001–07; and Senegal over 2001–06. SOURCE: World Bank World Development Indicators; Country Statistics Offices; McKinsey Global Institute

Along with other emerging economies seeking to develop their service sectors, Africa’s diversified economies need to continue to improve their education systems. Although these countries already have among the highest rates of literacy and school enrollment in Africa, their next step will be improving the quality of education and increasing secondary and tertiary enrollment.

Oil exporters: Enhancing growth through diversification

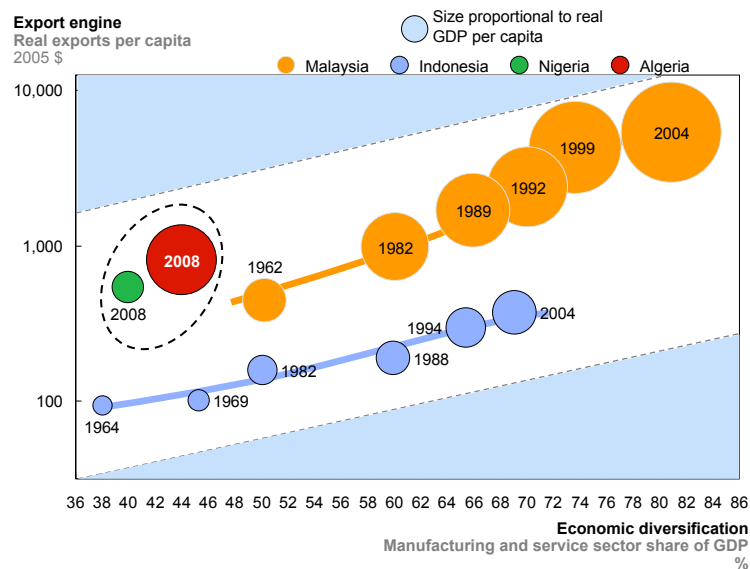
Africa’s oil and gas exporters have the highest GDP per capita but the least diversified economies. This group comprises countries that have exported oil for many years, both those that have built much of the infrastructure of a modern economy, and others that have not. Rising oil prices have lifted their export revenue significantly; the three largest producers—Algeria, Angola, and Nigeria—together earned \$1 trillion from petroleum exports from 2000 through 2008, compared with \$300 billion in the 1990s. And for the most part, they used this revenue well to reduce foreign debt, fund investments, and build their foreign exchange reserves (to more than \$300 billion).

³¹ See *How to compete and grow: A sector guide to policy*, McKinsey Global Institute, March, 2010.

Economic growth in these countries remains closely linked to oil and gas prices. Manufacturing and services on average contribute just one-third of GDP in Africa's oil-exporting economies, although the share varies across countries. But this need not be the case. The experience of emerging market oil exporters outside of Africa illustrates the potential for greater diversification. In Indonesia, for example, manufacturing and services account for 70 percent of GDP, compared with less than 45 percent in Algeria and Nigeria—even though all three countries have produced similar quantities of oil since 1970 (Exhibit 23).³²

Exhibit 23

Africa's oil exporters have diversified less than their international peers



SOURCE: World Bank World Development Indicators; McKinsey Global Institute

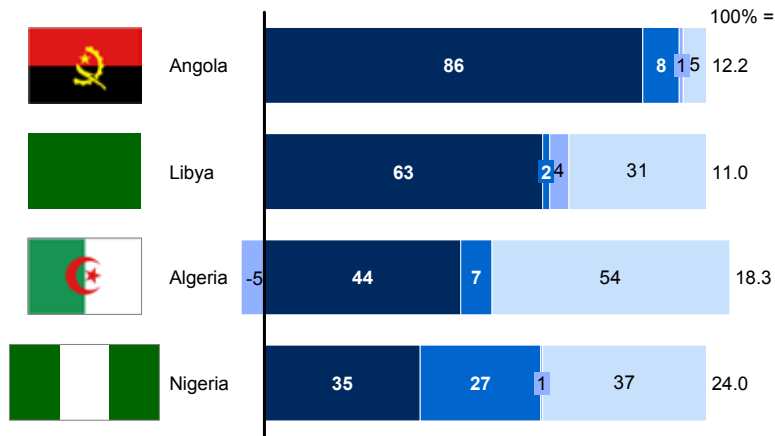
Nigeria provides an example of an African oil exporter that is beginning the transition to a more diversified economy. Resources accounted for just 35 percent of Nigeria's real GDP growth since 2000 (Exhibit 24). Services accounted for the largest share, or 37 percent of growth, because of a series of economic reforms. For example, the government prompted consolidation in the banking industry by raising the minimum capital requirement for banks and has recently enacted further reforms to strengthen the sector. Such reforms have unleashed growth: in the telecom sector, the number of subscribers increased from practically zero in 2000 to 63 million, while banking assets grew fivefold. Nigeria's manufacturing sector, while small, is also growing.

³² The cumulative oil production from 1970 to 2008 in Indonesia was 19.7 billion barrels, compared with 19.3 billion barrels in Algeria and 27.5 billion in Nigeria.

Exhibit 24

Resources account for the majority of growth in many of Africa's oil exporters, although Nigeria is more diversified

Real GDP growth by industry sector, 2002–07
%, 2000 \$ billion



SOURCE: World Bank World Development Indicators; McKinsey Global Institute

The oil exporters have strong economic growth prospects if they can use their petroleum wealth to finance the broader development of their economies. The experiences of other developing country oil exporters such as Indonesia and Malaysia show it will be essential for the African economies to continue to invest in infrastructure and education, and to undertake further economic reforms to support a dynamic business sector.

Africa's oil exporters face several of the same challenges confronting other petroleum-rich countries in the world. One is maintaining political momentum for the economic reforms necessary to spur private business development, particularly in times when government tax coffers are overflowing. In addition, they must resist the temptation to overspend and overinvest. Africa's largest oil exporters currently base their projected government expenditures on conservative oil price assumptions, ranging from \$37 per barrel in Algeria to \$55 per barrel in Angola. Yet these baseline price assumptions have increased gradually over time—in the early 2000s, most countries budgeted for oil prices of around \$20. Thus, current government spending plans could be dashed and fiscal deficits could soar if oil prices decline sharply. Finally, these countries must work to maintain political stability despite the likely competition for control of their resource wealth.

Transition economies: Building on recent gains

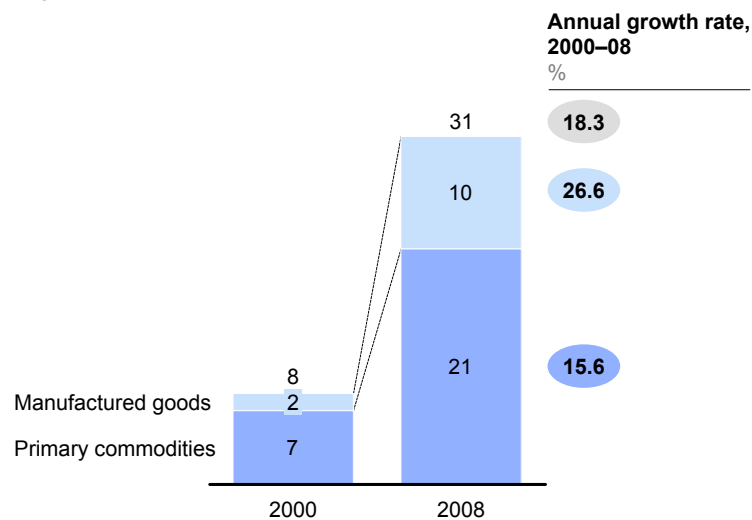
Africa's transition economies—such as Ghana, Kenya, and Senegal—have lower GDP per capita than the first two groups but have begun the process of diversifying their sources of growth. These countries are a disparate group, with some that depend heavily on one commodity, such as copper in Zambia or aluminum in Mozambique, and others that are already more diversified, such as Kenya and Uganda.

Across this group, the agriculture and resources sectors together continue to account for as much as 35 percent of the transition countries' GDP and two-thirds of their exports. But they increasingly produce manufactured goods, particularly for export to other African countries. Successful products include processed fuels and food, chemicals, apparel, and cosmetics. Manufactured good exports grew from just \$1.5 billion in 2000 to nearly \$10 billion in 2008 (Exhibit 25). Kenya increased the share of manufactured goods in its exports from 21 percent to 37 percent since 2000; Uganda from 6 percent to 30 percent; and Senegal from 27 percent to 39 percent.

Exhibit 25

Primary commodity exports remain dominant in transition economies, but manufacturing exports grew rapidly

Nominal exports, 2000–08¹
\$ billion



¹ Cameroon, Côte d'Ivoire, Ghana, Kenya, Mozambique, Senegal, Tanzania, Uganda, and Zambia.
SOURCE: Comtrade; International Trade Centre; McKinsey Global Institute

Expanding both intra-African and global trade will be one key to the transition economies' future growth (see sidebar, *Africa's intra-regional trade*). They are small individually, but their prospects improve as regional integration creates larger markets. In markets for globally traded goods, the transition countries could compete with other low-cost emerging markets if they make certain improvements. One study found that factories in these African countries are as productive as those in China and India, but the Africans' overall costs are higher because of poor regulation and infrastructure—problems that could be addressed over time with the right policy reforms and increased infrastructure investment.³³

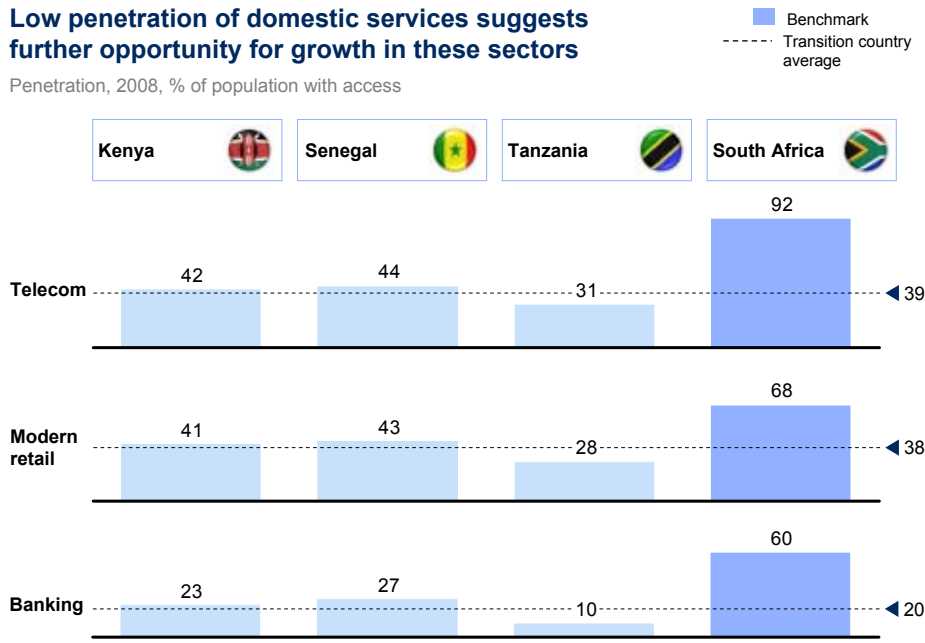
³³ Vijaya Ramachandran, Alan Gelb, and Manju Kedia Shah, *Africa's Private Sector: What's Wrong with the Business Environment and What to Do About It*, Washington DC: Center for Global Development, 2009.

The domestic services sectors in transition economies also hold potential, and they have accounted for 70 percent to 80 percent of real GDP growth since 2000. Nonetheless, penetration rates for services such as banking, telecommunications, and formal retail remain far lower than in the diversified countries, such as South Africa, suggesting plenty of opportunity for further growth (Exhibit 26).

Exhibit 26

Low penetration of domestic services suggests further opportunity for growth in these sectors

Penetration, 2008, % of population with access



SOURCE: Global Insight; World Bank; McKinsey Global Institute

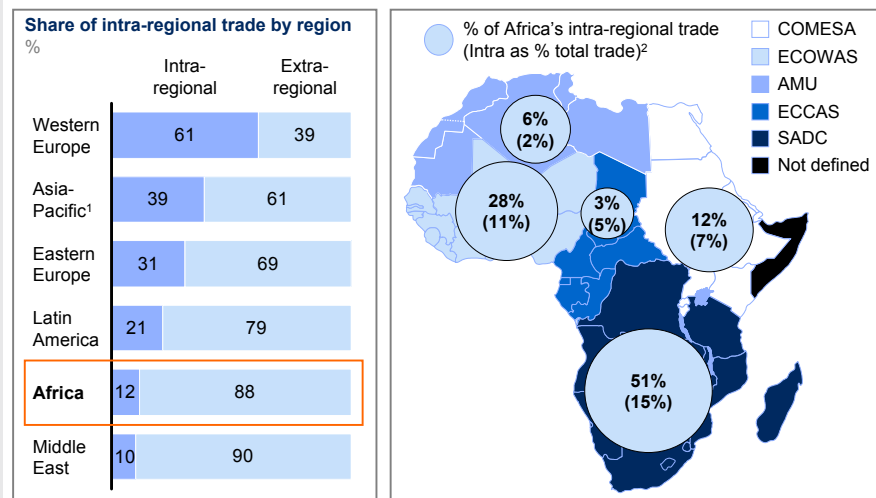
Several transition economies are likely to increase their resource exports in coming years, which could turbocharge growth. Ghana and Uganda, for instance, will benefit from recent oil finds, generating additional revenue that—if invested wisely—could spur their diversification. Overall, Africa’s transition economies are smaller than the diversified economies, and have greater GDP volatility and risk of political instability, but hold significant promise.

Africa's intra-regional trade

Despite boasting more than a dozen overlapping regional economic unions and trade groups, trade between African countries remains very low, representing just 12 percent of the continent's total exports and imports. This is less than half the level in other emerging market regions.¹ And half of the continent's intra-regional trade occurs within just one group, the Southern African Development Community (SADC) trade region, in which South Africa trades with its smaller neighbors (Exhibit 27).

Exhibit 27

Intra-African trade remains low compared with other regions



1 Figures have been adjusted to remove the impact of Chinese re-exports through Hong Kong.

2 Common Market for Eastern and Southern Africa (COMESA); The Economic Community of West African States (ECOWAS); Arab Maghreb Union (AMU); Economic Community of Central African States (ECCAS); Southern African Development Community (SADC)

SOURCE: International Monetary Fund Direction of Trade statistics; McKinsey Global Institute

Expanding Africa's intra-regional trade could provide a significant lift to future growth. Creating larger regional markets could consolidate the many subscale markets that exist today, increase competition and specialization among firms, and enable a more efficient allocation of goods, capital, and resources. Indeed, the small scale of Africa's manufacturing base is partly explained by the fact that many African firms are forced to operate inefficiently because of limited market size. For companies, producing goods for regional markets may provide the experience and scale necessary for exporting to the global market.

1 For some individual countries, trade with other African countries is quite important. This is particularly true for the transition economies. Africa is the largest export market for Kenya and Senegal, and second-largest for the other countries in that cluster (Uganda, Zambia, Mozambique, Cameroon, Ghana, Tanzania).

One reason for Africa's low level of regional trade is that many countries export resources and import manufactured goods. Also, costly trade policies, including tariffs, product standards, customs duties, and trading rules inhibit intra-regional trade. African trade tariffs, for example, are among the highest in the world, on average 50 percent higher than those of comparable countries in Latin America or Asia. Poor infrastructure combined with cumbersome bureaucratic procedures also result in significant delays, adding to the costs. For instance, it takes an average 39 days to import goods into Africa compared with 25 days in Brazil, China, India, and Russia. Moreover, 40 percent of the sub-Saharan African population lives in landlocked countries with the lowest road densities in the world. As a result of all these factors, Africa's costs of trade are double those of comparable emerging markets and act as a major obstacle to intra-regional trade.

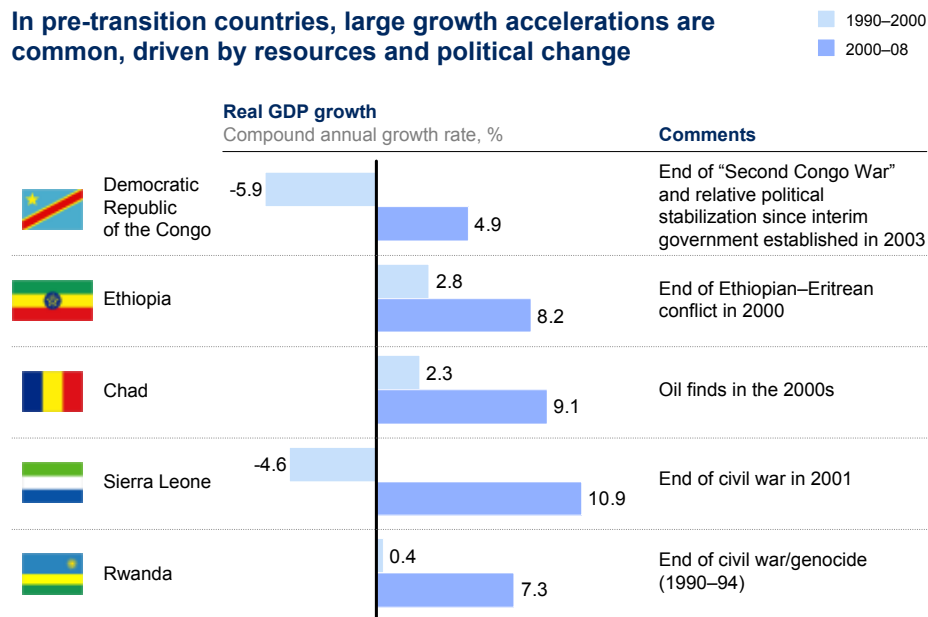
There are, however, some promising signs of change. In 2010, a customs union among the five countries of the East African Community (EAC) took full effect, eliminating tariffs on goods sold within the region. Trade between EAC states has jumped by nearly 50 percent since 2005. In 2009, 12 of the 15-member SADC states launched a free trade zone that eliminates import tariffs on goods from member countries, and the entire SADC group has announced plans to negotiate a customs union. The Economic Community of West African States (ECOWAS) has also taken important steps to integrate its markets, with the introduction of a customs union as well as a monetary union among a subset of its members. These changes bode well for Africa's economic integration and growth prospects.

Pre-transition economies: Strengthening the basics

The economies in this group are still very poor, with annual GDP per capita of just \$353—one-tenth that of the diversified countries. Some, such as Ethiopia and Mali, have meager commodity endowments and large rural populations. Others were devastated by war in the 1990s and started growing again after their conflicts ended. But many pre-transition economies are now growing very fast, albeit from a low base. Three of the largest economies—the Democratic Republic of the Congo, Ethiopia, and Mali—grew at an average 7 percent per year since 2000, after collectively not expanding at all in the 1990s (Exhibit 28). Even so, their growth has been erratic at times, and it could falter again.

Exhibit 28

In pre-transition countries, large growth accelerations are common, driven by resources and political change



SOURCE: Global Insight; CIA World Factbook; McKinsey Global Institute

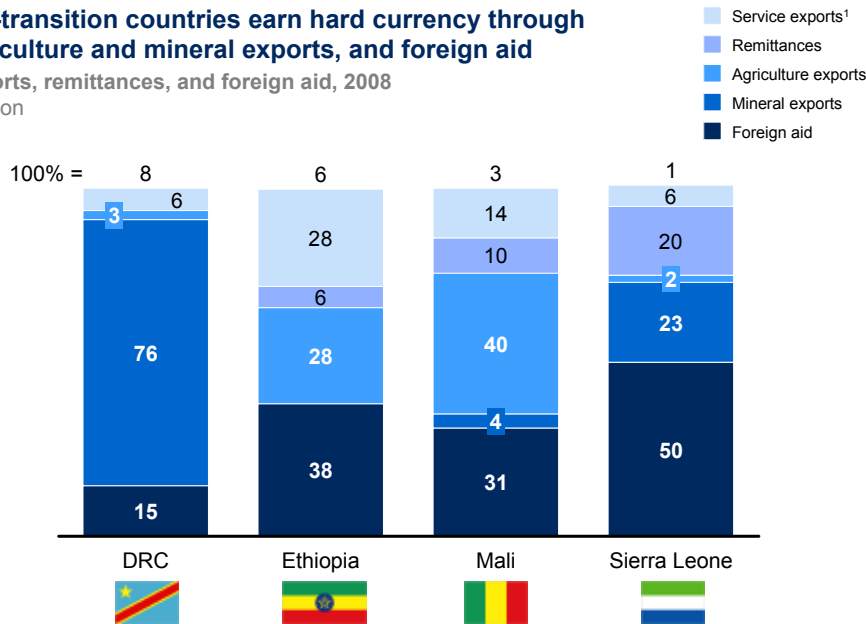
Although these countries differ greatly in their individual circumstances, their common problem is a lack of basics such as strong, stable governments and other public institutions, good macroeconomic conditions (such as low inflation and government indebtedness), and sustainable agricultural development. Among the key challenges for countries in this group will be to maintain peace, get their economic fundamentals right, and create a more predictable business environment—conditions essential for growth. International development agencies and new private philanthropic organizations have a key role to play, and they are crafting innovative new ways to tackle poverty and other social issues (Exhibit 29).

In a more stable political and economic environment, some of these countries would be able to tap their natural resources to finance future economic growth. The Democratic Republic of the Congo, for example, controls half of the world’s cobalt reserves and a quarter of the world’s diamond reserves. Sierra Leone owns about 5 percent of the world’s diamond reserves. Ethiopia has 22 million hectares of arable land that is currently not cultivated, and Mali has 19 million hectares. If these countries could attract businesses to help develop their resources, they could start their economies upward on the path of more continuous growth. Some, such as Rwanda, have begun to stage a remarkable turnaround, but still have a long way to go.

Exhibit 29

Pre-transition countries earn hard currency through agriculture and mineral exports, and foreign aid

Exports, remittances, and foreign aid, 2008
\$ billion



¹ E.g., tourism.

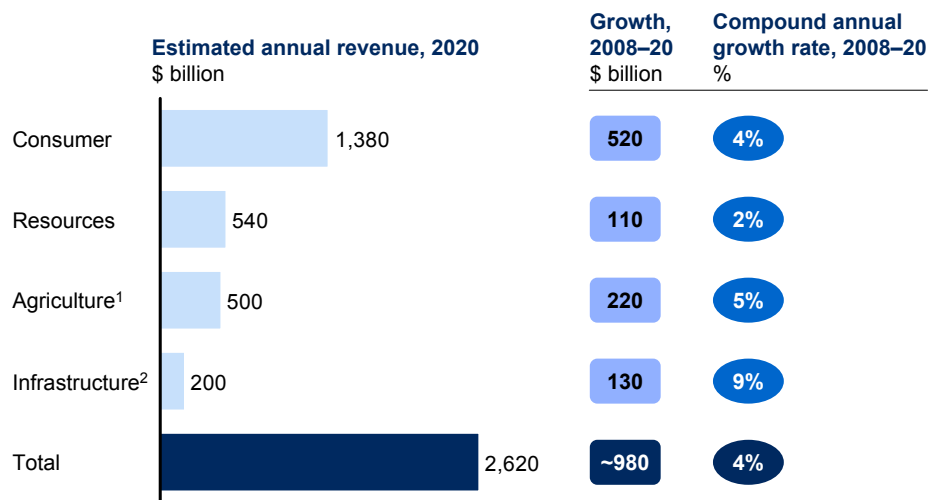
SOURCE: World Bank World Development Indicators; International Monetary Fund; McKinsey Global Institute

AFRICA'S \$2.6 TRILLION BUSINESS OPPORTUNITY

Africa's economic growth is creating substantial new business opportunities that are often overlooked by global companies. If the continent maintains its hard-won political and macroeconomic stability, and if governments continue to create a more attractive business environment, four groups of industries together could generate as much as \$2.6 trillion in revenue annually³⁴ by 2020, or \$1 trillion more than today. The four groups are consumer-facing industries, resources, agriculture, and infrastructure (Exhibit 30).

Exhibit 30

Four groups of industries could have combined revenue of \$2.6 trillion by 2020



¹ We took the 2030 value of \$880 billion and calculated the straight-line equivalent for 2020.

² Represents investment. Assumes need remains as same share of GDP through 2020.

SOURCE: McKinsey Global Institute

³⁴ Measured in 2010 dollars.

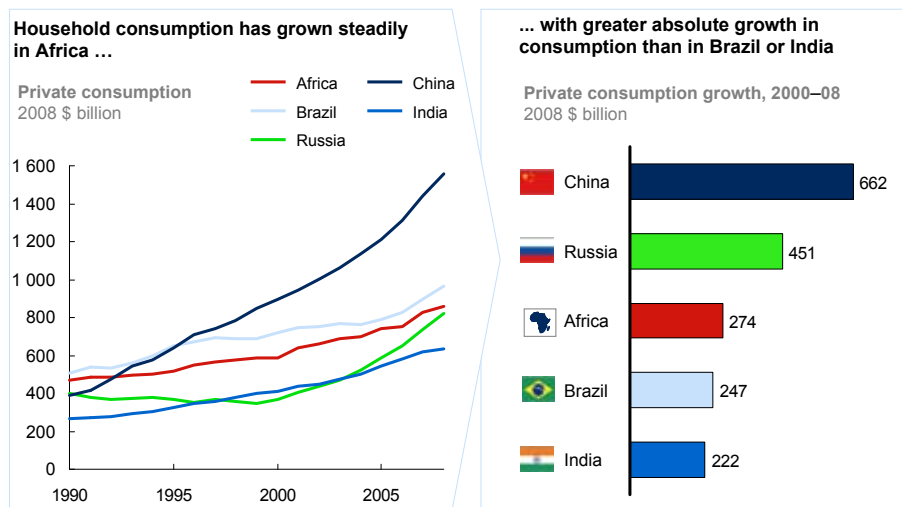
Fully realizing the potential in agriculture and infrastructure could raise Africa's GDP growth even further. Some studies, for example, find that increasing agricultural production could boost overall GDP growth rate by one percentage point annually.³⁵ Others have calculated that improving the continent's infrastructure could add up to two points to growth.³⁶ We do not model the multiplier effects of these changes. But clearly they could add fuel to future growth, spurring the continent's economic lions ahead.

Africa's growing consumer markets

Africa is already one of the world's most dynamic consumer markets, growing two to three times as fast as those in the Organisation for Economic Co-Operation and Development (OECD) countries. The continent's households spent a combined \$860 billion in 2008, more than those in India or Russia (Exhibit 31). Many global companies are expanding in Africa: Unilever has a presence in 21 African countries, and Standard Chartered operates in 14. Homegrown players are also aggressively expanding across the continent. For example, Ecobank now serves 29 African countries, MTN operates in 21, Shoprite is in 17, and UBA is in 16.

Exhibit 31

African consumption has grown by \$275 billion since 2000—similar to Brazil's and more than in India



SOURCE: Global Insight; United Nations Conference on Trade and Development; McKinsey Global Institute

Africa's consumers will spend \$1.4 trillion in 2020, assuming the continent's combined GDP continues to grow 5 percent a year.³⁷ We estimate that if GDP rises by 7 percent a year, possibly because of more rapid progress in infrastructure investment and agricultural production, Africa's consumer market could reach \$1.8 trillion by 2020—the equivalent of adding a consumer market the size of Brazil's today. Driving these increases will be the growing number of Africa's consuming households.

³⁵ See, for instance, Xinshen Diao et al. (2008); Paul Winters et al. (April 1997); and Clemens Breisinger et al. (August).

³⁶ See César Calderón, "Infrastructure and growth in Africa," The World Bank, Policy Research working paper number 4914, April 2009.

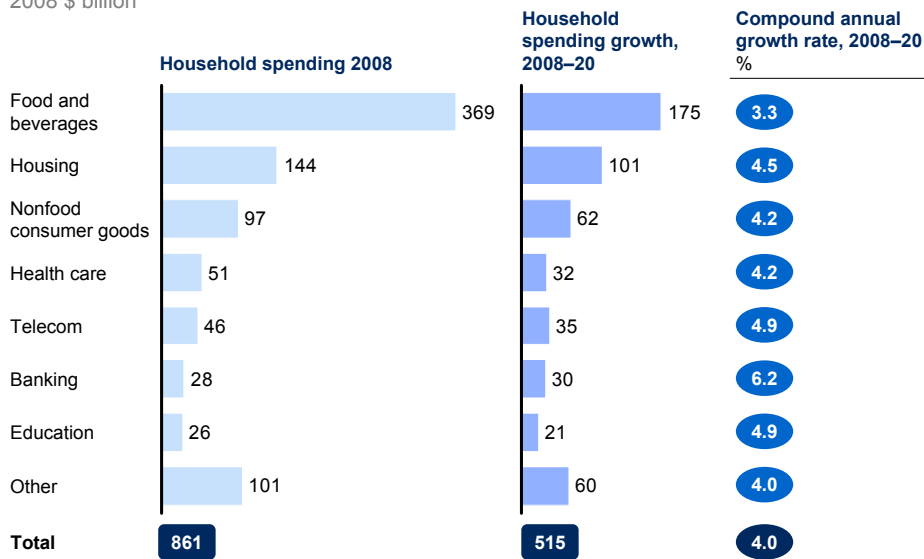
³⁷ Projections by Global Insight.

Spending patterns will shift as more households gain discretionary spending power. Food and beverage consumption is projected to increase more in absolute terms than any other category over the next decade, rising by \$175 billion to reach \$544 billion in 2020 (Exhibit 32). Within this category, consumers will buy greater quantities and higher quality items. However, household spending will grow more rapidly in other categories, such as retail banking, telecom, education, housing, health care, and other consumer goods and services.

Exhibit 32

While food will account for the largest share of consumer spending, nonfood sectors will grow faster as incomes increase

2008 \$ billion

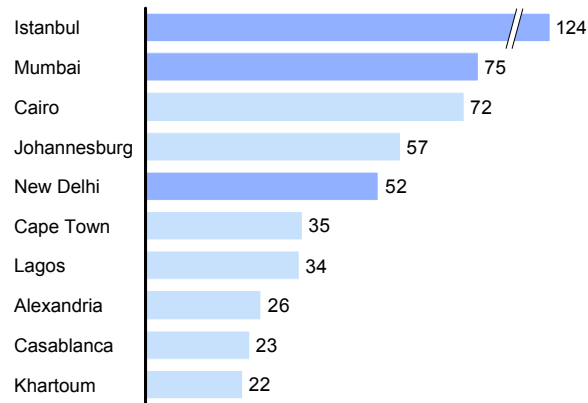
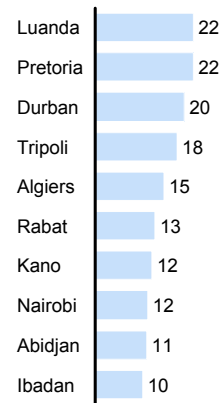


SOURCE: World Bank World Development Indicators; Euromonitor; McKinsey Global Institute

Africa’s consumer business opportunities will grow in the diversified economies, oil exporters, and transition economies. Over the next decade, urban markets in each of these groups will expand, with many becoming large enough to attract investment by multinational companies. By 2020, the five largest—Alexandria, Cairo, Cape Town, Johannesburg, and Lagos—will each have consumer spending of \$25 billion or more, comparable to Mumbai and New Delhi (Exhibit 33). The next largest markets, each with household consumption between \$15 billion and \$25 billion, will be Casablanca, Durban, Khartoum, Luanda, Pretoria, and Tripoli. Additional opportunities should arise in transition economy cities, such as Dakar and Nairobi, and in smaller cities of oil exporters and diversified economies, such as Kano and Rabat, each of which could have a consumer market greater than \$10 billion in annual spending.

Exhibit 33**Growing African cities present natural entry points for many consumer businesses**Consumption by city, 2020¹
2008 \$ billion

■ African cities
■ Benchmark cities

Africa's largest cities will be comparable to the largest emerging market cities . . .**. . . while a number of middle-tier cities are also rising and will present growth opportunities**

¹ City-level GDP is estimated by multiplying city population by city GDP per capita. City GDP per capita is estimated by taking country GDP per capita and applying an adjustment to take into account city/rural wage differences.

SOURCE: OECD; United Nations; McKinsey Global Institute

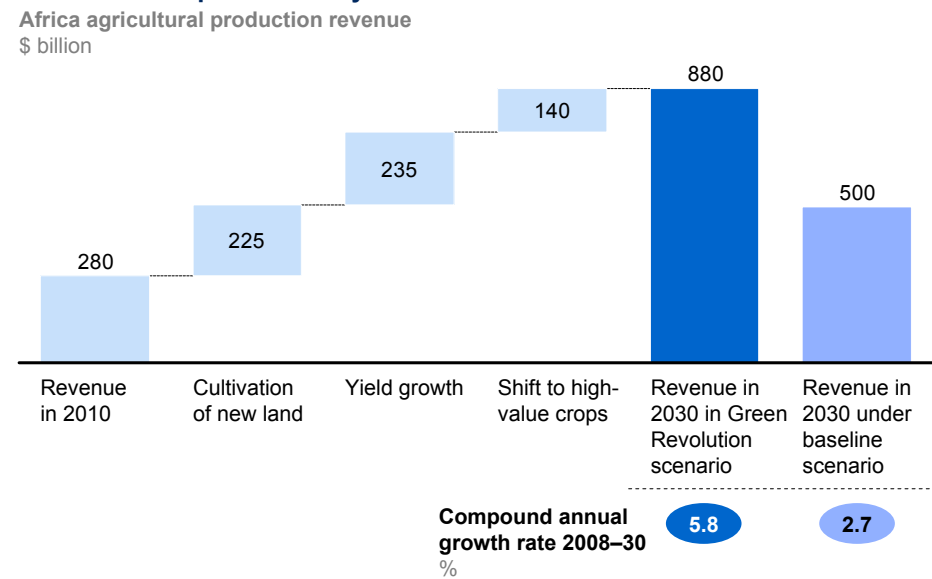
The most successful consumer-facing companies in Africa tailor their products and strategies for the continent in three ways. First, they find ways to overcome the challenge of poor infrastructure and low penetration of formal retailing, which often go hand in hand. One solution is to sell products both in formal retail stores and through informal channels such as street vendors and small, family-run stores. This requires executives to think very differently about their sales and merchandising force. For example, a global beverage company created a network of distribution centers that used manual push carts to get products over unpaved roads to rural consumers. Second, while many companies position themselves primarily for upper-income consumers, others also devise strategies to serve low-income consumers. Safaricom, a Kenyan telecom company, launched a mobile phone money transfer service (M-PESA) that has grown rapidly among low-income consumers and that banks are scrambling to replicate. Finally, successful companies create plans to build their presence in a range of African markets with different profitability, growth, and risk characteristics. For example, some companies have created regional headquarters in one of the diversified economies and have augmented that with operations in transition economies. The companies that adopt such strategies stand to benefit disproportionately from the emerging opportunities.

Agriculture’s brightening prospects

Africa has enormous potential to raise the volume and value of its agricultural production and to expand related business activities. Determining the magnitude of the opportunity is difficult, given the many complex issues at play. However, we have made an initial attempt to size the potential value of an African green revolution in agriculture, based on the successes that have already occurred on the continent, the recent agricultural plans of several countries, and the experience of countries outside Africa.

We estimate that Africa has the potential to increase the value of its annual agricultural output from \$280 billion today to around \$500 billion by 2020 and to \$880 billion by 2030 (Exhibit 34).³⁸ This would also increase demand for upstream products such as fertilizers, seeds, pesticides, and machinery, while spurring the growth of downstream activities such as such as biofuel production, grain refining, and other types of food processing. We estimate the total value of these additional markets could reach \$275 billion per year by 2030. An agricultural revolution on this scale would come from three sources.

Exhibit 34
An African “green revolution” could raise agricultural production to \$880 billion per annum by 2030



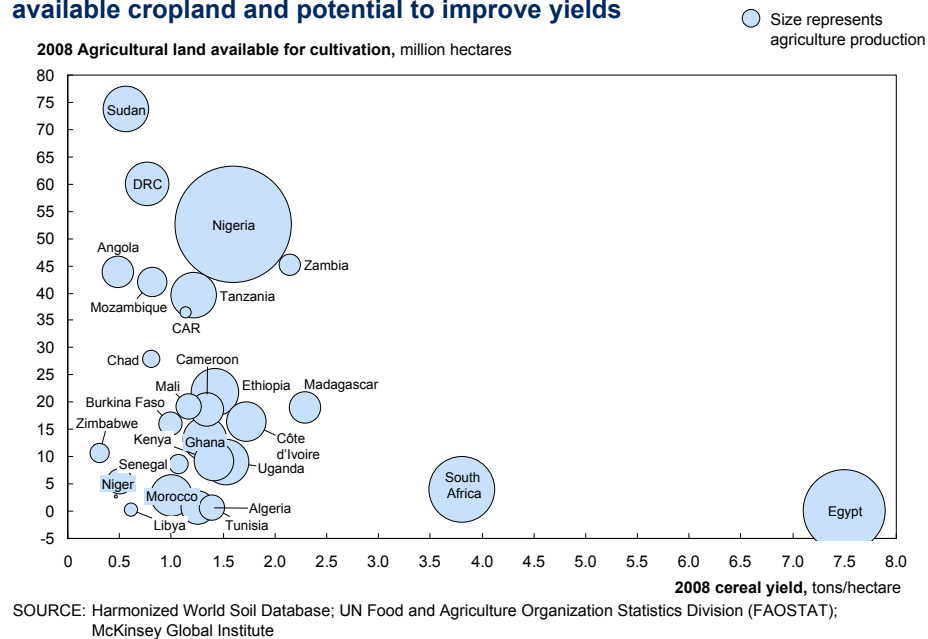
Source: Food and Agriculture Organization; McKinsey Global Institute analysis

38 See appendix for more details on the model and assumptions. In discussing agricultural opportunities, we focus on the 20-year projections because of the long-term nature of achieving an agricultural transformation.

First, Africa could bring more land into cultivation. The continent has millions of hectares of uncultivated arable land (Exhibit 35), or about 60 percent of the world's total. Over the past decade, many African countries have begun to expand their cultivated lands, but more can be done. Brazil provides an example. From 1987 to 1996, Brazil added 1 million hectares annually into land under cultivation. If Africa could achieve half that rate, it would raise production by \$225 billion annually by 2030.

Exhibit 35

Potential for agriculture growth differs by country, based on the amount of available cropland and potential to improve yields



Second, if Africa could raise yields on key crops to 80 percent of the world average—similar to the achievements of other countries that experienced a green revolution in agriculture—the continent would increase the value of its agricultural production by \$235 billion over the next two decades.

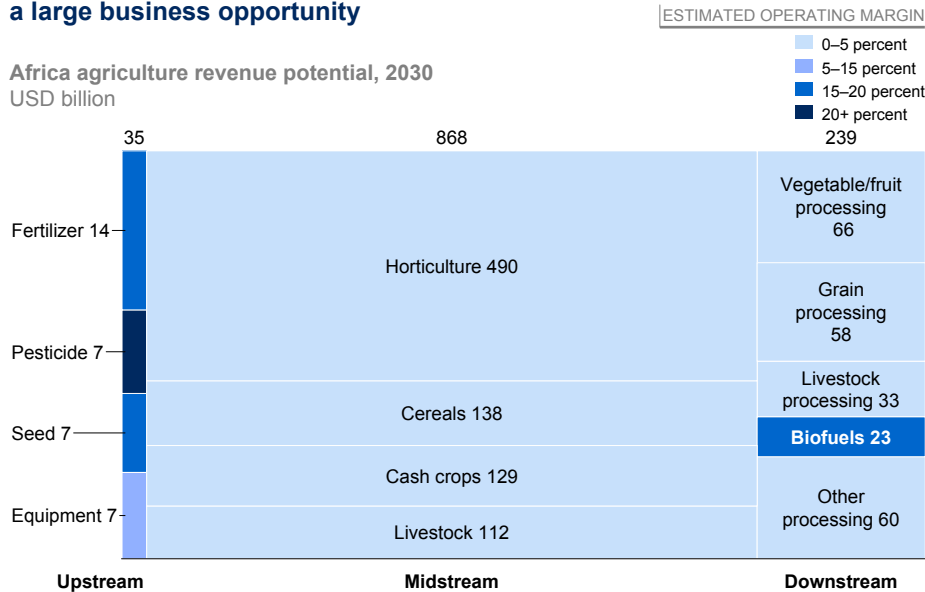
Third, African farmers could increase revenue by shifting cultivation from lower-value crops, such as bulk cereals, to higher-value crops, such as fruits and vegetables. Kenya, for example, has tripled its horticulture exports to \$700 million annually through such efforts. If African countries shifted 20 percent of the land now devoted to low-value crops like cereals to higher-value horticulture and biofuels, they would raise the value of agricultural production by \$140 billion annually by 2030.

If Africa achieves all three of these goals, we estimate the value of the continent's agricultural production could grow twice as fast over the next 20 years as it has over the past decade. Nearly three-quarters of the absolute increase in output would occur in 11 coastal countries: Angola, Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Sudan, and Tanzania. Many more countries could raise their agricultural growth rate as well, but these 11 have the biggest commercial farming opportunities.

A green revolution on this scale would, in turn, fuel the growth of many other related businesses (Exhibit 36). Our analysis suggests that upstream inputs markets would increase from around \$8 billion today to \$35 billion by 2030. The largest of these opportunities is fertilizer. Africa’s use of fertilizer, at 24 kilograms per hectare, is a quarter of the world average. Increased fertilizer use would be an essential component of an African green revolution, presenting suppliers with \$14 billion in potential revenue, or \$3 billion in profits.

Exhibit 36

Aside from production, downstream processing also offers a large business opportunity



SOURCE: McKinsey Global Institute

Downstream markets could grow even faster, from a total value of about \$40 billion today to as much as \$240 billion by 2030. The largest downstream opportunity is vegetable and fruit processing. However, biofuels processing is the fastest-growing of these opportunities and could become a \$23 billion market by 2030 if global oil prices remain above \$70 per barrel. Ethanol production could be particularly attractive for Africa's inland oil-importing countries, where high transportation costs raise consumer fuel prices. Africa also could become a major supplier of biofuel to Europe.

Achieving a revolution in agricultural productivity will be difficult. Although the necessary ingredients are well-known, experience suggests that real transformation will require overcoming barriers that exist along the entire agricultural value chain. A comprehensive policy should work toward five core goals: more intensive use of inputs (such as fertilizers and specialized seeds); greater access to credit and insurance; improved infrastructure (roads, irrigation, grain storage); more technical assistance for farmers; and better tax and land laws. Successful reform also will depend on ensuring adequate demand for the specific crops grown, forging linkages to deep sources of demand, and enabling the efficient delivery of inputs to farmers and products to markets.

Some countries have crafted credible plans to transform their agriculture sectors. Several governments are taking integrated “breadbasket” approaches that combine multiple initiatives to ensure progress. Others are pursuing agricultural development tied to infrastructure corridors, such as the Beira corridor in southern

Africa. Certain governments are creating incentives for commercial farming on unused cropland through supportive policies on land tenancy, taxes, and tariffs and through investment in infrastructure and R&D. Other governments are encouraging a transition to high-value crops on irrigated land by improving market access. These efforts require significant investment and expertise, but they are within reach and could help unlock Africa's vast agricultural potential.

Continued opportunities in resources

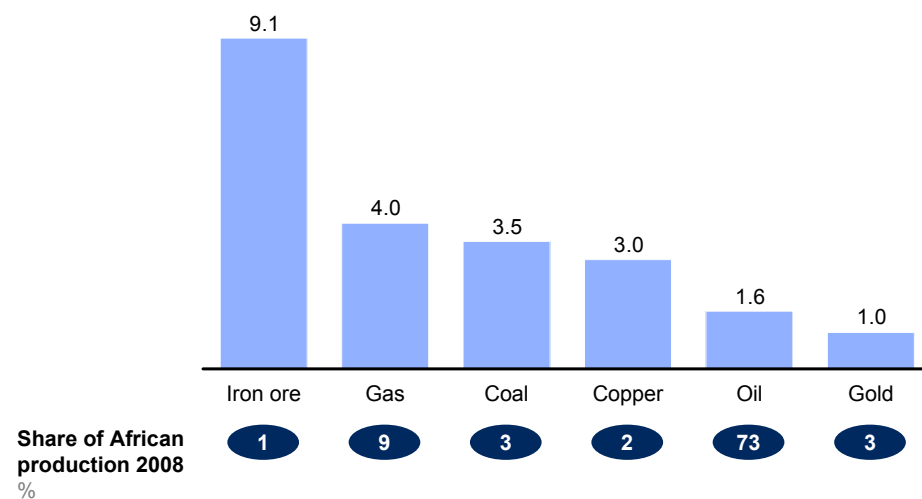
The outlook for further growth in Africa's resource sectors remains promising. We estimate the total value of annual production could increase from \$430 billion in 2008 to \$540 billion by 2020, a real growth rate of 2 percent per year. However, with the entrance of China and other new players, the field of buyers is getting more crowded. Therefore, as we described earlier, investors are increasingly going beyond merely extracting resources to providing for wider economic development.

Global demand is likely to remain strong for oil, gas, and coal, which together account for roughly 85 percent of Africa's resource production. McKinsey's base-case projections indicate that Africa's production of these commodities, measured by volume, will grow by 2 percent to 4 percent per year through 2020. And the volume of iron ore produced will rise by 9 percent annually (Exhibit 37). The value of oil and gas production will grow the most, by \$65 billion and \$25 billion, respectively, assuming prices hold at 2008 levels. Iron ore and coal will grow the most of any minerals in terms of revenue, iron ore by \$10 billion and coal by \$6 billion.

Exhibit 37

Africa's resource production volumes are expected to grow by 2 to 4 percent for most key commodities

Annual production growth of major African resources, 2008–20
%



SOURCE: RMB; International Energy Agency; McKinsey Metals Practice Commodity Models

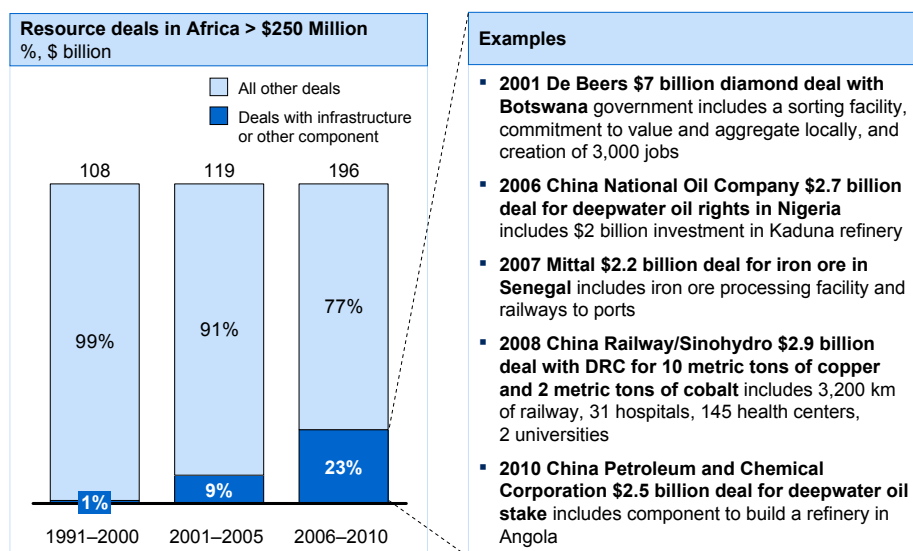
In a more optimistic scenario, African resource production could grow faster than these projections suggest. This case would reflect increased demand for South African coal from domestic power producers and from India (where demand is growing at 10 percent per year); increases in natural gas demand from Nigeria's domestic power producers; increases in oil production due to improved political stability in Nigeria; and new finds in countries such as Ghana and Uganda. The

combined effect of these assumptions is a scenario in which Africa's total resource revenue grows to \$565 billion by 2020, assuming resources remain priced at 2008 levels, or to \$790 billion at higher prices.³⁹

However, the nature of resource deals in Africa is changing, reflecting the increased number and variety of global players in the market. To compete for access to resources, companies increasingly need to go beyond resource extraction and provide wider economic benefits, appeal to multiple stakeholders, and deliver benefits quickly. More resource deals are being accompanied by commitments to invest in infrastructure and sometimes related industries. In the 1990s, just 1 percent of Africa's resource deals included such side commitments, compared with 23 percent over the past four years (Exhibit 38). For example, in 2001 De Beers signed a \$7 billion deal to mine diamonds in Botswana, including a commitment to build a diamond sorting facility. That ensured that diamond sorting, valuing, and aggregating would occur domestically, creating 3,000 jobs.

Exhibit 38

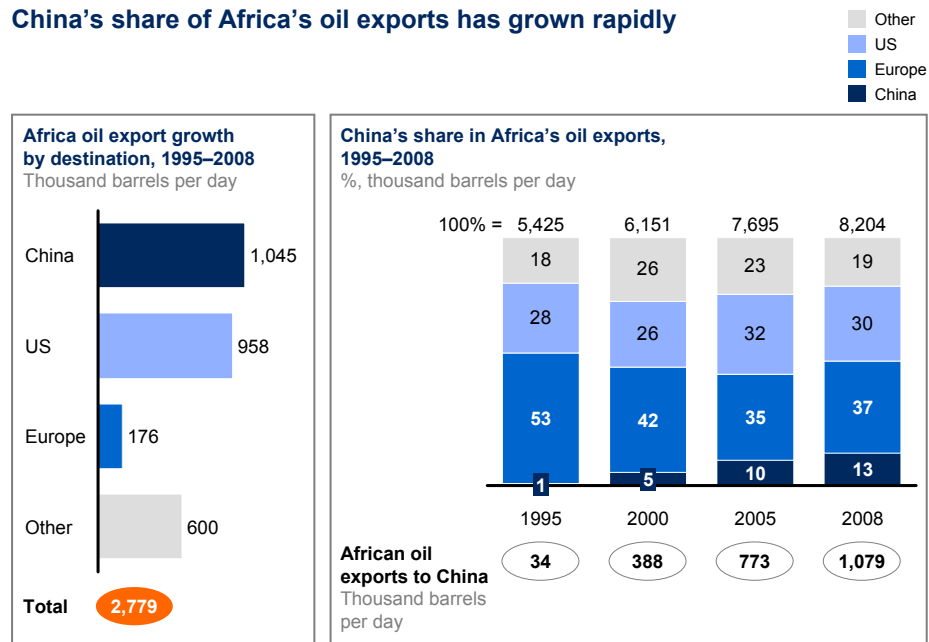
23% of Africa's largest resource deals now have an infrastructure or industrialization component, up from 1% in the 1990s



SOURCE: Dealogic; Factiva; McKinsey Global Institute

Among the players, China has become an important driver of Africa's resource sector growth. China increased its share of African oil exports from 1 percent in 1995 to 13 percent in 2008. Thus, China was the single largest contributor to Africa's oil export growth, measured by volume, accounting for 37 percent (Exhibit 39). If current trends continue, China could overtake Europe as Africa's second-largest oil export market by 2020.

³⁹ The higher price scenario uses the high end of long-term prices forecasted by a range of banks, including Morgan Stanley; Bank of America; Citigroup; and Deutsche Bank. These price increases imply growth between 1 percent and 51 percent above 2008 levels for all commodities, except coal, which rises to double its 2008 level. For example, oil rises from \$91 per barrel in 2008 to \$150 in 2020, platinum climbs from \$1,577 per ounce to \$1,600 over the same period, while gold increases from \$872 per ounce to \$950.

Exhibit 39**China's share of Africa's oil exports has grown rapidly**

SOURCE: British Petroleum Statistical Review (2010); McKinsey Global Institute

For resource players, one key to success is differentiating among African countries by balancing the geological potential and the political risk. Some of the most under-explored, geologically rich countries are also among the least politically stable (for example, the Democratic Republic of the Congo and Guinea). Smaller mining companies (such as Randgold Resources and Katanga Mining Company), companies from other developing countries (such as Sinosteel from China and Vedanta from India), and traders (such as Glencore) are often most prepared to enter these markets. Meanwhile, the larger companies tend to focus on more explored, yet politically stable countries, such as South Africa, Botswana, and Ghana. Successful players also are able to operate in environments with less skilled workers and lower quality infrastructure. Increasingly, this requires companies to provide skills and help build infrastructure as part of the resource deals, as discussed earlier. For governments, a key challenge is ensuring that the fiscal terms of mineral investment are attractive enough to enable investment in their resource sectors, while ensuring their countries capture the socioeconomic benefits, whether in terms of resource royalties, taxes, infrastructure, capital, or skills. This balancing act is often at the heart of the debate over a nation's resource-sector policies.

Infrastructure sectors: Large needs, new financing models

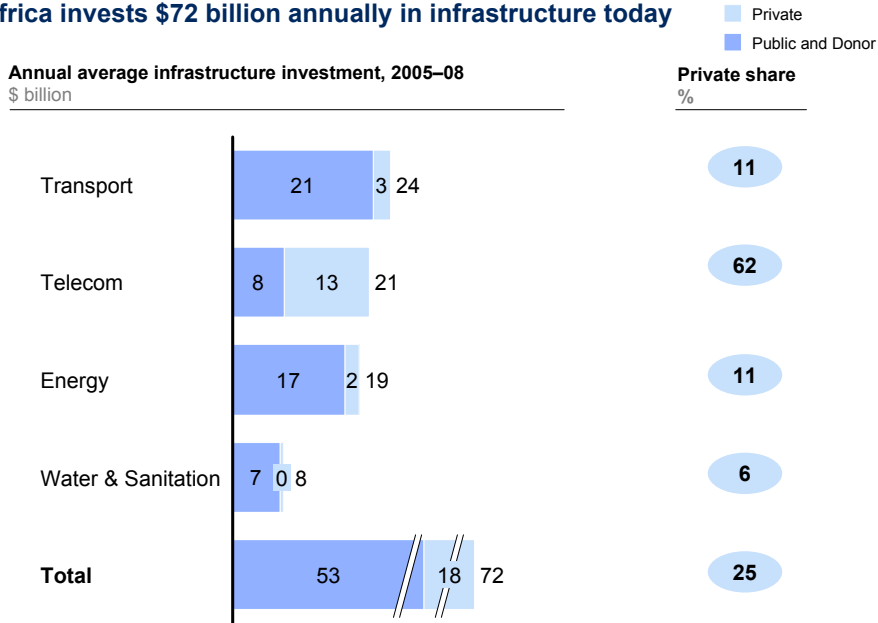
Key to Africa's future economic growth in all the sectors above will be increasing the quantity and quality of the continent's infrastructure. We estimate that today, African governments and private sources combined are investing about \$72 billion a year in new infrastructure across the continent (Exhibit 40). Africa's private infrastructure investment accounts for 13 percent of all infrastructure investment in the world's emerging markets.⁴⁰ The largest share of Africa's infrastructure funding (65 percent) comes from the continent's governments, followed by private investors

40 In this section, we discuss only new spending on building and maintaining infrastructure. In contrast to our discussions of the three other sets of business opportunities, we do not look at the infrastructure sector's potential revenue from providing services, such as by operating ports, railroads, or utilities.

(25 percent). Funding from non-OECD countries, of which China is the largest, provides an additional 6 percent, usually in the form of loans to governments. Official development assistance from multilateral agencies funds the remaining 4 percent.

Exhibit 40

Africa invests \$72 billion annually in infrastructure today

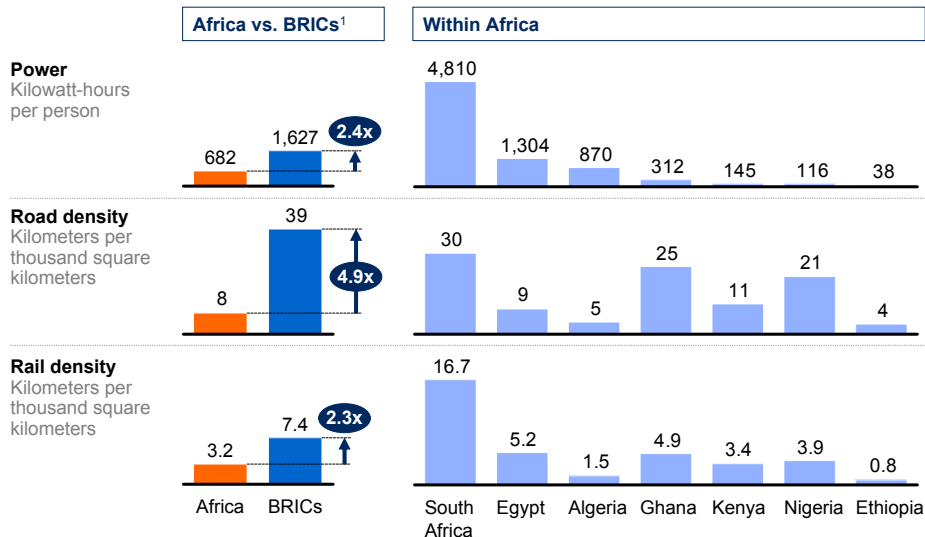


SOURCE: Private Participation in Infrastructure (PPI) Database, Africa Infrastructure Country Diagnostic; National budgets; McKinsey Global Institute

But Africa needs significantly more infrastructure investment. The continent’s massive needs are evident when we compare it with the developing economies of the BRICs—Brazil, Russia, India, and China (Exhibit 41). The BRICs’ power consumption per capita is more than twice Africa’s, and their road density, measured in kilometers of road per 1,000 square kilometers of land, is almost five times as high. Logistics costs, whether measured in dollars or time, are up to twice as high in Africa as in the BRICs.

Exhibit 41

Africa’s infrastructure is half to a fifth that of the BRICs, with wide variations across countries



1 Brazil, Russia, India, China. The comparisons exclude Russia for roads and rail because Russia’s land area distorts the statistics.

SOURCE: World Development Indicators, McKinsey Global Institute

Building on World Bank estimates, we calculate that Africa needs to invest \$118 billion a year in infrastructure to address the backlog, keep pace with economic growth, and attain certain key social targets.⁴¹ This amount is \$46 billion more than the current funding level, and closing this gap would still leave Africa well behind the BRICs in terms of infrastructure. But we estimate that Africa could close this funding gap through a combination of increased funding and more efficient operations.

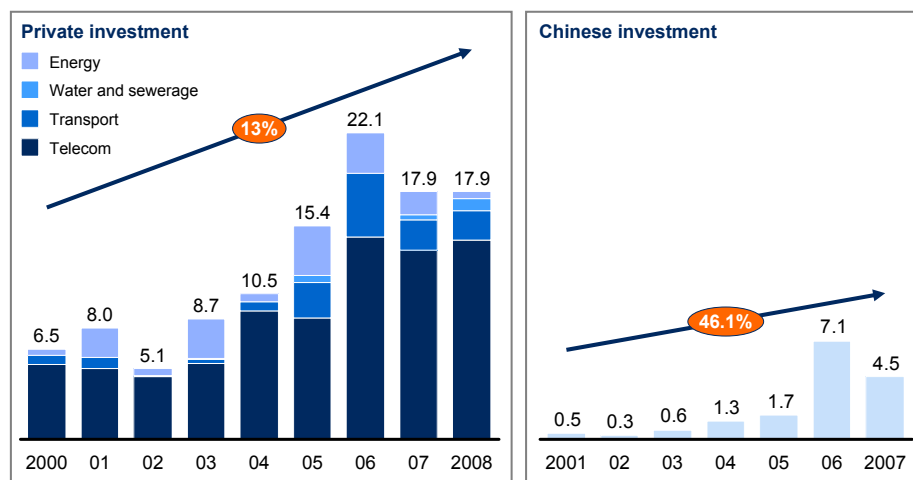
Two-thirds of the amount could be covered through the growth of several funding sources. Private sector investment in African infrastructure has been growing by 13 percent per year since 2000. Separately, China has increased its African infrastructure investments by 46 percent per year from 2001 through 2007 (Exhibit 42). If funding from these sources continues to grow, together they could cover about \$19 billion of the gap by 2013. Meanwhile, Africa's oil exporters have accumulated \$310 billion in reserves, yet some of these countries' governments spend below the continental average on infrastructure. They could plausibly raise their rate of investment to the African average, which would generate \$10 billion a year.

Exhibit 42

Private and Chinese investment in infrastructure are both growing at double-digit rates

Infrastructure investment in Africa
\$ billion

○ Compound annual growth rate



SOURCE: World Bank PPI database; PPIAF: "Building Bridges: China's Growing Role as Infrastructure Financier for Africa"; ICA (2007); McKinsey Global Institute

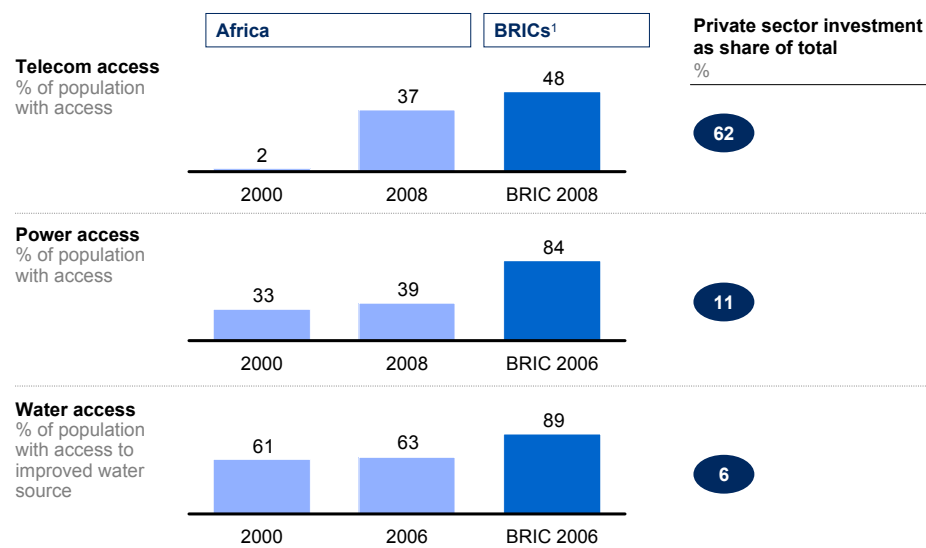
An additional \$17 billion—approximately a third of the investment gap—could be generated by improving the efficiency of infrastructure operations, according to the World Bank. One source of such potential is in the public utilities and other quasi-public agencies that oversee most of the Africa's infrastructure investment and operation. Much of their funding is squandered through over-employment, distribution losses, and inadequate maintenance. Potential revenue is lost by poor bill collection practices, which discourages private participation. Some governments have overcome this hurdle by guaranteeing the revenue of private partners.⁴²

41 Vivien Foster and Cecilia Briceño-Garmendia, eds., *Africa's Infrastructure: A Time for Transformation*, Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 2010.

42 For example, Egypt, Morocco, and Côte d'Ivoire have used sovereign guarantees for independent power producers to encourage private participation in power generation.

Africa's enormous infrastructure needs have implications for both government and private players. Governments should encourage private participation and investment. Our analysis shows that the emerging markets that expanded power capacity the fastest—including Brazil, Mexico, and Thailand—actively encouraged private sector participation, such as through revenue guarantees or legislation enabling private involvement. Within Africa, we see that the telecom industry, which had by far the greatest levels of private investment, expanded its output between 2000 and 2008 by more than the power and water providers, which had less private investment (Exhibit 43).

Exhibit 43
Africa's telecom sector has grown rapidly, partly due to its large share of private investment



1 Brazil, Russia, India, China.
 SOURCE: World Development Indicators; McKinsey Global Institute

Increasing Africa's water and power infrastructure will require improved pricing regulation. Today, an estimated 85 percent of Africa's utilities set their prices below the levels required to cover both operational and capital costs, thereby remaining unattractive to private investors. Not surprisingly, investment has lagged behind.⁴³

The private sector, meanwhile, should partner with governments as operators to help improve the sector's efficiency, as global companies APM and Cosco do with several of Africa's larger ports. Finally, private financiers should have Africa on their radar screens. Those that can effectively diversify, share, and price the investment risk will find large financing opportunities in Africa.

43 See, for example, Cowen and Cowen (1998), who argue that artificially low prices for water in developing countries are associated with the low penetration of water services in those countries.



If recent trends continue, Africa will play an increasingly important role in the global economy. By 2040, the continent will be home to one in five of the planet's young people, and the size of its labor force will top China's. Companies already operating in Africa should consider expanding. For others still on the sidelines, early entry into emerging economies provides opportunities to create markets, establish brands, shape industry structures, influence customer preferences, and establish long-term relationships. Business can help build the Africa of the future. And working together, business, governments, and civil society can confront the continent's many challenges and lift the living standards of its people.

Appendix: Technical notes

In this appendix we provide more detail on the data and methodology used in this report. The material covers the following topics:

1. Data on GDP by sector
2. Estimating the impact of resources on government spending
3. Foreign private capital flows
4. Income distribution forecasts
5. Growth of consumer spending through 2020
6. Green revolution model
7. Resources model
8. Infrastructure spending and needs data
9. Table of country statistics in each segment

1. DATA ON GDP BY SECTOR

Our data on growth in different sectors cover 15 African countries. Together, these countries account for 80 percent of Africa's GDP and 85 percent of GDP growth.

We obtained data from Global Insight for nine countries: Cameroon, Egypt, Kenya, Morocco, Nigeria, Senegal, South Africa, Tunisia, and Zimbabwe. We obtained data from the Arab Monetary Fund for Algeria, Libya, and Sudan; from the African Development Bank for Angola; and national statistics offices for Tanzania and Ethiopia.

All data measured real GDP by sector based on 2005 prices. Global Insight provided these data directly. The Arab Monetary Fund provided data on nominal sector value added. We converted these to real terms using African Development Bank real growth percentages by sector, except in the following areas:

- Libyan financial intermediation: We used the Global Insight GDP deflator.
- Algeria: We used the Global Insight deflators for all sectors. They were:
 - Agriculture: Imports of goods and non-factor services deflator
 - Resources: Exports of goods and non-factor deflators
 - Manufacturing: GDP deflator
 - Utilities: GDP deflator
 - Construction: Imports of goods and non-factor services deflator
 - Wholesale and retail: Private consumption deflator
 - Hotels and restaurants: Private consumption deflator
 - Transport and telecoms: Private consumption deflator
 - Financial intermediation: GDP deflator
 - Real estate and business activities: Fixed investment deflator
 - Public administration: Government consumption deflator
 - Other services: Private consumption deflator
- Ethiopia and Tanzania: We obtained sector value-added data, in nominal and real terms, from the national statistics offices. We converted the real data to 2005 prices.
- We obtained nominal data and growth rates in real terms from the African Development Bank. We used these to calculate sector value added in 2005 prices.

2. ESTIMATING THE IMPACT OF RESOURCES ON GOVERNMENT SPENDING

To estimate the impact of the resource boom on Africa's GDP growth, we calculated both the direct effect and the multiplier effect via government spending. To estimate the direct effect, we used the sector data described above and calculated the resources sector's contribution to GDP growth. Of Africa's largest eight economies, resources accounted for the largest shares in Angola (86 percent), Libya (63 percent), Algeria (41 percent), and Nigeria (35 percent). In Africa's other large economies (South Africa, Egypt, Morocco, Tunisia), the contribution of resources to growth is much smaller, ranging from zero to 2 percent.

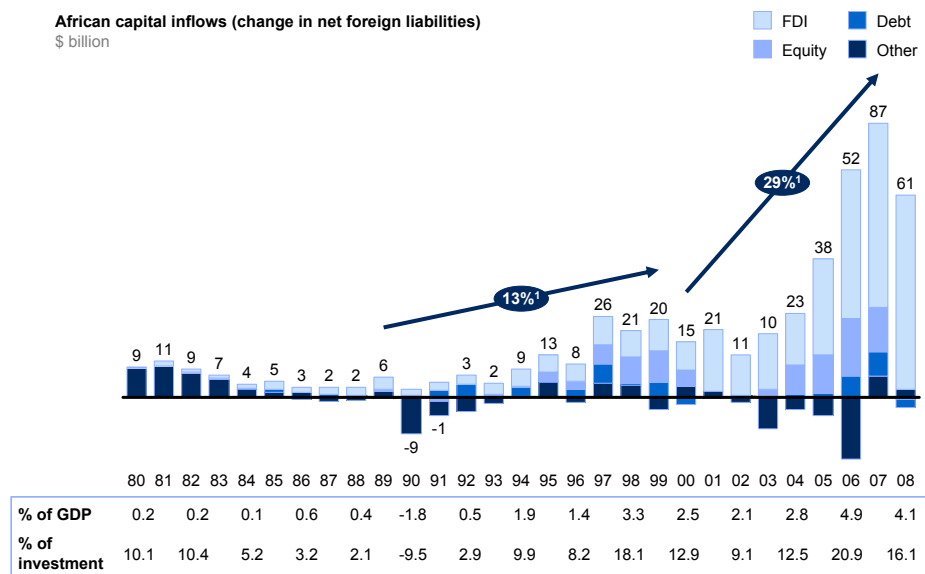
To calculate the indirect GDP contribution via increased government spending, we first gathered tax rate data from Wood Mackenzie and from World Development Indicators data on the level of government spending to estimate increases in government income coming from the resource sectors. We then applied government spending multipliers for Nigeria, Algeria, and Libya, which are based on Oxford Economics simulations of the impact on real GDP of resource revenue via government spending in those countries. On average, a 1 percent increase in government spending has been associated with a 0.3–0.5 percent per annum increase in real GDP, in part because some of the government spending “leaks” from the economy as imports, especially in these oil exporters that have limited manufacturing base.

3. FOREIGN PRIVATE CAPITAL FLOWS

Our estimates of African capital flows rely primarily on balance of payments data from the International Monetary Fund (IMF), supplemented by foreign direct investment (FDI) flows data from the United Nations Conference on Trade and Development (UNCTAD), and data on banking flows from the Bank of International Settlements. Capital flows consist of foreign direct investment, portfolio equity, portfolio debt, and other inflows (primarily bank loans and deposits) (Exhibit A.1).

Exhibit A.1

African capital inflows have grown by over 400 percent since 2000



1 Compound annual growth rate.

SOURCE: McKinsey Global Institute Global Capital Flows Database

All flows are stated in “net” terms. For instance, capital inflows are the net flow of income into the country from foreign investors (i.e., new investments minus sales of previous foreign investments). Capital outflows measure the activity of local investors in foreign markets, or the net flow of capital out of a country from local investors. Both inflows and outflows may therefore be negative.

4. INCOME DISTRIBUTION FORECASTS

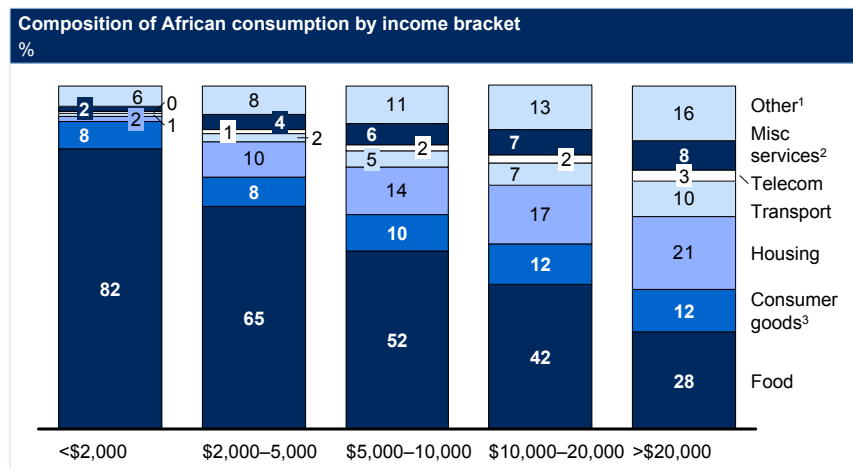
Our forecast of African consumption relies on estimates of the African income distribution for 52 African countries. We obtain these data from the Canback Global Income Distribution Database (C-GIDD), which provides income distribution data for eight income brackets. C-GIDD provides both historical data over 2000–08 and a forecast over 2008–14 based on demographic projections and a consensus forecast of economic growth. Household income is adjusted for 2005 purchasing power to account for the differences in the cost of non-tradable goods and services across countries.

We aggregate these data into five income categories ranging from less than \$2,000 per household to greater than \$20,000 (see Exhibit 14 in the report). Households with incomes less than \$5,000 a year are typically “basic needs” consumers who spend more than half their income on food and beverages (Exhibit A.2). Households with income greater than \$5,000 are termed “discretionary spenders” and begin to spend a significant portion of their incomes on nonessential items such as consumer durables, clothing, communications, and banking services.

Exhibit A.2

Household spending on nonfood items increases with wealth

Based on 2005 PPP dollars



1 Includes health care, education, leisure, and recreation.

2 Services not otherwise classified.

3 Includes clothing, footwear, and household goods and services.

SOURCE: Canback Global Income Distribution Database (C-GIDD); Euromonitor; McKinsey Global Institute

To forecast the income distribution to 2020, we extend the forecasts provided by C-GIDD over 2008 to 2014. To do this we first forecast the total number of households for each country using United Nations projections of population growth and assuming that the average number of people per household remains constant at its 2008 level. We then extrapolate the growth of each income bracket in each country to 2020 using the 2008–2014 growth rates. Finally, we adjust our estimate of the number of households in each income bracket by ensuring that the total household population for each country matches our first estimate of total household growth. Using this approach, we ensure that our forecasts of income distributions are consistent with commonly used demographic projections.

5. GROWTH OF CONSUMER SPENDING THROUGH 2020

To estimate future African consumption by income bracket and by product category, we combine our estimate of the African income distribution with estimates of African household spending from Euromonitor and with forecasts of private consumption taken from Global Insight. We estimate consumption patterns for each income bracket and constrain our estimates by the consensus macroeconomic forecasts available. This allows us to produce estimates of consumption, which are consistent between the shifting income distribution at the microeconomic level, and aggregate macroeconomic relationships.

Our first step is to estimate the size of African consumption in 2020. We begin by compiling an estimate of consumption in 2008, using the World Bank World Development Indicators and Global Insight as the primary data sources. For missing countries, we supplement our primary data sources using Organisation for Economic Co-operation and Development (OECD) and African Development Bank data on national accounts. To estimate African consumption in 2020, we use Global Insight consumption forecasts. Where Global Insight forecasts are unavailable, we utilize aggregate GDP forecasts and assume that consumption remains the same share of GDP as in 2008. This approach provides us with a top-down constraint on our estimate of \$1.4 trillion of African consumption in 2020.

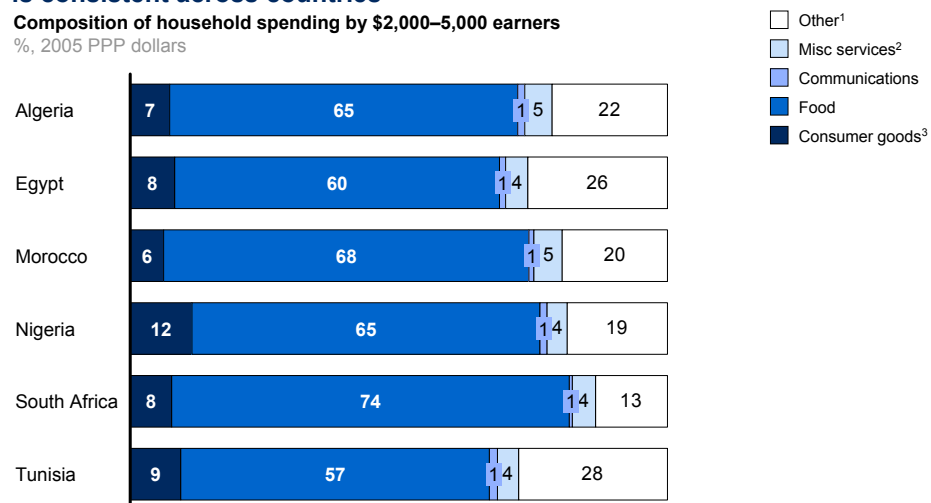
Next we estimate the composition of household spending by income bracket. Euromonitor provides estimates of household spending by major product group for 10 income deciles in six African countries—Algeria, Egypt, Morocco, Nigeria, South Africa, and Tunisia. To generalize these data across 52 African countries, we first map each income decile from Euromonitor to a specific income bracket described above and calculate the average consumption basket for each income bracket. We observe similar household consumption baskets for each income bracket across different countries (Exhibit A.3).

Exhibit A.3

The composition of household spending in each income bracket is consistent across countries

[BACKUP](#)

Composition of household spending by \$2,000–5,000 earners
%, 2005 PPP dollars



1 Includes housing, transport, health care, education, leisure, and recreation.

2 Services not otherwise classified. Used here to capture banking services.

3 Includes clothing, footwear, and household goods and services.

SOURCE: Canback Global Income Distribution Database (C-GIDD); Euromonitor; McKinsey Global Institute

We therefore take the average across the six countries for which we have data to create a representative African consumption basket for each income bracket. This allows us to apply a single consumption basket for households in a specific income bracket across all 52 countries in the sample. Although a crude assumption, this approach is necessary in the absence of more household surveys in Africa.

We then combine these estimates of consumption by income bracket with our forecast of income distribution (see above). For each country, we assume that the total income of each income bracket is given by the midpoint of the bracket multiplied by the number of households in that bracket. For instance, if a country has 10 million households with income between \$2,000 and \$5,000, we assume that the total income of that bracket is equal to 10 million multiplied by \$3,500. For each income bracket, we then apply our representative consumption basket to the total income to derive the composition of spending by each income bracket. We ignore the impact of household savings and taxes in the analysis up until this point because data on each of these are unavailable on a country level.

Finally, we constrain our bottom-up consumption estimates using our top-down estimates of aggregate consumption by country. Constraining household spending in this way allows us to adjust our bottom-up estimates for household savings and taxes as well as providing a top-down check on our model results. We also perform a number of checks for each product line, checking that our estimates imply a growth in product penetration and revenue per customer consistent with industry experience. Where our model deviates significantly from these data, we adjust our final results.

6. GREEN REVOLUTION MODEL

We developed a model to project potential growth of Africa's agricultural sector output in a "green revolution" scenario. This scenario focuses on potential output gains, assuming that the main barriers that are currently slowing growth today get resolved. These include lack of infrastructure in rural areas, lack of advanced seeds and fertilizers, lack of credit and financing for farmers and others in the agricultural value chain, unclear land policies, and taxes and tariffs that create disincentives for local production. Unlike the other business opportunities that we explore, the purpose of this model was not to forecast the likely size of Africa's agriculture market in 2030 in a "business as usual" case, but rather to determine the potential upside to production if the main barriers were to be resolved.

The bulk of the underlying data in the model comes from the Statistics Division of the FAOSTAT, the Food and Agriculture Organization of the United Nations. We used FAOSTAT's detailed 2008 production data for the main crops in each country, and the detailed pricing data from 2005 to 2007 as the basis for our projections. We projected 2010 production based on growth patterns at country-crop level and projected current pricing based on the changes in FAOSTAT price indexes.

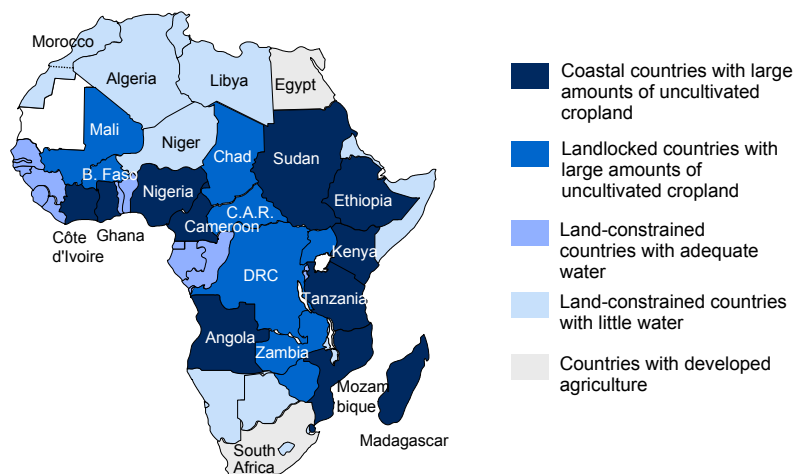
To model future long-term growth, we made assumptions across three dimensions:

- **New land:** Projected rate of growth in cultivated land through 2030
- **Yield growth:** Projected rate of increase in crop productivity through 2030
- **Shift to high-value crops:** Shift in production from lower-value crops (e.g., cereals) to higher-value crops (e.g., vegetables and fruits)

We modeled countries individually but made different assumptions based on the amount of uncultivated land and water availability in each. We used data on the amount of uncultivated land suitable for agricultural production in each country from the Harmonized World Soil Database developed in partnership with FAOSTAT and the International Institute for Applied Systems Analysis (see Exhibit 35 in the main report). Data on water availability came from the Council for Scientific and Industrial Research and Oregon State University Program in Water Conflict Management and Transformation. Based on these two dimensions plus geography, we grouped countries into five clusters and made similar assumptions for each. These are shown in Exhibit A.4.

Exhibit A.4**We segment African countries based on their land availability and agro-ecological conditions**

Africa agricultural growth potential by region



SOURCE: Harmonized World Soil Database; FAOSTAT; McKinsey Global Institute analysis

- **Coastal countries with significant amounts of uncultivated cropland:** Angola, Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Sudan, Tanzania
- **Landlocked countries with significant amounts of uncultivated cropland:** Burkina Faso, Central African Republic, Chad, Democratic Republic of the Congo, Mali, Uganda, Zambia, Zimbabwe
- **Land-constrained countries with adequate water:** Benin, Burundi, Cape Verde, Comoros, Republic of the Congo, Equatorial Guinea, Gabon, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritius, Réunion, Rwanda, Saint Helena, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Swaziland, Togo
- **Water-stressed countries:** Algeria, Botswana, Eritrea, Libya, Morocco, Namibia, Niger, Somalia, Tunisia
- **Countries with developed agriculture:** Egypt, South Africa

Exhibit A.5 contains the detailed set of assumptions across drivers of growth for each of the five country segments. Assumptions in each case were based on what was achieved in other historic examples of green revolutions in countries around the world. For example, we used the experience of Brazil in developing cerrado land for the increase in land under cultivation. We used the experience of Malawi for increase in maize yields, and the experience of Brazil for rice yields. For the shift to high-value crops, we used the current agricultural plans of Morocco.

Exhibit A.5

Key modeling assumptions for 2030 production growth

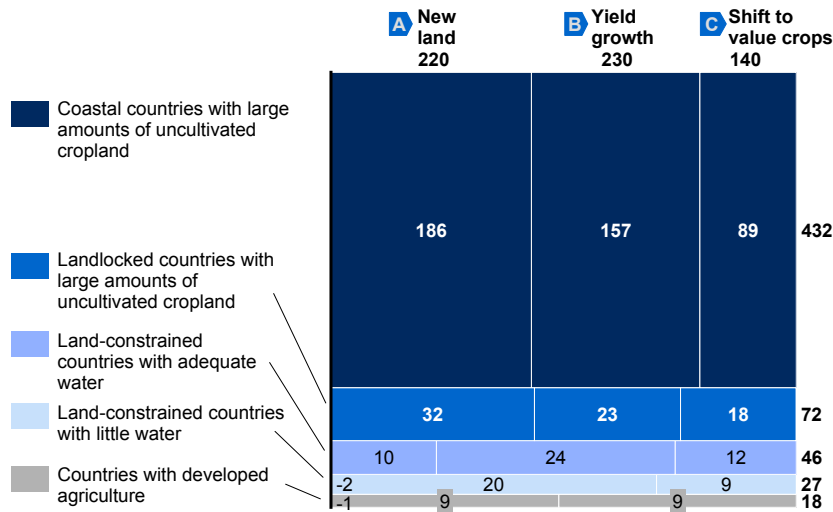
	A New land	B Yield growth	C Shift to high-value crops
1 Coastal countries with unutilized cropland	<ul style="list-style-type: none"> New land cultivated at the level of Brazil—0.5 million hectares annually from 2015, increasing gradually from 2010 to 2015 	<ul style="list-style-type: none"> For the “large farms” new land, reaches 90% of yields of developed agricultures in Africa For the existing smallholding land, same as for 3 	<ul style="list-style-type: none"> 20% of cereal land used for horticulture instead with 5x increase in revenue per hectare
2 Landlocked countries with unutilized cropland	<ul style="list-style-type: none"> New land cultivated at the level of Brazil from 2025, increasing gradually from 2020 to 2025 	<ul style="list-style-type: none"> For the large farms’ new land, reaches 75% of yields of developed agricultures in Africa For the existing smallholding land, same as in 3 (DRC, CAR) and 4 (Mali, Chad) 	<ul style="list-style-type: none"> 20% of cereal land used for horticulture instead with 5x increase in revenue per hectare
3 Land-constrained with adequate water	<ul style="list-style-type: none"> New land added at the same pace as over the past 5 years up to maximum available fertile land (moderate to very suitable) 	<ul style="list-style-type: none"> Transformational increase closing gap to WW yield as in the case of <ul style="list-style-type: none"> –Bangladesh maize (100% of gap) –Brazil rice (80% of gap) –Iran wheat (80% of gap) –Brazil sorghum (100% of gap) –Malawi cassava (reach Malawi level) –Ghana yams (reach Ghana level) –Others (80% of gap) 	<ul style="list-style-type: none"> 20% of cereal land used for horticulture instead with 5x increase in revenue per hectare
4 Water-stressed	<ul style="list-style-type: none"> New land added at the same pace as over the last 5 years up to the maximum available fertile land (moderate to very suitable) 	<ul style="list-style-type: none"> Same as in 3 but preserving the same percentage yield gap between “water stressed” and “adequate water” countries 	<ul style="list-style-type: none"> 20% of cereal land used for horticulture instead with 5x increase in revenue per hectare
5 Developed agriculture	<ul style="list-style-type: none"> New land added at the same pace as over the past 5 years up to maximum available fertile land (moderate to very suitable) 	<ul style="list-style-type: none"> Continue yield increases at the rate average for developed world countries over the past decade (taking into account planned Monsanto large-farm yield increase) 	<ul style="list-style-type: none"> 20% of cereal land used for horticulture instead with 5x increase in revenue per hectare

SOURCE: McKinsey Global Institute

Altogether, we see that Africa’s agricultural production has the potential to increase from \$280 billion in 2008 to \$880 billion by 2030. Of the \$600 billion increase, 72 percent comes from Africa’s 11 coastal countries that have large quantities of uncultivated land (Exhibit A.6).

Exhibit A.6
11 coastal countries account for 72 percent of the growth potential

Agriculture growth 2010–30 in “green revolution” scenario
 \$ billion



NOTE: Figures do not sum due to rounding.
 SOURCE: FAOSTAT; McKinsey Global Institute analysis

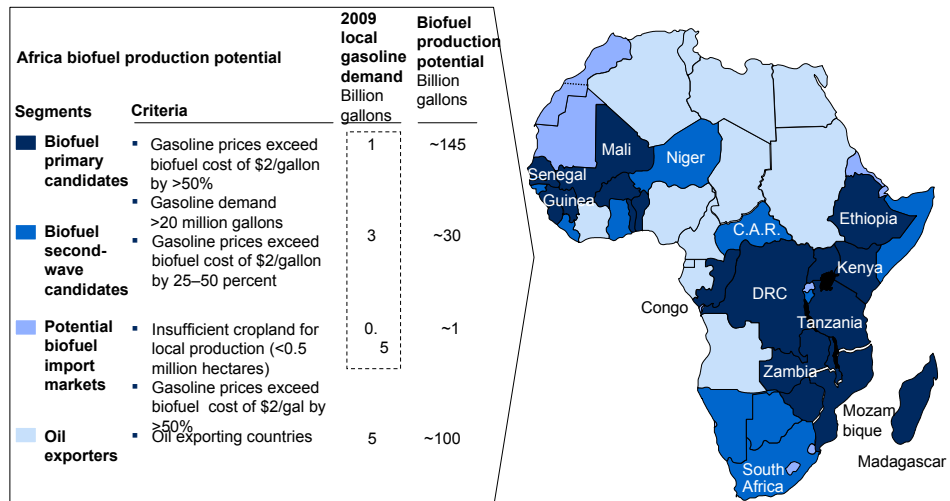
In addition to modeling potential for Africa’s agricultural production, we modeled the impact on related upstream (inputs) and downstream (processing) industries. The baseline data for inputs were based on 2007 FAOSTAT data on consumption of fertilizers, pesticides, and agricultural equipment in each African country. We estimated 2030 fertilizer use per hectare based on the International Fertilizer Development Center’s estimate of the need for a three- to fourfold increase in fertilizer use to achieve green revolution yields. We assumed pesticide use would grow along with fertilizer use. Agricultural equipment was assumed to grow at the rate of projected increase in agricultural production, or 5.8 percent annually. Operating margins for projected profit pools were based on average five-year segment operating margins of largest players in their relevant market (e.g., Yara for N fertilizer; PotashCorp for K fertilizer; Mosaic for P fertilizers; DuPont and Monsanto for pesticides and seeds; John Deere, CNH, AGCO, and Claas for agricultural machinery).

Growth in downstream processing industries was based on 2007 FAOSTAT data on imports and exports of processed products. The 2030 projections were created assuming that Africa will achieve the same ratio of processed products to underlying crops as in Brazil today. For example, we assume the ratio of grain and maize processing to cereal production would reach 28 percent, or the ratio of sugar refining to sugar production would reach 49 percent.

Finally, we sized the potential for biofuel production in Africa as a replacement for gasoline (similar to flex-fuel use in Brazil) based on individual country conditions (e.g., a country's dependency on oil imports, local gasoline demand, and local gasoline prices). We used oil data on consumption from the Joint Oil Data Initiative World Database. See Exhibit A.7 for detailed assumptions made.

Exhibit A.7

Biofuels for African consumption alone could be an \$11 billion market in 2030, meeting 50 percent of Africa's total gasoline demand or 10 percent of total oil demand



SOURCE: McKinsey Global Oil & Gas Analyzer; JODI World Database

7. RESOURCES MODEL

We developed a model to project revenue for each of Africa's major resources: oil, gas, iron ore, coal, copper, platinum, diamonds, gold, bauxite, and phosphate. For the 2008 baseline, we used volume and price data from the International Energy Agency for oil and gas, and from the US Geological Survey and Raw Materials Group for minerals. Volume scenarios for 2020 were developed through proprietary McKinsey models and market insights developed by McKinsey Global Institute, McKinsey's Oil and Gas Practice, and McKinsey's Metals and Mining Practice. Price scenarios for 2020 were developed using analyst forecasts for long-term prices for oil and gas and key minerals.

8. INFRASTRUCTURE SPENDING AND NEEDS DATA

Our infrastructure spending data rely on the World Bank's Africa Infrastructure Country Diagnostic data set for government spending and the World Bank Private Participation in Infrastructure data set for private spending. This follows the convention in the World Bank 2010 publication, *Africa's Infrastructure: A Time for Transformation*. For government spending data for North African countries, we used government budgets to provide estimates of the public sector component.

Infrastructure needs were based on the World Bank's estimates based on annual economic and social needs for 2006–15.⁴⁴ The needs assessed included power (spending required to meet power backlog and keep up with power demands of economic growth); transport (road, rail, port, and airport needs to maintain good regional, national, urban, and rural connectivity); water and sanitation (requirements to meet Millennium Development Goals); and information and communications technologies (requirements for connectivity).

44 Vivien Foster and Cecilia Briceño-Garmendia, eds., *Africa's Infrastructure: A Time for Transformation*, Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 2010.

9. SUMMARY STATISTICS BY COUNTRY

Country	GDP \$ billion	GDP per capita \$	Real GDP growth 2000–08 %	Population million	Share of manufacturing and services in GDP %	Exports per capita \$
Oil exporters						
Algeria	174	5,059	4%	34	44%	2,020
Angola	83	5,128	13%	16	35%	3,386
Chad	8	832	9%	10	33%	312
Congo, Rep.	11	2,780	4%	4	29%	1,393
Eq. Guinea	19	14,919	21%	1	21%	10,075
Gabon	14	9,954	2%	1	39%	1,969
Libya	100	15,876	4%	6	34%	9,738
Nigeria	212	1,502	6%	141	40%	539
Pre-transition						
Congo, D.R.	12	188	5%	62	48%	80
Ethiopia	26	352	8%	75	48%	28
Mali	9	688	6%	13	55%	163
Sierra Leone	2	351	11%	6	37%	89
Transition						
Cameroon	23	1,362	4%	17	69%	297
Côte d'Ivoire	23	1,232	1%	19	71%	754
Ghana	16	732	6%	22	68%	120
Kenya	35	945	4%	37	73%	203
Mozambique	10	435	8%	22	71%	110
Senegal	13	1,082	4%	12	75%	264
Tanzania	20	514	7%	40	66%	105
Uganda	15	455	8%	32	78%	67
Zambia	14	1,134	5%	13	76%	2,349
Diversified						
Egypt	163	1,997	5%	82	73%	1,194
Morocco	86	2,731	5%	32	84%	923
Namibia	9	4,021	5%	2	77%	852
South Africa	277	5,672	4%	49	92%	1,555
Tunisia	40	3,951	5%	10	88%	1,815
Other						
Botswana	13	6,751	4%	2	58%	3,015
Madagascar	9	469	4%	19	73%	91
Mauritius	9	6,798	4%	1	96%	4,235
Rwanda	4	468	7%	10	62%	37
Sudan	58	1,413	8%	41	48%	355
Not shown on Exhibit 17 segmentation map						
Benin	7	771	4%	9	61%	144
Burkina Faso	8	522	6%	15	67%	56
Burundi	1	139	3%	8	53%	8
Cape Verde	2	3,198	6%	1	92%	553
CAR	2	445	1%	4	44%	66
Comoros	1	802	2%	1	n/a	107
Djibouti	1	1,145	3%	1	96%	784
Eritrea	2	340	2%	5	n/a	n/a
Gambia	1	471	5%	2	71%	249
Guinea	4	434	4%	10	54%	89
Guinea-Bissau	0	273	-1%	2	n/a	n/a
Lesotho	2	791	4%	2	86%	388
Liberia	1	229	0%	4	25%	109
Malawi	4	288	4%	15	65%	26
Mauritania	3	889	5%	3	52%	558
Niger	5	395	5%	14	49%	75
São Tomé & Prin.	0	1,090	6%	0	n/a	n/a
Seychelles	1	9,937	2%	0	98%	20,736
Somalia	1	122	3%	11	n/a	n/a
Swaziland	3	2,242	3%	1	93%	2,039
Togo	3	437	2%	6	62%	190
Zimbabwe	2	144	-7%	13	n/a	n/a

NOTE: All data 2008 unless otherwise stated.

SOURCE: World Bank World Development Indicators; Organisation of Economic Cooperation and Development; McKinsey Global Institute

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