Malawi

Malawi 2020 Constraints Analysis Report

MILLENNIUM CHALLENGE CORPORATION
UNITED STATES OF AMERICA

An Analysis prepared by the Government of Malawi and the Millennium Challenge Corporation of the United States of America for the Development of a Millennium Challenge Corporation Compact Program.

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Authors and Acknowledgements

MCC's Board selected Malawi as eligible to develop a second compact in December 2018. MCC undertook this Constraints to Economic Growth Analysis (CA) under its second Compact Program engagement with Malawi from February to June of 2019.

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Abstract

Malawi is one of the poorest countries in the world, registering a per capita real income of US$527 in 2020 according to the World Bank. The country's economy has experienced sporadic per capita real income growth episodes from 1970-2017. While the period starting in 2004 has mostly been characterized by per capita income growth, that growth has not been widely shared; income inequality has also been on the rise since 2004. Despite some progress on human development indicators in the last few decades, the country continues to face very high rates of food insecurity and is among the worst-ranked countries in the world for child marriage and gender equality.

This analysis suggests three binding constraints to economic growth and poverty reduction in Malawi:

An unstable macroeconomic environment as reflected in high and volatile inflation: For much of the last decade, Malawi has had one of the most unstable macroeconomic environments in the world, dominated by high interest rates, an overvalued currency, followed by high inflation and an unstable outlook. Very high interest rates and short loan tenor combine to make investing for the long-term nearly impossible in Malawi, trapping the country in a low-growth and low-investment equilibrium.

A high cost of road freight transport services and barriers to linking farms to markets in rural areas: The extent and quality of rural road networks, cost of rural freight transport, and other market distortions may result in extremely high prices of farm-to-market transport and market power distortions. These prices inhibit the development of Malawi's rural economy and stymie structural transformation by preventing the rural-to-urban movement of labor and diversified production of cash crops.

Difficulties with access to land for investment due to mismanagement of the estate sector and unclear/uncertain land rights, particularly for women smallholders. De facto land markets in Malawi operate under systems of informal land rights, blocking outside investors from investing in land. Lack of land for investors creates substantial distortions in production and investment, discouraging new entrants into Malawi's markets. Uncertain or unclear land rights can slow growth by discouraging investment in land productivity improvements and limiting land transactions that could consolidate plots, potentially leading to greater urban migration.

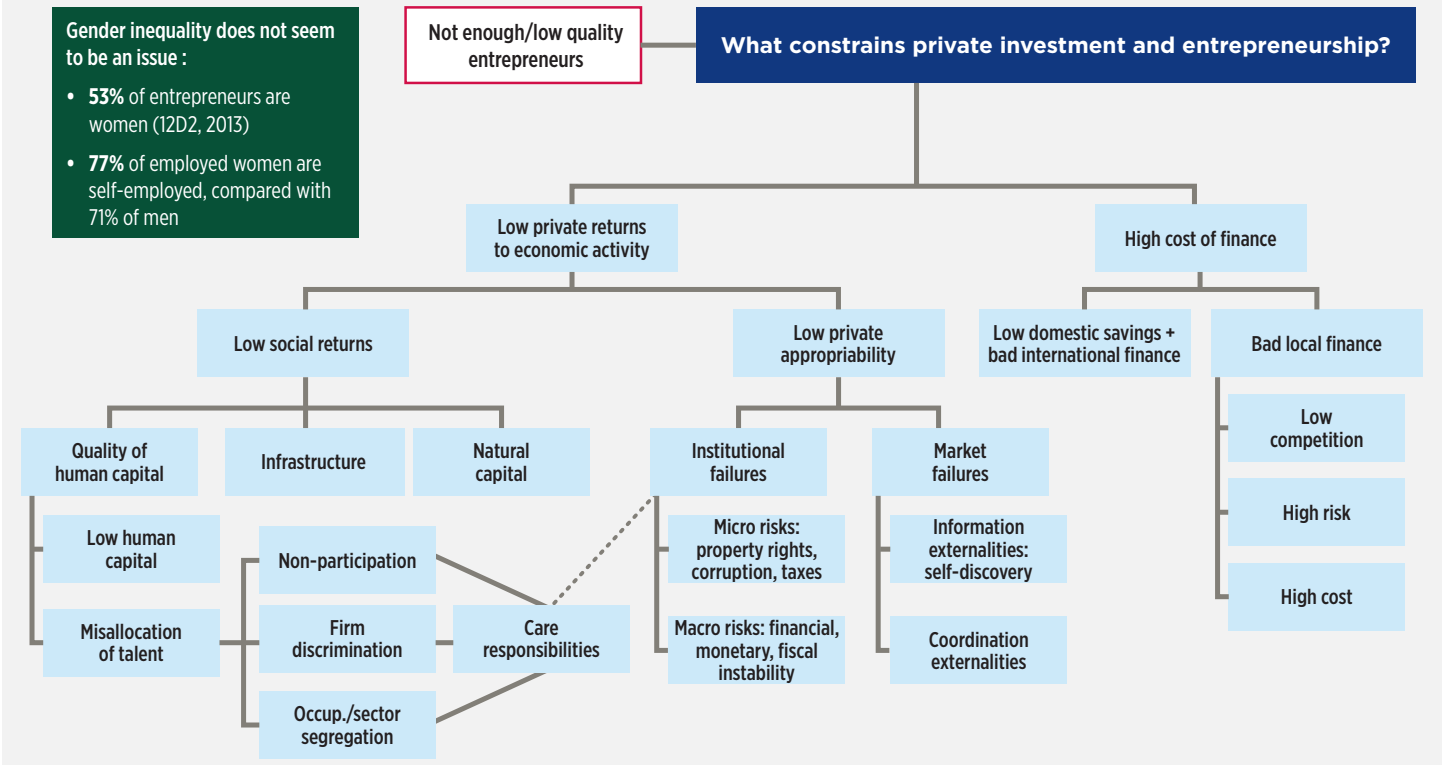
Executive Summary

In December 2018, Malawi was selected to develop a second Compact by the Millennium Challenge Corporation [MCC] following the successful completion of Malawi's first compact earlier in the year. As a first step in the development of a second Compact, MCC conducted a Constraints Analysis[1] following the methodology laid out by Hausmann, Rodrik, and Velasco (HRV 2008). In July 2019, the preliminary findings of this Constraints Analysis were validated in Lilongwe, Malawi by a panel of government and private sector experts.

The Constraints Analysis also investigated links between economic growth; gender and social inclusion; environmental sustainability; and finance, investment, and trade. This process involved a parallel Investment Constraints and Opportunities Analysis [ICOA] designed to provide insights into the financial (Dalberg 2019a) and productive sectors (Dalberg 2019b) and MCC's first "engendered" constraints analysis conducted in partnership with the Brookings Institution (Ravenga and Dooley 2019).

In partnership with the Brookings institution, MCC conducted its first "engendered" constraints analysis (see Figure 1). While it did not conclude that gender inequalities are a binding constraint to growth, it did point to two major constraints to women's economic empowerment in the Malawian economy: a large agricultural productivity gap and high rates of adolescent marriage and fertility. The report also pointed to gender disparities in access to credit, information, networks, and markets as constraints to women's entrepreneurship.

FIGURE 1: Part of the Engendered Constraints Analysis, Malawi. Source: Ravenga and Dooley (2019)



1 Also referred to as Growth Diagnostics. A Constraints Analysis involves posing and answering a sequence of diagnostic questions that highlight the "root causes" that constrain private investment. A hierarchical framework, or tree, is used to organize and motivate the questions driving the Constraints Analysis.

The Constraints Analysis points toward three binding constraints affecting Malawi's economy: (i) an unstable macroeconomic environment as reflected in high and volatile inflation; (ii) a high cost of road freight transport services and barriers to linking farms to markets in rural areas; and (iii) difficulties with access to land for investment due to mismanagement of the estate sector and unclear/uncertain land rights, particularly for women smallholders.

Unstable Macroeconomic Environment as Reflected in High and Volatile Inflation

For much of the last decade, Malawi has had a highly unstable macroeconomic environment, dominated by high interest rates, an overvalued currency, high inflation, and volatile growth. Very high interest rates and short loan tenor combine to make investing for the long-term nearly impossible in Malawi, trapping the country in a low-growth and low-investment equilibrium.

Malawi's exchange rate had been systematically overvalued, de facto pegged to the U.S. dollar from independence despite periodic devaluations as part of an objective to move to a flexible exchange rate regime in the early 2000s (Wu 2017). In 2012, to address recurring balance of payments problems, Malawi's central bank, the Reserve Bank of Malawi [RBM], floated Malawi's currency on the international market. Over the next year, the rate of consumer price inflation [CPI] rose drastically, becoming one of the highest rates in Africa over this span and only falling to a lower but still-elevated rate in 2017/18. During much of this period, the RBM's policy rate was among the highest in Africa (Dalberg 2019a).[2]

Even as the macroeconomic situation has improved in recent years, inflation volatility remains high and contributes to one of the highest real lending rates in the world. The two most likely drivers of the high and volatile inflation regime are a heightened exposure to international shocks resulting from low levels of diversification in the macroeconomy and poor credibility of the monetary authority due to Malawi's history of excessively populist public policy and the contingent liabilities of its state-owned enterprise sector.

High Cost of Road Freight Transport Services and Barriers to Linking Farms to Markets in Rural Areas

While main roads in Malawi are relatively well-developed,[3] there are significant problems with the cost of linking farms to markets, which may be reflected in the extent and quality of rural road networks, cost of rural freight transport, and/or other market distortions. These issues result in extremely high prices of farm-to-market transport and in some cases significant market power of transporters and agro-processors, evidenced by short-haul farm-to-market transport prices that range from five to 20 times the cost of international shipping from cities in Malawi.[4] These prices inhibit the development of Malawi's rural economy and stymie structural transformation by preventing the rural-to-urban movement of labor and diversified production of cash-crops.

A key feature of Malawi's economy is its monoculture—its reliance on a single crop, maize, for subsistence farming—and the lack of trade in that crop or any other crops that could generate more income, with the sole exception of tobacco.[5] Strikingly, while 96% of farmers

2 For a discussion of Malawi's inflation dynamics, see Wu (2017). For a discussion of Malawi's macroeconomy and progress under the IMF's Extended Credit Facility, see IMF (2017), IMF (2018a,b). A high policy rate most likely reflects RBM's attempts to control inflation.

3 Malawi is served by a relatively extensive network of roads that comprise links ranging from paved main roads to narrow unpaved tracks and trails. The road network is functionally classified in the following categories -- main, secondary, tertiary, district, urban, community (undesignated) and track. Malawi has approximately 4,074 km of paved roads and 11,378 km of unpaved road. Approximately 70% of Malawi's main roads, by length, are paved along with 10% of secondary roads and 1% of tertiary roads. In addition, there are approximately 9,478 km of community roads that are unpaved and yet to be classified (Malawi Roads Authority, 2015).

4 While the Ministry of Transport data are up to date, the data underlying the World Bank analysis is over 10 years old (Lall, Wang and Munthali 2009). However, the World Bank data may include prices during the rainy season, for which there is a significant markup. See also (World Bank 2018b).

5 While maize is the most predominantly farmed crop in Malawi, the economy has been highly and increasingly reliant on tobacco exports; however, the decline in global demand for tobacco has resulted in a parallel drop in Malawi's current gross export value, as unmanufactured tobacco accounts for 55.55% of export value and no substitute cash crop has been able to fill the gap.

grow maize, only 14% sell any of it. Lack of trade suggests high transaction costs and/or low market prices[6] in rural areas that prevent the exchange of goods through markets, consistent with a binding constraint in farm-to-market linkages. In addition to poor infrastructure, market factors such as empty backhauls—underpinned by low volumes of traded agricultural production and a lack of aggregation of output among many small-scale producers—and trucking cartels may contribute to high road freight prices, as significant market distortions are attributed to both poor storage and a lack of competition along value chains.

A large price differential between farmgate and market prices, undergirded by high transaction costs, high and regressive market fees, limited access to markets in rural areas, and distortive agriculture policies—such as export bans, price controls, and other policy distortions—limits marketability into more lucrative, high demand crops, which also limits diversification in the economy as a whole. Food security plays a role as farmers—predominantly smallholders, who are relatively liquidity constrained—tend to market maize when the price is lowest.

This constraint is more severe for women, whose agricultural productivity is markedly lower due to a combination of virtual exclusion from cash-crop production and lower access to farm labor and agricultural equipment (Ravenga and Dooley 2019). Women's access to markets and bargaining position with transporters and other market intermediaries is also reduced by their relative immobility and narrow social networks; a combination of cultural norms, domestic burdens, and gender-based violence and expectations of transactional sex restrict women's freedom of movement[7] and association.

Difficulties with Access to Land for Investment Due to Mismanagement of the Estate Aector and Unclear/uncertain Land rights, Particularly for Women Smallholders

Land issues in Malawi are well-documented and have been heavily researched.[8] They are likely exacerbated by the country's high population density, low availability of agricultural land per capita, and low urbanization rate, leading to small plot sizes and conflict over agricultural land. Lack of land for investors creates substantial distortions in production and investment, discouraging new entrants into Malawi's markets. Uncertain or unclear land rights can slow growth by discouraging investment in land productivity improvements and limiting land transactions that could consolidate plots, potentially leading to greater urban migration.

While *de jure* indicators of Malawi's land administration system are somewhat better than would be expected for its level of development, other indicators provide evidence of serious problems in the sector. Evidence suggests that the estate sector is mismanaged and unproductive, with 70% of estate leases expired and ground rents far below market rates. Although Malawi recently passed a land law that provides for the conversion of customary land to private land, inadequate resources have inhibited the law's full implementation. Research[9] suggests significant productivity losses for tenure-insecure individuals, exacerbated by unsustainable farming practices and low rates of investment. These losses are far higher for women than for men. This may be driven by women's limited control over land use decisions and household assets, even in matrilineal areas (which cover roughly 70% of Malawi's customary land) and by the fact that matrilineality is concentrated in the south, the site of greatest land scarcity. In more urban environments, Malawi has one of the lowest rates of documentation of land among a sample of 33 countries and many respon-

6 There are indications of low spot market prices for staple crops, especially immediately following harvest season, but also high spot market prices during the dry season. This pattern suggests that the market does not adequately arbitrage the seasonal price differential. A relative lack of storage is an aggravating factor (FAO 2015).

7 See Porter et al. (2012) and Nagoli, Binauli and Chijere (2019) .

8 See e.g., Deininger, Xia and Holden (2019).

9 For several examples, see Deininger, Xia and Holden (2019), Place and Otsuka (2001), Djurfeldt, et al. (2018), and Lovo (2016).

dents in Malawi reported that they had lost land against their will.

Anecdotal evidence suggests that demand for land is very high. For example, the government's Green Belt Initiative (GBI), which aims to link firms to large parcels of land for investment, has a long waiting list of firms. Meanwhile, estate lands, which cover as much as 20% of Malawi's agricultural area, are, for certain crops, less productive than smallholder farms, suggesting significant misallocation in the land sector.

Other Sectors of Interest and Near-Binding Constraints

Consistent with the methodology in HRV, the Constraints Analysis performed a comprehensive analysis that included all major sectors of Malawi's economy. Several sectors were identified as "near-binding" constraints that, while not rising to the level of binding constraints to economic growth, merit additional attention based on the findings of the Constraints Analysis.

Statistical tests conducted for the near-binding constraints yielded mixed results, suggesting that these sectors may be the "next tier" of important problems that Malawi faces, either currently or in the recent past. It is also possible that several of these issues may interact strongly with the binding constraints. For example, Malawi's volatile macroeconomic situation and inefficient contract enforcement may be driving some of the problems identified in the finance sector.

The Constraints Analysis identified four sectors as near-binding:

High Cost of Finance

While not defined as binding, high cost of finance has been a significant factor in perpetuating slow economic growth in Malawi, as high lending interest rates transmit problems in the external sector to the rest of the economy. For example, with an average lending rate of 39% in 2017—the third highest in the world that year—and still as high as 26% in 2019, financing costs are extremely high and significant uncertainty remains for investors. These factors prevent the business community from making investments today—particularly those that require loans longer than one year. In the research related to identifying promising productive sectors as part of the ICOA, access to finance was also the only constraint that firms ranked as "severe" across all five sub-sectors identified as high potential (Dalberg PSA: Malawi 2019b). Between December 2017 and December 2018, growth of domestic credit was driven almost entirely by government borrowing, as banks have tended to invest in government securities rather than risky commercial loans, crowding out of private sector investment.

While interest rates are very high and domestic credit to the private sector low, firms in Malawi are relatively more likely to use credit from commercial banks to fund investment and working capital than in other countries at similar levels of development. The most likely hypothesis is that symptoms of problems in the finance sector are driven by Malawi's unstable macroeconomic environment but some concerns—such as high concentration in the banking sector—remain and likely worsen the situation.

Low Capacity for International Rail Freight Transport

Initial investigations indicated a high cost for rail freight transport, a cause of concern for a landlocked country dependent on the import and export of bulk commodities. However, further investigation revealed that high prices predominantly apply to shipments on routes outside the country, particularly Mozambique. Additionally, anecdotal evidence suggested low demand for rail freight transport within Malawi. While poor international connectivity is a significant concern, particularly when considering the likely drivers of its unstable exchange rate, the balance of evidence suggests that the root cause of these issues lies outside Malawi's borders.

Low Levels of Education and Human Capital

Malawi's education system is overcrowded in primary and secondary schools and, by some indications, low quality. Moreover, recent evidence on the returns to

schooling in Malawi shows that this indicator is moderately high and rising, suggesting rising demand relative to supply. Analyses by both MCC and the Brookings Institution (Ravenga and Dooley 2019) concluded that human capital is likely to become a binding constraint at some point in the medium- too long-run future as demand for high-skilled labor grows. Despite these data, few firms report being constrained by a lack of human capital. MCC concludes that demand for higher levels of human capital is currently low except among a narrow slice of the population, reflecting Malawi's moderately high inequality and stalled structural transformation.

Overburdened Commercial Courts and Inefficient Contract Enforcement

The cost of enforcing a contract is somewhat high in Malawi, although Malawi has improved significantly in recent years on this metric. While the recovery rate on loans is low, there is no evidence that this results in reduced lending and investment. Nevertheless, overburdened commercial courts report that the slow legal process may exacerbate challenges that arise from loan defaults.

Country Context

Malawi is the fourth-poorest country in the world, registering a per capita real income of US$527 in 2020 according to the World Bank. Land-locked, Malawi shares borders with Mozambique in the east and southwest, Tanzania in the north and northeast, and Zambia in the west. In 2020, its estimated population was 19.1 million, growing at a rate of 2.7 percent.[10] In 2018, its estimated population was 17.6 million, growing at an intercensal rate of 2.9 percent.

The Malawian economy has experienced sporadic per capita real income growth episodes (marked by growth rates of more than 5%) from 1970-2017, with only a few episodes in the years following the change towards multiparty elections. In some cases, Malawi has even experienced negative growth rates in real GDP and per capita income.

Recent growth has not been widely shared, with income inequality on the rise since 2004.[11] Despite some progress on human development indicators in the last few decades, food insecurity remains very high, and Malawi ranks near the bottom of the United Nations Development Program [UNDP] Gender Inequality Index (148/160 countries). Malawi has one of the highest rates of child marriage in the world.

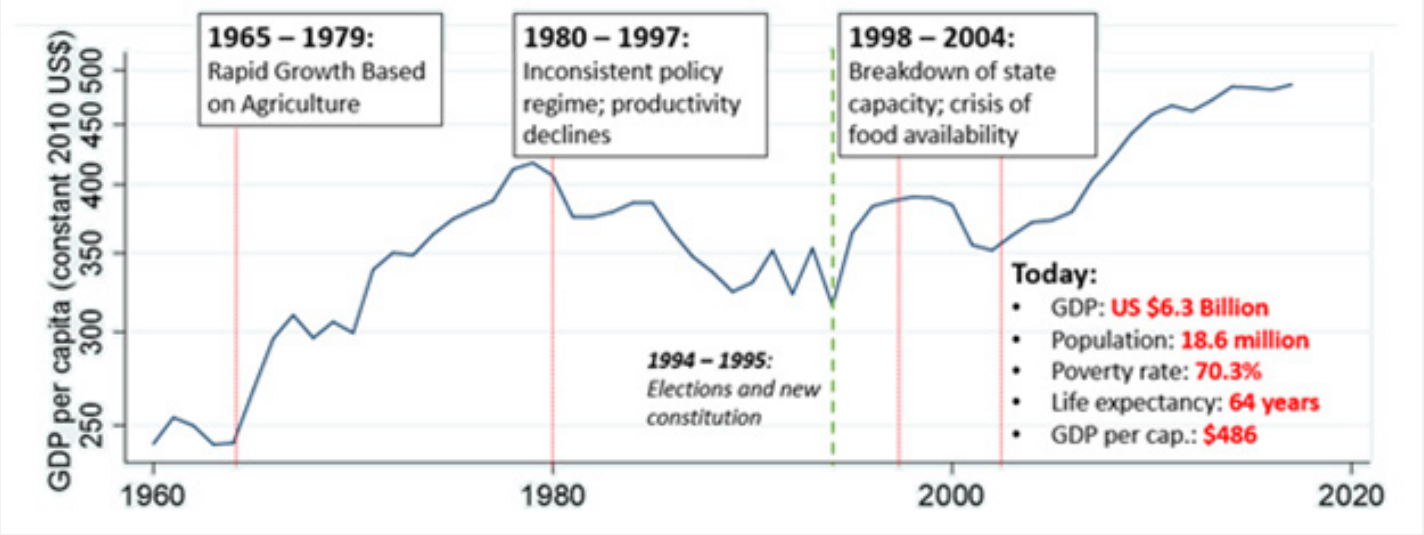
Services are by far the largest share of value-added in Malawi's economy (nearly 50 percent in 2017), although agriculture, which contributed only 26 percent of value-added, continues to be the mainstay[12] of employment. Both industry and manufacturing share of value added (14.4 percent and 9.4 percent in 2017, respectively) are low compared to economies at the same level of development as Malawi.

10 According to the World Bank's World Development Indicators 2021.

11 See (World Bank 2018a) and (World Bank 2018b).

12 Over 80% of Malawi's population is employed in agriculture, despite the sector contributing just over one quarter of total output.

FIGURE 2: Periods of growth in post-independence Malawi.



Source: Authors, using data from World Bank (2018c).

Political and Economic History

Post-Independence: the Hastings Kamuzu Banda Regime[13]

The Malawian nationalist movement started in the early 1950s, in response to British colonial rule (which had been in place since 1891)—particularly after the decision to join Malawi (then called Nyasaland) as a federation with the Northern and Southern Rhodesia colonies (now Zambia and Zimbabwe, respectively). Hastings Kamuzu Banda became the leader of the Malawian nationalist movement in 1958; the colonial federation dissolved in 1963, and Malawi gained independence on July 6, 1964. Hastings Kamuzu Banda served as the first prime minister of Malawi and then as its first president when Malawi became a republic in 1966 upon enactment of the constitution, which established a one-party state under the Malawi Congress Party (MCP).

In the early post-Independence years up to 1980, the Hastings Kamuzu Banda government improved transport systems—particularly road and railway networks—and emphasized increased cash crop production, improved food security, and a strengthened estate sector (dominated by tobacco, tea, and sugar). Despite rapid economic growth based on agriculture, the pattern of agricultural growth was biased toward estates at the expense of smallholders, who were often exploited to drive estate-led growth; smallholders suffered from high costs of imported fertilizer and low crop prices offered by the parastatal Agricultural Development and Marketing Corporation (ADMARC)[14]—the monopoly marketer of smallholder production.

Hastings Kamuzu Banda declared himself "president for life" in 1971, marking a period of increasingly authoritarian rule, with no tolerance for political opposition. Soon after, Malawi's relatively rapid per capita GDP growth (on average, 3.7% per annum in the first 15 years post-independence) took a turn in 1980. Internal and external shocks—notably, poor fiscal discipline and oil price shocks during Mozambique's civil war that reduced terms of trade for Malawi—combined with stagnant smallholder productivity and increasing population growth rates contributed to a downward economic spiral. During this period, per capita GDP growth contracted

13 Much of the information drawn for this section comes from Kings Mbacazwa G. Phiri's encyclopedia article "History of Malawi" in Britannica, updated by other authors from time to time, most recently in 2020; and the World Bank's 2018 "Malawi Systematic Country Diagnostic: Breaking the Cycle of Low Growth and Slow Poverty Reduction."

14 For a more in-depth review of ADMARC and its effects on Malawian agriculture and the broader economy, see Chinsinga (2016); Kutengule, Nucifora and Zaman (2006).

What is a Constraints Analysis?

MCC's evidence-based approach begins with a constraints-to-economic growth analysis (CA). In a CA, MCC works with a partner country to examine and prioritize the issues that constrain its economy. The CA approach builds on the "growth diagnostic" framework put forward by economists Ricardo Hausmann, Dani Rodrik, and Andrès Velasco (HRV). As HRV point out, all developing countries face significant economic and development challenges, but these challenges do not all equally restrict growth. The diagnostic framework provided by HRV helps to structure the investigation of potential binding constraints. It has been refined through application, both within MCC and the broader economic development community.

Why Does MCC Use Constraints Analysis?

Identifying the most binding constraints to growth helps MCC target its investment on the areas that, if addressed, are most likely to promote sustainable, poverty-reducing growth in a given country. Prioritization helps maximize the limited financial resources and implementation capacity needed to effect change. As HRV also argue, focusing on the most binding constraints helps to minimize the risk that development interventions create negative unintended economic consequences.

each year (-1.8% annual average from 1980-1994) and became highly volatile. Despite the national policy focus on food security, per capita grain production declined.

In early 1992, Malawian Catholic bishops penned a letter to be read in churches throughout the country; the message centered on poor and declining human rights and high poverty in the country. This act of opposition spurred growth in the movement for a multiparty system in Malawi. International donors took note and withheld financial aid in support of democratic reforms. Two opposition parties to the MCP—the Alliance for Democracy and the United Democratic Front (UDF)—emerged, and Hastings Kamuzu Banda agreed to hold a referendum to assess the need for reform. In May 1994—the first free elections in 30 years—Hastings Kamuzu Banda was overwhelmingly defeated by UDF's Bakili Muluzi. A peaceful transition of power was followed by a new constitution in 1995, setting up a structure for Malawi's transition to democracy.

A Multi-party Malawi and the Political Economy Trap of "Transition without Transformation"

Despite the existence of more political parties post-1994, the deterioration of bureaucratic effectiveness and high-quality policy making trickled over into democratic Malawi. Most political parties under the multi-party system have been led by members of a small elite, who often benefit at the expense of a policy environment conducive to broad-based and substantive development (Cammack 2017).

Muluzi's presidency was marked by a contrast in growth patterns over his two terms. Muluzi's first term rested on a platform of anti-corruption; poverty and food shortage reduction, on which the administration produced only limited success; and increased freedom of speech, assembly, and association. Violence, demonstrations, and looting occurred after Muluzi won a second term in a disputed election, after which the president was criticized for becoming more autocratic. Severe food shortages in late 2001 led to full-blown famine in 2002, after flooding-induced production shocks were exacerbated by import bottlenecks, poor information sharing and government policy, and an underestimation of maize reserves (Menon 2007); international aid was withheld under the belief that government mismanagement and corruption contributed to the food shortage, and some government officials were accused of selling grain from the country's reserves at a profit to themselves prior to the onset of the famine.

In 2004, after Muluzi served his two-term limit—and despite unsuccessful attempts to amend the constitution to extend term limits—Bingu wa Mutharika of the UDF was elected as Malawi's third president, albeit under criticisms of an unfair election tinged with irregularities. However, international aid

flows returned with the hope of a reform-minded administration, as Bingu wa Mutharika took a hard stance on rooting out corruption. In 2005, amid frictions within his own party, Bingu wa Mutharika left the UDP and formed the Democratic Progressive Party (DPP). His second term, starting in 2009, parroted that of Muluzi; the president became increasingly autocratic, with decreasing concern for the human rights of Malawians. International aid was again pulled after a brutal crackdown of protesters in 2011 that left 19 dead. After Bingu wa Mutharika's death in 2012, Joyce Banda—who had been expelled from the DPP in 2010 but retained her position as vice president—became acting president.

Shortly after taking office, Joyce Banda—who focused on restoring democratic practices, reviving the economy, and rooting out government corruption—restored diplomatic relations with the United Kingdom and normalized relations with donors. One of her first economic decisions as president was to devalue Malawi's currency, the kwacha, an act that was backed by the International Monetary Fund (IMF) and donors but criticized at home as inflation rates ballooned. Joyce Banda's policies were somewhat effective, with resumed donor funding flows to Malawi, an eventual tapering off of the inflation rate, and a more-than-doubling of the country's economic growth rate during her first two years as president. Unfortunately, Joyce Banda's presidency was marred by the "cash-gate" corruption scandal, in which senior government officials—many in Joyce Banda's cabinet—were accused of stealing millions from the government. Joyce Banda's presidency was limited to her acting term, as Peter Mutharika won presidential elections in 2014 to become Malawi's fourth president.

The 2019 election saw Mutharika running for re-election among a crowded field of challengers, with political alliances shifting—his own vice president, Saulos Chilima, had separated from the DPP and Mutharika and was one of the presidential candidates. Mutharika was declared the winner of the 2019 election, but without a majority and by a small margin over runner-up Lazarus Chakwera of the Malawi Congress Party (MCP). However, there were allegations of widespread incidents of vote tampering, including the use of correction fluid on results sheets. Chakwera and Chilima challenged the results in Malawi's Constitutional Court. In February 2020, the Court annulled the 2019 election results, citing widespread anomalies and irregularities, and ordered a new election to be held within 150 days. Furthermore, the court ruled that allowing a candidate to win with less than a majority of the vote was unconstitutional and called for the National Assembly to pass new legislation that required the winning candidate to receive more than 50 percent of the vote. The rerun of the presidential election was held in June 2020, among a smaller candidate pool of Mutharika, Chakwera (who ran with Chilima as his vice-presidential candidate), and one other candidate, Peter Kuwani. Chakwera was declared the winner with more than 58 percent of the vote.

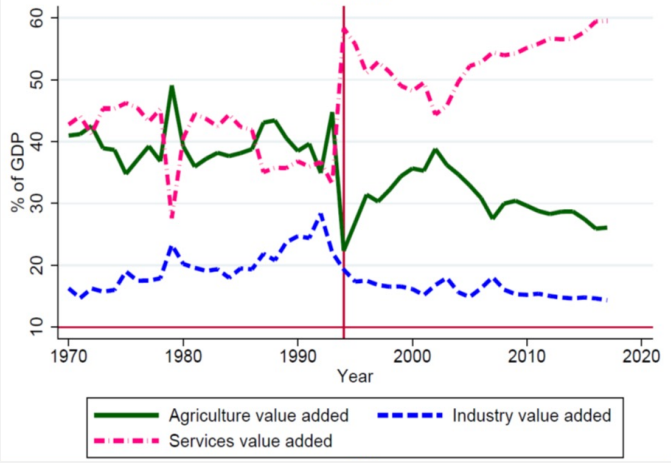
Poverty, Structural Transformation, and Productive Sectors

Recent growth in Malawi has not been widely shared, with income inequality on the rise since 2004 (World Bank 2018b)[15]. Despite some progress on human development indicators in the last few decades, food insecurity remains very high, and Malawi ranks near the bottom of the United Nations Development Program [UNDP] Gender Inequality Index (148/160 countries). Malawi has one of the highest rates of child marriage in the world.

The pace of structural transformation in Malawi is relatively slow, particularly when viewed alongside Malawi's rapidly growing population. Dense population (Malawi is the most densely populated Sub-Saharan African country); a single, short rainy season with virtually no irrigation on cultivated land; and traditional (versus improved) cultivation methods lead to increased land pressure and sustained low productivity in the agriculture sector.

15 See World Bank (2018a, b).

FIGURE 3: GDP share by sector, Malawi 1970-2018. The vertical red line in the figure indicates the year 1994, when Malawi transitioned from a one-party system to a multi-party democracy



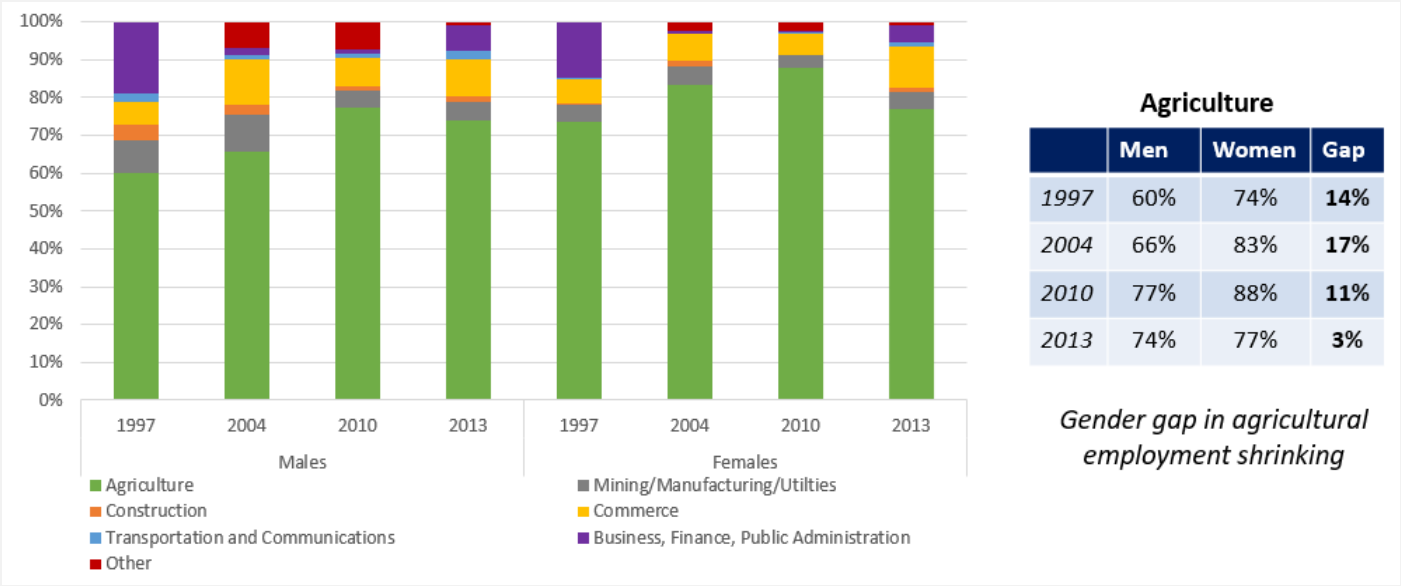
Source: Authors, using data from World Bank (2018c).

While the transition to multi-party democracy coincided with an observed shift from agriculture to services, the decline in agriculture value-added has been gradual. Further, labor has moved from extremely low-productivity agriculture to relatively low- (and declining-) productivity services. Expansion in industry has not been a major part of structural transformation since the democratic transition; in fact, industry as a share of GDP peaked in the 1990s at under 30% and has continued to steadily decline (Figure 3). Rather, the wholesale and retail trade sector has generated the most jobs over the past three decades, followed by government services and construction—these sectors are among the least productive, with negative growth in sectoral value-added per worker (World Bank 2018b). Movement out of agriculture is likely driven by "push factors" (e.g., land pressure, soil degradation, etc.) rather than "pull factors" from good jobs in high-productivity service sectors.

Currently, services are by far the largest share of value-added in Malawi's economy (nearly 50 percent in 2017), although agriculture, which contributed only 26 percent of value-added, continues to be the mainstay[16] of employment. Both industry and manufacturing share of value added (14.4 percent and 9.4 percent in 2017, respectively) are low compared to economies at the same level of development as Malawi.

Women are more likely to be employed in agriculture than men, although the gender gap in agricultural em-

FIGURE 4: Employment by sector and gender in Malawi, 1997-2013.



Agriculture

	Men	Women	Gap
1997	60%	74%	**14%**
2004	66%	83%	**17%**
2010	77%	88%	**11%**
2013	74%	77%	**3%**

Gender gap in agricultural employment shrinking

Source: Authors' calculations using the World Bank's International Income Distribution Database (I2D2).

16 Over 80% of Malawi's population is employed in agriculture, despite the sector contributing just over one quarter of total output.

ployment is shrinking. However, the narrowing of the gap is also characterized by increases in agricultural employment over time up to 2010—at a relatively faster rate for men (Figure 4).

Review of Past Constraints Analyses

Several preexisting growth diagnostics for Malawi informed this constraints analysis. Prior to MCC's first compact with Malawi, a constraints analysis was published (MCA-Malawi 2010) that identified five current constraints (power, international corridors, human capital, water and irrigation, and finance) as well as three additional equally binding constraints with more intermittent impacts (an overvalued exchange rate, administrative barriers to trade, and regular changes to trade rules). In a roughly concurrent analysis from the World Bank, Lea and Hanmer (2009) find that the most pressing constraint at that time was the regime of exchange rate management. More recently, the World Bank conducted a Systematic Country Diagnostic in 2018 (World Bank 2018b) which found two foundational issues (weak governance that underlies macroeconomic instability and poor policy implementation, and gender inequality) and four pathways to growth (increasing agricultural productivity, diversifying the economy and creating jobs, harnessing the demographic dividend and building human capital, and building resilience against shocks and enhancing environmental sustainability).

Growth Question

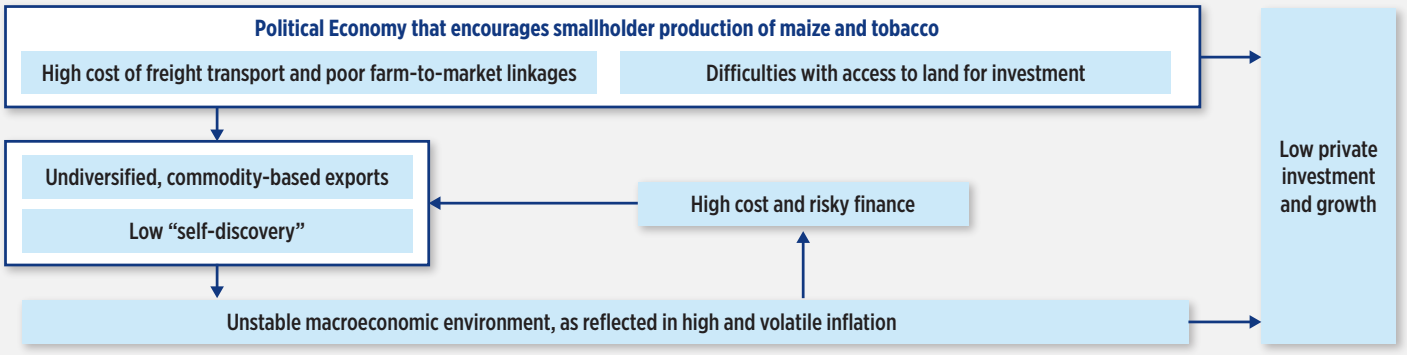
The methodology used in this report follows the growth diagnostic approach of Hausmann, Rodrik, and Velasco (HRV 2008) by applying the "four tests" first proposed by Hausmann, Klinger, and Wagner (Mindbook 2008) to identify the most binding constraints to economic growth in Malawi using—to the extent possible—publicly available market-based data, academic studies, and consultations.[17] The most binding constraints to economic growth are those factors that are in the greatest demand relative to supply, thereby restricting investment. While all countries face a range of economic challenges, not all challenges restrict growth equally. By prioritizing investments that address the root causes of the most binding constraints, the Constraints Analysis aims to help Malawi focus its scarce resources on those sectors with the greatest potential to increase growth. The growth diagnostics literature highlights the importance of identifying the 'growth syndrome' of underlying factors that give rise to the pattern of the binding constraints. Malawi's growth syndrome can be described as a unique form of Dutch Disease.[18]

Malawi's unique form of the Dutch Disease is a result of its undiversified basket of exports—primarily maize and tobacco—as well as its reliance on imported inputs, especially fertilizer. Malawi's highly unstable real exchange rate is driven by its exposure to fluctuations in international prices for these goods. These fluctuations put upward pressure on the cost of capital, making investments in new products and industries expensive and risky for private investors; this trend is exacerbated by the long-term secular decline in the international price of tobacco, Malawi's chief export (Lea and Hanmer 2009). A political economy in Malawi that focuses on expanding smallholder production of maize also contributes to the very low rate of identifying new products and markets (i.e., "self-discovery"), further reinforcing Malawi's dependence on a small number of low-value exports. The relationship between Malawi's binding constraints and growth syndrome is illustrated in Figure 5.

17 MCC's approach to Constraints Analysis places a heavy emphasis on the use of publicly available data and academic studies. This approach, while transparent, also introduces a lag into the analysis due to the availability of these information sources. Much of the current analysis is based on data collected in the latter half of 2018, supplemented only as needed by data collected in early 2019 while the analysis was still ongoing.

18 Dutch Disease, a term first used by The Economist magazine in 1977, describes an economic phenomenon where the rapid development of one sector of the economy (particularly natural resources) precipitates a decline in other sectors. It is characterized by substantial appreciation of the domestic currency, making other exports less competitive, and results in a negative impact on the country's overall economy.

FIGURE 5: Malawi's growth syndrome: A unique form of Dutch disease.



Source: Authors.

Discussion of Constraints

Comparator Countries

Comparator countries were identified for Malawi based on a set of criteria including natural resource rents and recent growth history for the set of countries within a band of GDP per capita with no more than 20% of Malawi. Potential comparators were then ranked based on similarity to Malawi based on these criteria. The final list of comparators included Guinea-Bissau, Rwanda, Mozambique, Mali, and Kenya.

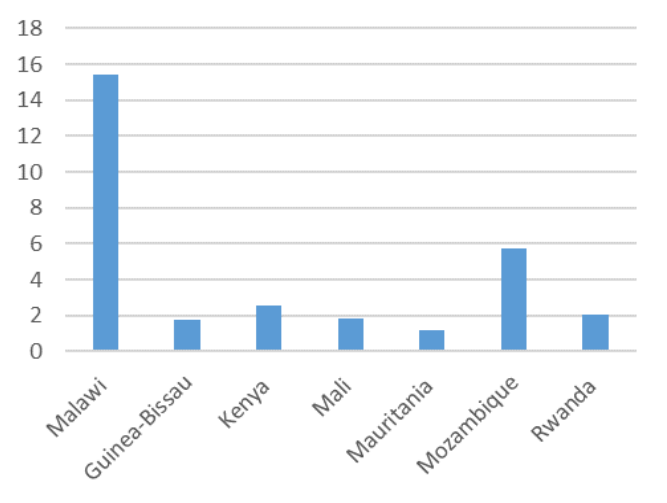
Unstable Macroeconomic Environment

For much of the last decade, Malawi has had one of the most unstable macroeconomic environments in the world, dominated by high interest rates, an overvalued currency, followed by high inflation and an unstable outlook. These outcomes have had a major adverse impact on the financial sector and on private incentives to invest for the long-term. Two potential drivers of the high and volatile inflation regime are a heightened exposure to international shocks as a result of low levels of diversification in the macroeconomy and poor credibility of the monetary authority due to Malawi's history of excessively populist public policy and the contingent liabilities of its state-owned enterprise sector.

High lending interest rates imply an unusually high risk-premium (lending rate minus Treasury bill rate) and interest rate spread (lending rates minus deposit rates). Potential investors exposed to this high cost of finance are less likely to identify projects in Malawi with positive net returns, and therefore high interest rates can explain much of Malawi's low-growth equilibrium. Understanding the potential causes of the high cost of finance in Malawi has been a major focus of the work of the CA. The team considered an inefficient financial sector and both micro- and macro-economic appropriability to explain high interest rates.

In 2011, Malawi's central bank, the Reserve Bank of Malawi (RBM), floated Malawi's currency on the international market. According to data from the International Monetary Fund [IMF], over the next year, the rate of the consumer price inflation (CPI) rose by a factor greater than 3, from just over 7% in 2010, to well over 20% in 2012. The rate of CPI inflation then remained at an elevated level through 2016, falling to around 12% in 2017 and 2018. During much of this period, the RBM's policy rate was among the highest in Africa (Dalberg FSA 2019), reflecting the RBM's attempt to control inflation (IMF 2018b).

FIGURE 6: Inflation volatility for Malawi and its closest comparators.



Source: MCC staff calculations, data from IMF (2017).

Despite significant progress in Malawi's attempts to control it, inflation remains stubbornly volatile (see Figure 6). This rate has also been higher compared to peers over the last 10 years (Dalberg 2019). While the consumer price inflation [CPI] rate fell to 12.4% in 2017, from a high of nearly 35% in 2013, the volatility of inflation, measured as the root-mean-square (RMS) of the monthly deviation from the yearly average, has risen to 15.5% in 2017, compared to only 7.5 % in 2013. Although in principle Malawi's monthly inflation rate could be driven by the yearly harvest since the consumption basket is heavily skewed to the consumption of maize. However, IMF data shows that inflation did not follow a consistent yearly pattern between the 2017-18 seasons when volatility was highest. Other tests also fail to identify rainfall as a significant driver of growth or inflation over the last several decades. Since RMS inflation volatility is an estimate of the inflation-risk premium that banks price into loans, we find that the high level of inflation volatility can explain the persistence of Malawi's high lending interest rates. During the Productive Sector Analysis for Malawi, the high cost of finance was also found to be the most significant barrier for firms in the sectors studied (Dalberg FSA 2019).

Domestic credit provided by the financial sector is lower as a percentage of GDP than is the case in comparator countries. Collectively, Malawi's nine commercial banks hold USD 2.4 billion in total assets; this represents less than 14% of GDP—half of Rwanda's banks' share of GDP and less than one-third of the share held by banks in Mozambique. Two banks, National Bank and Standard Bank, together hold about 50% of the total assets and deposits and dominate the sector (Dalberg FSA 2019).

Lending interest rates in Malawi have been among the highest in the world, and while they have declined from a nominal rate of 39% in 2017 to 26% in February 2019, they remain high (RBM, as cited by Dalberg 2019). Although domestic credit provided by the financial sector overall increased from USD 1.3 billion to USD 1.5 billion between December 2017 and December 2018, this growth was driven almost entirely by government borrowing to cover fiscal deficits, rather than private sector borrowing, as banks have preferred to invest in government securities rather than commercial loans (IMF 2018a-b; Dalberg FSA 2019).

Additional evidence for this constraint can be identified from the unusually short duration of loan tenor and collateral requirements. Nearly 80% of loan value in 2017 had a tenor of 1 year or less (See Table 1). This compares to the world average loan tenor,[19] which, according to the World Bank's Global Financial Development Database, was nearly 7 years[20] in 2017. The prevalence of such short duration loans reduces the ability to invest for the long-term.

In Malawi, collateral requirements are also more common than what might be expected. This suggests the importance of risks that can affect nearly all loans, inflation volatility being one possible example. In addition,

19 Loan tenor is the amount of time until a loan is due as compared to loan tenure which is the duration of the loan when it is taken out. For example, one year after taking out a two-year loan, the loan tenor will be one year.

20 Although data for Malawi's average loan tenor was not available for this analysis, note that Malawi's average loan tenor is almost certainly shorter than the average of the database. For example, for Malawi to simply achieve the database's average loan tenor, the remaining 20% of loans in Malawi with tenor longer than one year would need to be nearly 30 years. Our consultations did not reveal such a large number of long-term loans.

TABLE 1: Volume of long-term loans by loan value for each major bank in Malawi (%).

	National Bank of Malawi	Standard Bank of Malawi	NBS	CDH Bank	New Finance Bank	Nedbank	All Banks
% >1 year	41.6%	0%	38.9%	13.2%	41.8%	17.8%	20.2%
% <1 year	58.4%	100%	61.1%	86.8%	58.2%	82.2%	79.8%
Note: Breakdown of loans with duration greater than 1 year (e.g., 1-year, 2-year, etc.) not available.							

Source: Bank annual reports via Dalberg MWI FSA (2019).

Malawian banks also require much more collateral for small and medium-sized businesses compared to banks in sub-Saharan Africa as a whole (World Bank Enterprise Survey 2014) and large businesses required somewhat less collateral, perhaps because these firms are better able to negotiate terms or handle macro-economic risk (Dalberg PSA 2019). The pattern of loan rejections among firms that apply shows a similar bias in favor of large firms (World Bank Enterprise Survey 2014) compared to the rest of sub-Saharan Africa. Malawian women face substantially higher collateral requirements than their male counterparts (Ravenga and Dooly 2019), suggesting a real or perceived differential exposure or vulnerability to risks.

While high interest rates could be explained by an uncompetitive banking sector, frictions in the commercial system or crowding out of private investment by government debt, we find that macro-stability is the most likely explanation. First, in Lea and Hanmer, "Constraints to Growth in Malawi" (2009), an over-valued exchange rate was identified as the only constraint to Malawi's growth. The current high and volatile inflation environment coincides with the float of Malawi's currency and the subsequent devaluation starting in 2011. Furthermore, MCC investigated the financial sector, the cost of enforcing contracts and Malawi's fiscal space and determined that these sectors were not binding constraints to growth. However, as demonstrated by Malawi's 2006 debt forgiveness under HIPC11 and sustained high government borrowing, foreign investors' confidence in Malawi's fiscal situation may also be a contributing factor in Malawi's unstable macroeconomic performance. Nevertheless, the IMF identifies the unstable exchange rate and Malawi's exposure to exogenous shocks as the primary drivers (Wu 2017), suggesting that a lack of diversification may be at the root of Malawi's unstable macroeconomic environment.

Such a pattern of data could potentially be explained by a resource curse in cases when the non-resources tradeable sector has disappeared (See Hausmann and Rigobon 2002). This would certainly include the case of Malawi which is an extremely undiversified economy that specializes almost entirely in the export of a small number of tradeable agricultural products, such as tobacco and maize. It is noteworthy that the current regime of high inflation and significant inflation volatility began with the attempt by the RBM to float the Malawian Kwacha on the international currency exchanges. Moreover, within the Hausmann and Rigobon framework, financial frictions may play an important role in magnifying volatility as it affects interest rates through the bankruptcy channel. Malawi experiences significant frictions in resolving insolvency and a highly concentrated financial industry.

Overall, the team identifies the lack of a stable macroeconomic environment as reflected in high and volatile inflation as a binding constraint to Malawi's growth. Even as the macroeconomic situation has improved in recent years, inflation volatility remains high and contributes to one of the highest real lending rates in the world. Very high interest rates and short loan tenor combine to make investing for the long-term nearly impossible in Malawi, trapping the country in a low-growth and low investment equilibrium. While the root cause of macroeconomic instability is not clear at this stage, Malawi's reliance

on the undiversified export of basic commodities likely contributes.

High Cost of Road Freight Transport Services and Barriers to Linking Farms to Markets in Rural Areas

While main roads in Malawi are relatively well-developed,[21] there are significant problems with the cost of linking farms to markets, which may be reflected in the extent and quality of rural road networks, cost of rural freight transport, and/or other market distortions. These issues result in extremely high prices of farm-to-market transport and in some cases significant market power of transporters and agro-processors, evidenced by short-haul farm-to-market transport prices that range from five to 20 times the cost of international shipping from cities in Malawi.[22] These prices inhibit the development of Malawi's rural economy and stymie structural transformation by preventing the rural-to-urban movement of labor and diversified production of cash crops.

According to data collected by MMD and from the World Bank, the price of short-haul farm-to-market transport ranges from an average of $0.35 cents per ton-kilometer in the dry season (data provided to MCC by the Malawi Ministry of Transport in 2019) to over $1.40 per ton-kilometer in the rainy season (World Bank 2018c). This is five to 20 times the cost of shipping on international routes from cities in Malawi to the nearest ports and between ten and 20 times as expensive as the cost of similar rural farm-to-market freight services in neighboring Mozambique (World Bank 2018c). For example, the transport of soybeans and groundnuts in Malawi is estimated to be $0.85 per ton-kilometer while competitors from other countries, such as Kenya or South Africa, often pay less than half that price ($0.32 per ton per kilometer) (Dalberg PSA: Malawi 2019b).

In addition, a key feature of Malawi's economy is its monoculture—its reliance on a single crop, maize, for subsistence farming—and the lack of trade in that crop or any other crops that could generate more income, with the sole exception of tobacco.[23] The World Bank (2018b) reports that while 96% of farmers grow maize, only 14% sell any of it. This autarky, or lack of trade, suggests high transaction costs and/or low market prices[24] in rural areas that prevent the exchange of goods through markets and is consistent with the existence of a binding constraint in farm-to-market linkages. A large price differential between farmgate and market prices—undergirded by high transaction costs, high and regressive market fees, limited access to markets in rural areas, and distortive agriculture policies (e.g., export bans, price controls, and other policy distortions)—limits marketability into more lucrative, high-demand crops such as soybeans and groundnuts, which also limits diversification in the economy as a whole.

The data analyzed by MCC suggest a lack of infrastructure may be a possible contributing factor, although additional work needs to be done to identify root causes. Only 0.7% of tertiary and district roads—the primary means of rural access—are paved, according to data from the Malawi Roads Authority. While data from the World Economic Forum Global Competitiveness Index from 2014 suggest that the rank of density of roads in the paved road network in Malawi is about average for

21 Malawi is served by a relatively extensive network of roads that comprise links ranging from paved main roads to narrow unpaved tracks and trails. The road network is functionally classified in the following categories -- main, secondary, tertiary, district, urban, community (undesignated) and track. Malawi has approximately 4,074 km of paved roads and 11,378 km of unpaved road. Approximately 70% of Malawi's main roads, by length, are paved along with 10% of secondary roads and 1% of tertiary roads. In addition, there are approximately 9,478 km of community roads that are unpaved and yet to be classified (Malawi Roads Authority 2015).

22 While the Ministry of Transport data are up-to-date, the data underlying the World Bank analysis are over 10 years old (Lall, Wang and Munthali 2009). However, the World Bank data may include prices during the rainy season, for which there is a significant markup. See also (World Bank 2018b).

23 While maize is the most predominantly farmed crop in Malawi, the economy has been highly and increasingly reliant on tobacco exports; however, the decline in global demand for tobacco has resulted in a parallel drop in Malawi's current gross export value, as unmanufactured tobacco accounts for 55.55% of export value and no substitute cash crop has been able to fill the gap.

24 There are indications of low spot market prices for staple crops, especially immediately following harvest season, but also high spot market prices during the dry season. This pattern suggests that the market does not adequately arbitrage the seasonal price differential. A relative lack of storage is an aggravating factor (FAO 2015).

its GDP per capita, the rank of density of overall roads is somewhat worse than average for GDP per capita; this implies that the density of unpaved roads in Malawi is worse than average for its level of GDP per capita. During consultations with government, private sector, donors, and civil society, stakeholders repeatedly mentioned the condition and extent of the rural road network as a constraint to economic activity and growth. Rural roads are particularly vulnerable during the rainy season and extreme rain events, which can cut off market access from production areas. These conditions may continue to be prevalent into the harvest season. The situation is only predicted to worsen as extreme rain events are expected to become more common. Representatives from the World Bank office in Malawi cited their recent work under the Agricultural Sector Wide Approach Support Project [ASWAP] to upgrade a very few selected rural roads in strategically chosen, high economic potential areas, reducing travel times (in some cases, from five hours to one hour) from farm to market. Poor road infrastructure may also limit the ability of the financial sector to serve Malawi's rural population by increasing operating costs and limiting information flows. Increased costs for financial institutions to access rural customers are often passed on, increasing the cost of capital for end customers (Dalberg 2019b) and further limiting opportunities to invest in improved yields, crop diversification, and post-harvest processing. However, the team also heard in consultations that empty backhauls—underpinned by low volumes of traded agricultural production and a lack of aggregation of output among many small producers—and trucking cartels contributed to high road freight prices, consistent with the other strand of the story presented in Lall, Wang, and Munthali (2009). This issue, including political capture of the sector, was acknowledged even by government counterparts in the Ministry of Transport.

The FAO's 2014 Country Report for Malawi attributes significant market distortions to both poor storage and a lack of competition along value chains (FAO 2015). For maize the report notes a significant market distortion in which farmers—predominantly smallholders who are relatively liquidity constrained and for whom food security plays a significant role in growing and marketing decisions—tend to market maize when the price is lowest; this issue was also highlighted in MCC's consultations. Unfortunately, due to data limitations, the FAO report is not able to distinguish between price distortions resulting from poor infrastructure, or other market structure issues. Issues in marketing and transport may be interrelated: as pointed out in consultations, the inability of local sellers to arbitrage seasonal price differences could contribute to market power of transporters whose services are in highest demand during the short selling season.

Overall, while the team identified the high prices of road freight transport and barriers to linking farms to markets in rural areas as a binding constraint to growth, more work will need to be done in the root cause analysis phase to better understand the problem. Nevertheless, autarkic production may lead to an undiversified portfolio of farm production, especially towards staple cereal crops, such as maize, and away from other higher-value products such as horticulture, tea, and groundnuts.

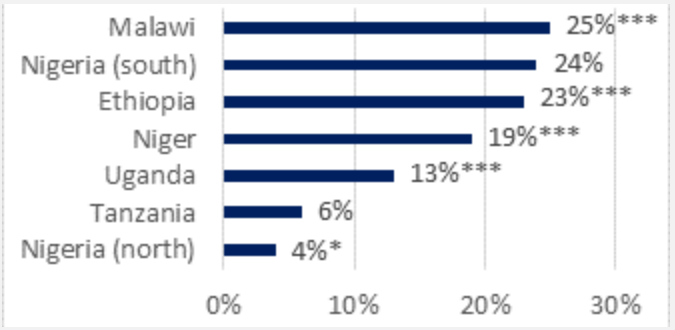
Additional Gender and Social Inclusion Considerations

The high cost of road freight transport services and barriers to linking farms to markets in rural areas constraint is more severe for women, whose agricultural productivity is markedly lower due to a combination of virtual exclusion from cash-crop production and lower access to farm labor and agricultural equipment (Ravenga and Dooley 2019). The gross gender gap for agricultural productivity in Malawi is high, even in comparison to countries at a similar stage of development, and is estimated to reduce crop output by over 7% and increase poverty by over 2% (Figures 7 and Table 2). Women's access to markets and bargaining position with transporters and other market intermediaries is also reduced by their relative immobility and narrow social networks; a combination of cultural norms, domestic burdens, and gender-based violence and expectations of transactional sex restrict women's freedom of movement[25] and association.

25 See Porter, et al. (2012) and Nagoli, Binauli and Chijere (2019).

Women and the rural poor face additional and more severe barriers in bringing goods to market that must be analyzed and addressed throughout compact development and implementation. These include lower ability or willingness to pay, discrimination, and diversion to less favorable transport modalities. Women face more substantial price barriers than men in accessing motorized transport, both for purposes of transporting goods to market (Nagoli, Binauli and Chijere 2019) and for accessing basic services (Varela, et al. 2019); this appears to be a matter of women's limited access to cash within their households and concentration in lower-value market segments. Several studies have found that women and girls engage in transactional sex to secure rides to markets (Nagoli, Binauli and Chijere 2019) and schools (Leach, et al. 2003). There is some, albeit more limited, evidence of discrimination against Malawian women traders in transport and logistics (Nagoli, Binauli and Chijere 2019). For the rural poor more broadly, reaching trade hubs and accessing physically distant value chains may simply be out of reach; a 2011 experiment (Raballand, et al. 2011) find that—even on an improved rural road—residents of five villages provided with bus service to a regional trade hub were unable or unwilling to pay an operator's break-even rate for rides. Limited safe rural transport options are also linked to lower educational attainment and learning for both boys and girls, though the problem appears more severe for girls, in part due to their relatively high porterage burden (carrying firewood, water, and refuse for their families to fill in transport gaps) and road safety issues, including the risk of sexual assault and the role of long unsupervised walks to school in adolescent marriage and fertility (Porter et al. 2012, Porter 2007).

FIGURE 7: Agricultural productivity gender gap, Malawi and comparators. Asterisks indicate statistical significance of the productivity gap at the 1% (***) and 10% (*) confidence levels.



Source: UN Women, UNDP, UNEP and World Bank (2015), using IHS3(2010/11) data.

Limited Access to Land for Investment, Especially for Women Smallholders

The final binding constraint identified is the difficulties experienced by individuals and firms in Malawi in accessing land for investment and maintaining secure property rights, particularly for women smallholders. This problem has several dimensions, affecting both smallholders' and estates' lands, and both urban and rural areas. De facto land markets in Malawi operating through traditional authorities managing systems of informal land rights, even as the informal system locks outside investors from investing in land and population pressures create stresses that impact estates, urban, and peri-urban areas. While a consistent system of de jure land rights has been spelled out in a series of recent laws, incomplete implementation

TABLE 2: A separate study of the agricultural productivity gender gap finds an even larger disparity of agricultural productivity between women and men in Malawi.

	Malawi	Tanzania	Uganda
Unconditional gap	**28%**	16%	13%
Conditional gap (controlling for plot size/characteristics)	**31%**	30%	28%
Annual cost of gap	**$100 million (1.85% of GDP)**	$105 million (0.46% of GDP)	$67 million (0.42% of GDP)
If gender gap were eliminated:			
Annual crop output increase	**7.3%**	2.1%	2.8%
Annual poverty headcount decrease	**238,000 2.2%**	80,000 0.86%	119,000 0.9%

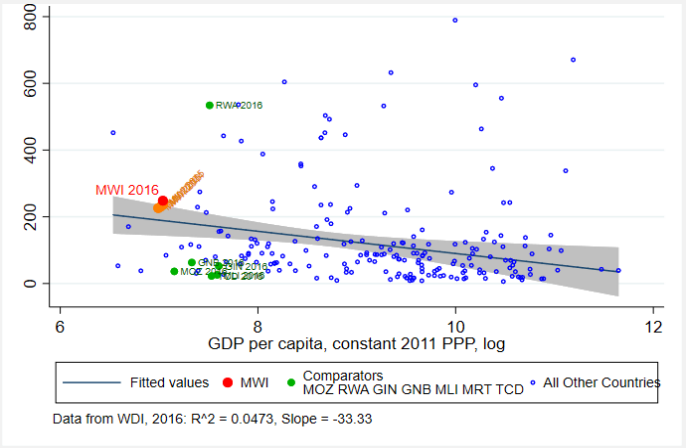
Source: UN Women, UNDP, UNEP and World Bank (2015), using IHS3 (2010-11) data.

of these laws has left an informal system largely intact for Malawi's large smallholder population.

Lack of land for investors and unclear/uncertain land rights may slow growth by producing substantial distortions in production and preventing land transactions that would consolidate plots and lead to greater urban migration. Uncertain/unclear land rights also reduce investment in land from both businesses and smallholders, reduce agricultural diversification, and slow structural transformation. Finally, smallholders may be especially hard hit as land is the primary source of wealth for these households and unclear land rights may worsen the ability of smallholder farmers to use land as collateral to access finance.[26]

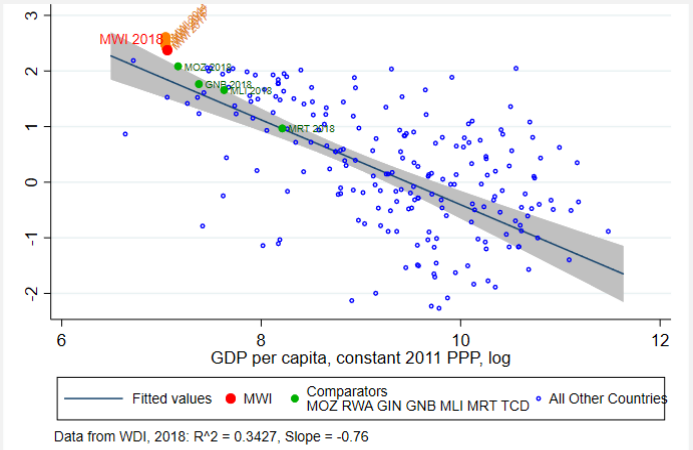
Figure 8 illustrates Malawi's basic challenge with land. Malawi is densely populated in rural areas, and yet almost entirely dependent on low-productivity rain-fed agriculture. Simultaneously, Malawi's rural population is growing quickly – faster than any of its comparators for which we have data – which, over time, is leading to smaller plots as land is subdivided over time. Large families operating off small plots of land are typically at greater risk for food insufficiency, as there is typically little margin for these families in case of poor harvests or high prices. Indeed, for the 2017 Afrobarometer[27] survey of Malawi, more than 58% of families in Malawi reported going without enough food to eat at least "several times" in the past year, while 31% reported going without food "many times" or "always".

FIGURE 8A Population density non-urban populations in rural areas of Malawi. Malawi has a dense population, especially given its dependence on rain-fed smallholder agriculture.



Source World Bank World Development Indicators (2018).

FIGURE 8B Rural population growth is higher in Malawi than its comparators, suggesting that population pressures are growing in these areas.



Source: World Bank World Development Indicators (2018).

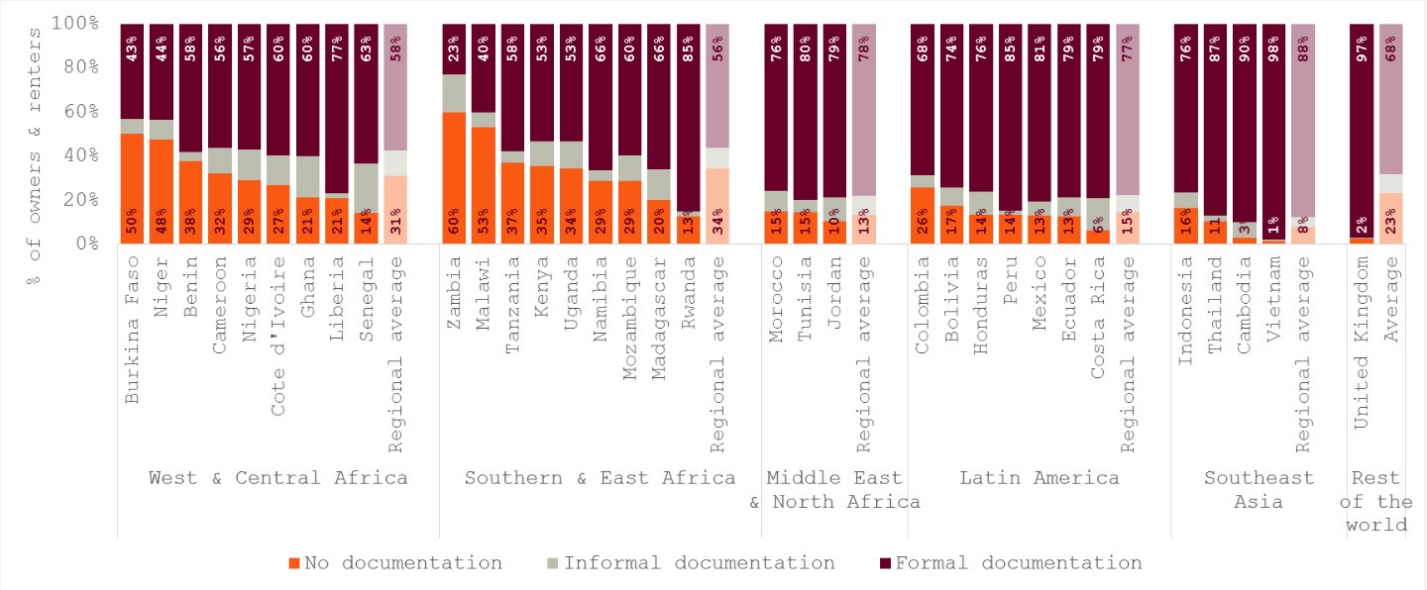
Land issues in Malawi are well-researched.[28] For example, Restuccia and Santaeulalia-Llopis (2017) show that plot size and capital are unrelated to productivity, as measured by total factor productivity (TFP), implying a substantial misallocation of resources, on the order of 3.6-fold increase for efficient reallocation of land. As noted above, these issues are likely exacerbated by Malawi's

26 However, the evidence for effects of improved land rights on access to finance is limited.

27 Afrobarometer is a pan-African research institution that conducts public attitude surveys on democracy, governance, the economy, and society.

28 See, for example, Deininger, Xia, and Holden (2019) and Lunduka, Ricker-Gilbert, and Fisher (2013).

FIGURE 9: Lack of land documentation among all respondents in selected developing countries. In this data, only Zambia has a higher proportion of respondents without documentation.



Source: Prindex (2018).

high population density, low availability of agricultural land per capita, and low urbanization rate, leading to small plot sizes and conflict over agricultural land. Two features of Malawi's land sector include: (1) the existence of a large amount of estate land, or land that was consolidated in the 1980s for government ownership and leased to larger land users in the private sector; and (2) the predominance of customary land rights or informal rights to land that are granted by customary authorities or chiefs.

While de jure indicators of Malawi's land administration system are somewhat better than would be expected for its level of development (see e.g., Doing Business, 2017), other indicators provide evidence of serious problems in the sector. For example, as documented by the Prindex[29] dataset from 2018, 82% of respondents say that they have confidence in authorities to defend their land rights, yet in the same survey, 52% of landowners lack any formal documentation, which is a higher rate than most other poor sub-Saharan countries, including Burkina Faso, Uganda, Niger, and Benin (see Figure 9). This rate rises to 63% when renters and those "staying with permission" on the land are included. One explanation for this apparent contradiction is the fairly high levels of trust respondents expressed for their traditional authorities: 67% of respondents to the Afrobarometer survey say they trust their traditional authority: only the defense forces and religious leaders are more trusted.

Hence, de facto land governance in Malawi is dominated by informal land rights enforced by traditional authorities. Even as Malawi has passed recent reforms[30] to its land governance system, smallholders have been reluctant to participate without the agreement of their traditional authority. This has real consequences for Malawi's development, as the informal system prevents the emergence of land markets and keeps smallholders locked into their plots even as they are forced to subdivide the land. Indeed, during due diligence[31] MCC found that most (more than 75%) community members received their land as either a bequest or as a gift from family members,

29 Prindex is a joint initiative of the Global Land Alliance (GLA) and the Overseas Development Institute (ODI) and is dedicated to collecting data related to the strength of land rights around the world.

30 For example, in 2016, the Malawi government enacted the Customary Land Act (CLA) that allowed smallholders to convert customary land rights into formal, private land rights.

31 A2F, Malawi Community Land Demand Survey (2021).

and relatively few (38%) believed that they had the right to transfer their land. In 2017, fully a third of Malawians reported in a national survey that they feared they would not possess their plots in ten years' time (World Bank 2017) while 11% of respondents in Malawi's Prindex (2018) reported that they had lost land against their will in the past.

Furthermore, data from the Malawi Integrated Household Survey 2016-2017 (MIHS) shows that while only 14.5% of plots have any documentation—controlling for geography, rural/urban, owner characteristics, and soil quality—having any documentation is associated with a 58% increase in prospective sale value, suggesting robust demand for land that is not being met in the informal system. In an economic framework, this sale value could be interpreted to reflect increased productivity of the land under a stronger land rights regime.

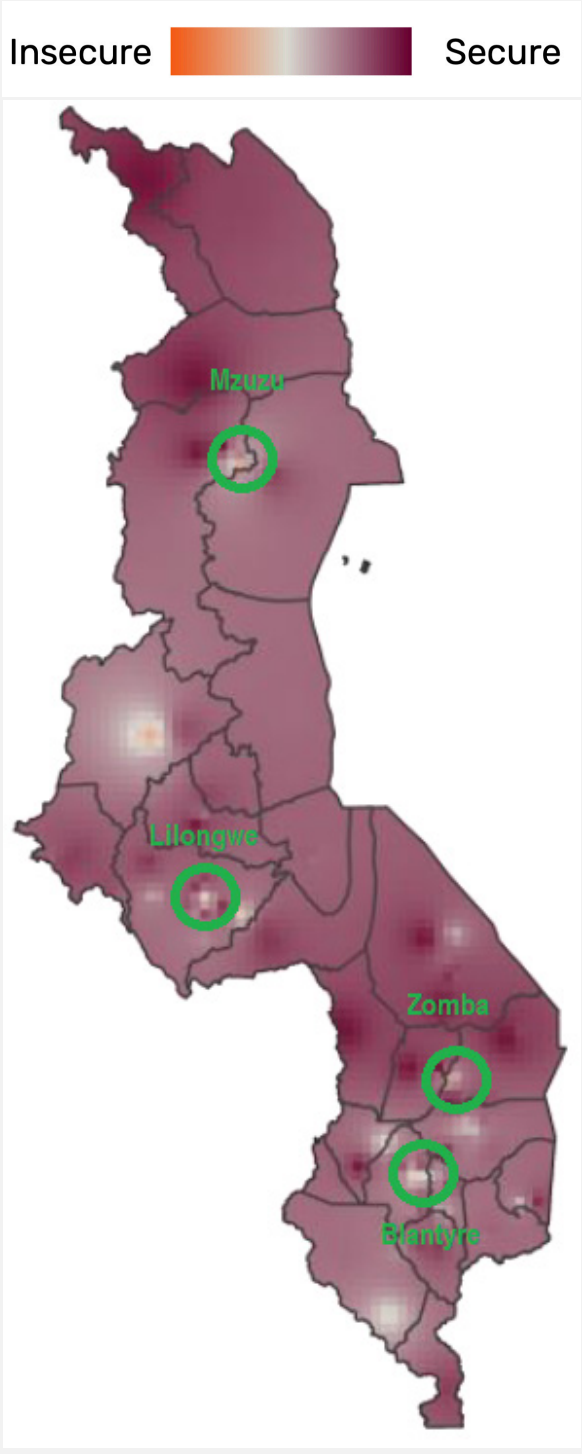
Finally, our analysis of the MIHS shows that only 1.4% of plots are fallowed in Malawi in any given year, even as the average for sub-Saharan Africa is 15% (Fuglie and Rada,). During MCC's customary land survey only 57% of respondents reported that they had the right to leave their land fallow, while consultations revealed that many respondents feared that land left fallow would be viewed as unused and thus at risk of encroachment. One consequence of the low rate of fallow is soil degradation and heavy reliance on fertilizer: Malawi's Farm Input Subsidy Program (FISP), which provides both fertilizer and seeds, occupied at its height in 2008/09 16% of the government's entire budget. In 2019, three quarters of the FISP budget went toward fertilizer.[32] While the government's spending on fertilizer is several logical steps removing from land tenure security, note that Malawi's small plot sizes might have required fertilizer in order to feed a typical Malawian family even without taking into account soil degradation.

While it is not clear whether the problems discussed above extend into urban areas, as shown in Figure 10, major urban areas appear to be associated with 'hotspots' of tenure insecurity in the Prindex (2018) data, although it should also be noted that there are also a number of 'hotspots' that do not seem to be associated with urban areas. One potential hypothesis is that urban and peri-urban hotspots are the result of Malawi's informal system of land rights coming under greater economic pressures. During consultations in Blantyre, Malawi's second largest city and main commercial hub, MCC heard numerous complaints of foreigners (generally Indians) buying all the land in the city, something that is difficult or impossible in rural areas where traditional authorities act as gatekeepers. Although this evidence is somewhat sparse and anecdotal, this evidence suggests that tenure insecurity may extend even into urban centers, which would be especially costly given the much more robust demand[33] for land in these areas.

32 From *https://www.oaklandinstitute.org/blog/malawi-failure-input-subsidies-new-path-forward-fight-hunger*, January 23 2020. Original references cited: Lunduka, Ricker-Gilbert and Fisher (2013), and Nthenda, G. (2019) "Highlights of the K1.7 trillion 2019/20 Budget." Kulinji. September 9, 2019.

33 During due diligence, MCC found that among firms in Malawi seeking to invest in additional lands, 81% desired land in urban areas. From A2F, Malawi Private Sector Land Demand Survey, 2021.

FIGURE 10: The percentage of respondents that report being tenure insecure in Malawi according to Prindex (2018) with the four largest urban areas circled in green. Urban/peri-urban areas appear near "hotspots" of insecurity in this data.



Source: Prindex (2018) infographic.

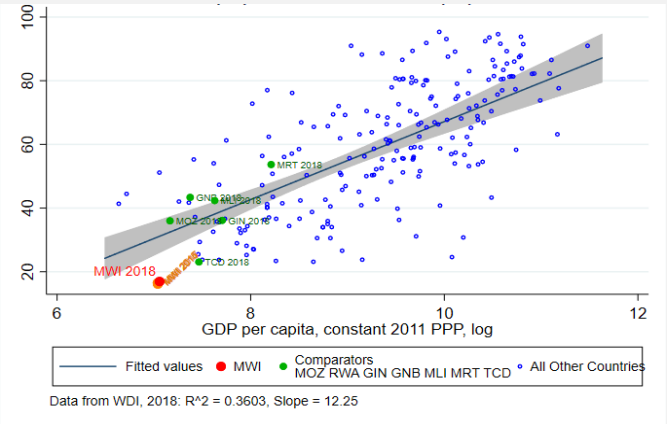
The estate dimension to the land constraint has been well studied. Deininger and Xia (2017) show that the estate sector is mismanaged and unproductive, with 70% of estate leases expired and ground rents so far below market rates that their value may be below the cost of collection. The resulting loss of public revenue is large: about 5% of public spending. Deininger and Xia also note that poor revenue collection is also associated with poor record keeping so that about 28% of estates have at least 20% of their land overlapping with another estate. However, there are current efforts to consolidate more land in similar programs through, for example, the World Bank-funded Shire Valley Transformation Project. In addition, although Malawi recently passed a land law which provides for the conversion of customary land to private land, implementation of the law is still being piloted and there is no current plan or allocation of resources for the law's full implementation.

Deininger, Xia, and Holden (2019) find, using the 2006/2007 National Census of Agriculture for Malawi, that there are significant productivity losses on smallholder farms that are held by tenure-insecure individuals, particularly for women, whose productivity losses may be as great as 60% or more, controlling for other factors. The authors find that estates, which occupy as much as 20% of Malawi's agricultural area, are largely unutilized and for most crops are less productive than smallholder farms. This may be due to mismanagement; the government charging rents far below the market value and a failure to reallocate land that is idle. The proportion of land cultivated with cereals in Malawi is unusually high relative to comparator countries, which may also be symptomatic of weak property rights as demonstrated in Goldstein and Udry (2008). Finally, we analyzed the World Bank Enterprise Survey data and found that land-constrained firms grow significantly more slowly over the five-year period of the panel, as measured by employment, suggesting that land constraints are indeed a binding constraint to firm growth. Overall, the data provide strong evidence for large productivity losses associated with ineffective land management and an insecure land tenure regime.

Additional evidence of problems accessing land is given by the government's Green Belt Initiative (GBI), which aims to help firms searching for large parcels of land find what they need. The initiative has a long waiting list of firms, suggesting that demand for land is greater than the market can accommodate. Representatives from GBI at the CA Validation Workshop indicated that implementation of the new land law, including and especially registration of private rights to customary land, is key to unlocking this investment.

The World Bank (2019) concludes that land degradation in Malawi is a severe problem threatening Malawi's livelihoods. Soil erosion, nutrient depletion, and salinization/alkalization are having a serious impact on agricultural production. The World Bank draws a linkage between poor land tenure and security with the low adoption of sustainable land management despite being a focus of interventions in this area. They recommend full implementation of the land tenure reforms along with reforms to input subsidies as the best way to address these problems.

FIGURE 11: Malawi's urban population is even lower than might be expected based on its level of development, although (not depicted), the growth rate of its cities is normal.



Source: World Bank Development Indicators (2019).

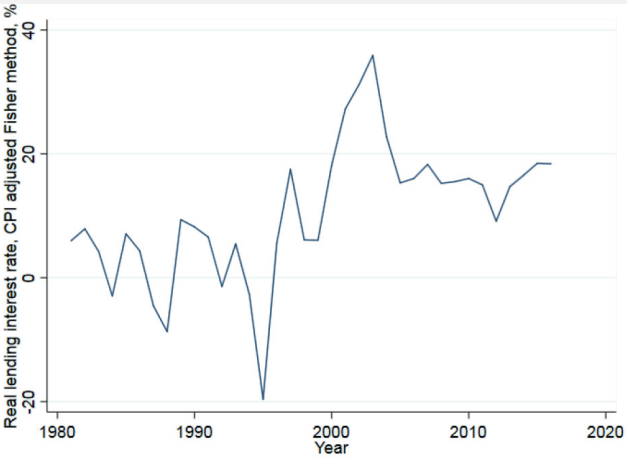
If the lack of robust land markets prevents Malawi's smallholders from accessing the equity in their land, then poor land rights may contribute to Malawi's stunted structural transformation: Indeed, Figure 11 illustrates that Malawi is one of the least urbanized countries in the world. If weak land rights are intensifying the focus on maize production as suggested by research cited here, then weak land rights may also be partly responsible for Malawi's relative lack of diversification in the macroeconomy. Given these findings, we find that access to land for investment is not only a binding constraint on Malawi's growth, but also contributes to Malawi's slow rate of structural transformation and low level of economic diversification.

Malawi's Near-Binding Constraints to Growth

High Cost of Finance

Malawi has one of the highest real lending interest rates (Figure 12) and lending-deposit interest rate spreads in the world. Real interest rates on deposits are in fact negative, while the net interest margin was among the highest in the world in 2019, according to the World Bank's Global Financial Development Database. While some of these data points likely reflect the economic cost of Malawi's unstable macroeconomic environment, inefficiencies in Malawi's financial sector contribute to the high costs of financing for Malawi's firms. Hence, while some data suggest that finance is a binding constraint to growth in Malawi, we nevertheless find that finance is a "near-binding" constraint because there is also data that points to the constraint as not a binding problem for investment.

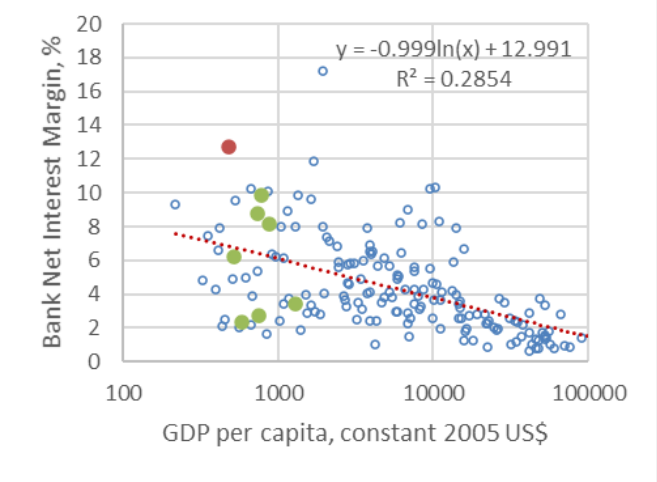
FIGURE 12: Historical real lending rates in Malawi.



Source: World Bank WDI (2019).

The role of banks in an economy is to allocate capital – e.g., funneling aggregate savings (deposits) into worthwhile investments primarily by making loans. Banks earn a margin on these activities relative to the difference between the deposit and lending interest rates. An efficient financial sector is one that directs capital to investments while keeping interest rates and defaults to a minimum. High real interest rates were discussed in detail in the macroeconomic environment section, although in that section, high interest rates were primarily attributed to the unstable macroeconomic situation – i.e., the unstable foreign exchange rate and inflation that result from Malawi's undiversified export basket and populist public budgeting. These issues imply that even an efficient financial sector would charge high interest rates, so to determine whether finance is also a binding constraint, the Constraints Analysis sought to determine if either (a) interest rates are higher than can be explained by the macroeconomic context, or (b) whether there is evidence of credit rationing (i.e., quantity limits on lending, or non-price restrictions on lending to certain clients).

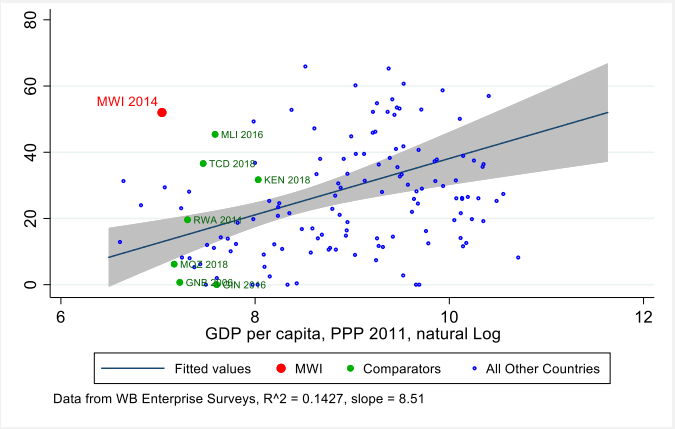
FIGURE 13: The net interest margin for banks, a measure of profitability, is unusually high in Malawi.



Source: World Bank Global Financial Development Database (2019).

To control for bank costs, the Constraints Analysis focuses on the profitability of banks rather than the interest rate. Figure 13 shows that net interest margin for Malawi, a measure of bank profitability, was among the highest in the sample in 2019. So, indeed, banks are very profitable in Malawi, suggesting that interest rates on lending are higher than can be explained by the macroeconomic constraint alone. There may be many reasons for this, but in Malawi's context, the most likely explanation is that the sector is highly concentrated, perhaps because the macroeconomic constraint itself acts as a de facto barrier to entry. Other supporting evidence of an inefficient financial sector include Malawi's high rates of default and common use of collateral that suggest the financial system is not effectively screening potential borrowers for their ability to repay loans, although, again, these data points could be driven by the unstable macroeconomic environment. Finally, we note that Malawi's financial sector is unusually highly concentrated with only four banks controlling a large majority of activity in the sector.

FIGURE 14: The percent of firms that use banks as their source of financing for loans is relatively high in Malawi, suggesting that these firms are not attempting to circumvent the financial system.



Source: World Bank Enterprise Survey (2019).

On the other hand, if the financial sector is a constraint to growth in Malawi, we would expect to see agents in the economy circumventing the financial sector, for example through supplier credit or informal lenders. Instead, as shown in Figure 14, the evidence in Malawi suggests that businesses and individuals do not avoid banks, despite the high cost of finance. Moreover, while the use of collateral on loans is common in Malawi, the value of that collateral is unusually low for a low-income country. This suggests that businesses do not try to circumvent the banking sector and that credit is not likely being rationed.

Taken together, these data suggest the efficiency of Malawi's financial sector is not a binding constraint to growth, despite concerns that the high cost of finance is a major challenge for the country moving forward. If Malawi's macroeconomic environment improves over the next several years, it is possible that interest rates will not follow suit, due to concentration in the banking sector. In this way, the finance sector may become a finding constraint in the future. Regardless, high interest rates are likely to dampen investment and limit the ability of firms to diversify into new sectors for the foreseeable future. This is primarily a result of the realities that businesses face in an uncertain macroeconomic environment, albeit exacerbated by the financial sector.

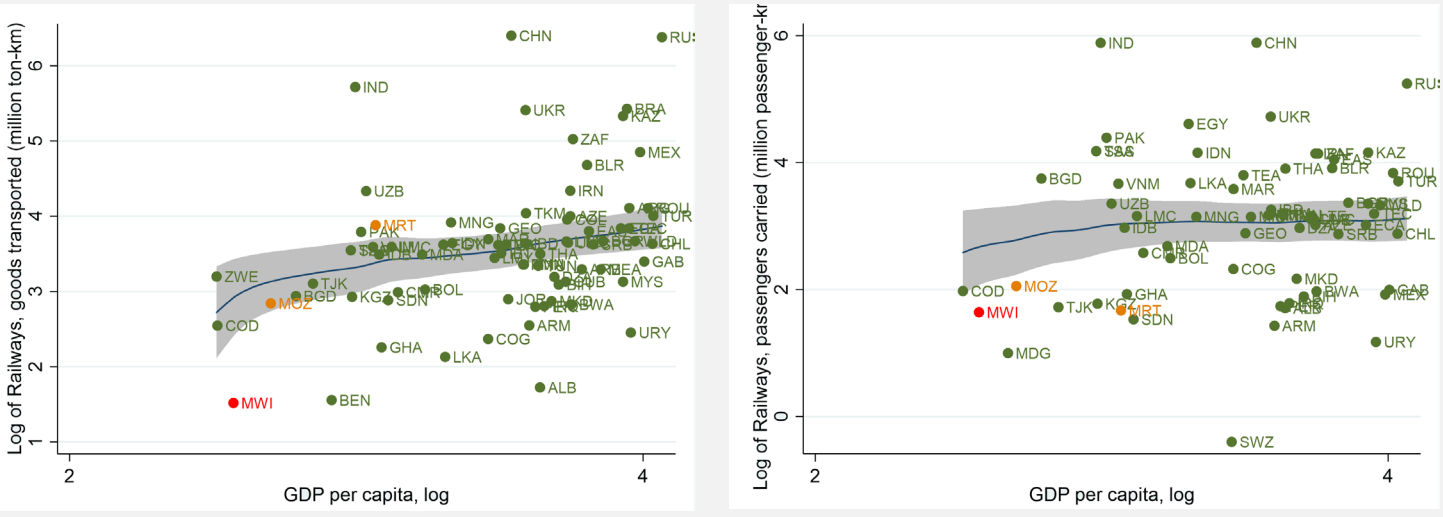
The impact of high interest rates varies depending on firm type. Local branches of international companies can more readily access foreign capital whereas purely local business cannot. SMEs are particularly hard-hit by interest rates. High costs of capital advantage entrenched market leaders with large cash flows by creating barriers to new entrants (Dalberg 2019). Banks are reluctant to expand to new customer segments creating key barriers to expanding financial inclusion that are already stymied by low levels of income and lack of financial literacy. The structures and processes of financial institutions also depress financial inclusion through onerous documentation and high collateral requirements, high costs, and inconvenient locations.

Freight Railroads and Port Access

Another important consideration is transport of freight via railroads, especially rail transport to major ports. This poor connectivity may affect land-locked Malawi's ability to trade competitively in international markets. In the most recent available data from the World Bank World Development Indicators [WDI], which are from 2008 and thus somewhat outdated, goods to market carried by railroad is lower than would be expected, normalized for population, while number of passengers is average (Figure 15).

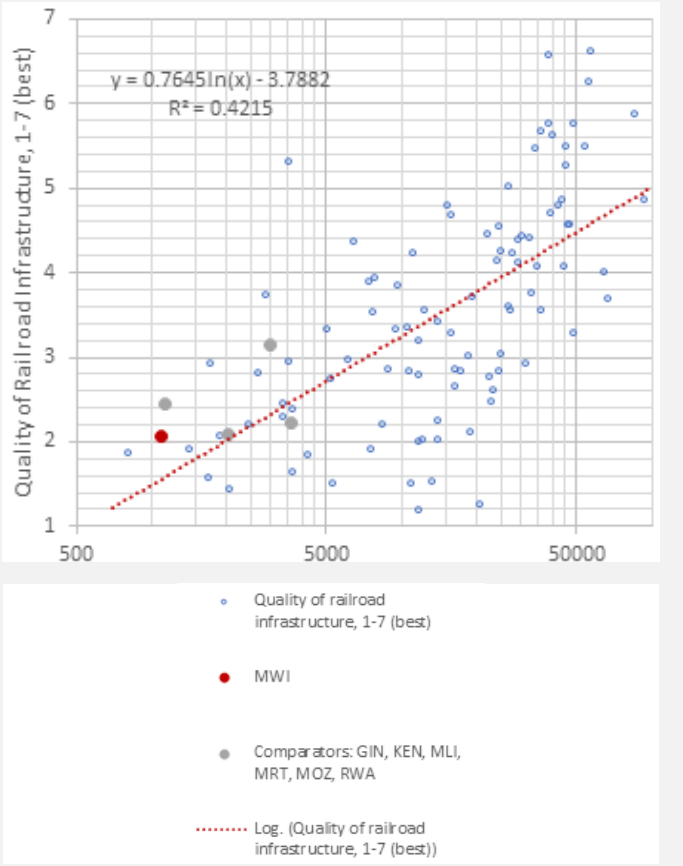
The World Economic Forum Global Competitiveness Index data, in contrast, show that the quality of railroad infrastructure is about average for Malawi's GDP per capita level (Figure 16). However, some data suggest that rail tariffs are somewhat high along the Blantyre-Nacala line relative to other transport routes from cities to ports in sub-Saharan Africa. According to reports from the Ministry of Transport, prices on the Blantyre-Nacala line may be as high as $0.075 per ton-km, although data collected directly from major users of the rail system and the concessionaire, Central and East African Railways, suggest that prices may be as low as $0.05 per ton-km for some clients. This latter price would be about average or low relative to prices on other rail lines in the region.

FIGURE 15: Rail transport by population, goods transported (left) and passengers carried (right).



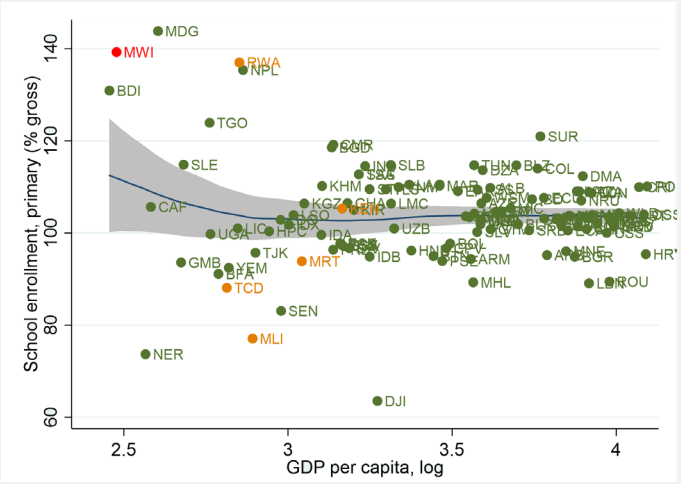
Source: World Bank (2018c).

FIGURE 16: Rail infrastructure quality, Malawi and comparators.



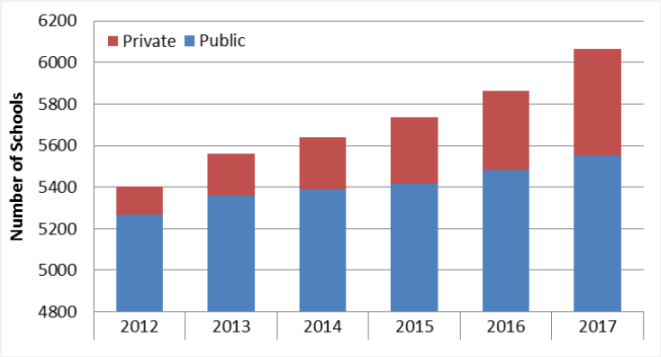
Source: World Economic Forum (2014).

FIGURE 17: Primary school gross enrollment, Malawi and comparators.



Source: World Bank WDI (2019).

FIGURE 18: Private and public schools in Malawi, 2012-2017.



Source: World Bank WDI (2019).

Finally, Zant (2018) finds that the collapse of rail transport in Malawi in 2003 due to a bridge collapse led to increased price dispersion for domestic agricultural goods. Price dispersion affects the incentives for farmers and the private sector to invest, although it does not directly reflect investment. Overall, there may be issues in rail; however, because of the conflicting price data rail cannot be categorized as a binding constraint to growth.

Human Capital

Education is another issue of high interest in Malawi. Primary completion and secondary enrollment are high for Malawi's GDP level, but primary gross enrollment (the number of students divided by the cohorts that should be in primary school) is well above 140% (Figure 17); this suggests high rates of grade repetition and problems with school quality and learning. Indications of poor-quality schools may also be reflected in the rapid growth of private schools in the country (Figure 18).

Returns to schooling are high and rising over time, as reflected in estimates using a Mincer equation approach—Malawi's rate of return to schooling has risen from 5.2% per year in 2004 (Montenegro and Patrinos 2014) to 13.9% per year in 2017 (authors' estimates using World Bank (2017) data). However, according to a 2013 International Labor Organization survey, estimates of broad unemployment are relatively high; this indicates that labor demand is not unusually high. Further, in the Enterprise Survey firms do not report that skills are a constraint to their operations and growth; Malawian firms do, however, report offering formal training at a slightly higher rate than average (World Bank 2014). Firms that do report being skills-constrained in the Enterprise Survey grow no more slowly than firms that

do not report a skills constraint (World Bank 2014). But in the agricultural sector—in which most Malawians work—a lack of skills may limit smallholder's ability to diversify production, especially in conjunction with limited access to extension services in remote areas. Overall, although there are issues in the education sector for Malawi, we do not conclude that it is a binding constraint to growth. However, analyses by both MCC and the Brookings Institution[34] concluded that human capital is likely to become a binding constraint in the coming years as demand for high-skilled labor grows.

While human capital may not be an overall constraint to growth, there are significant inequalities between males and females in the attainment of the skills needed to be economically productive. There are major gender gaps in human capital among adults, although the gap is narrowing among younger generations (see Figure 19). Older women in the working-age population (40-64) have the strongest human capital challenges—nearly two-thirds, for instance, did not complete a primary education (compared to nearly half of men). Among the younger generation (15-24), women complete primary and secondary school and achieve literacy at roughly equivalent rates to men. The most persistent gender gaps are in post-secondary education (Technical and Vocational Education and Training [TVET] and tertiary education), where women enroll at much lower rates than men; and in measures of learning (standardized test scores), where women perform less well than male counterparts. There are two posited reasons for persistent gaps. The first—pertaining principally to the learning gap—is that girls report having substantially more housework than boys in Malawi; while not appearing to affect attendance rates, the additional burden of unpaid domestic labor may affect girls' quality of concentration or ability to do homework (Ravenga and Dooley 2019). The second, which pertains principally to low post-secondary enrollments, is that Malawi has one of the highest rates of adolescent marriage and fertility in the world; both phenomena are closely linked with limited educational attainment and more limited lifetime earnings (World Bank 2018a). In Malawi, only 1.5% of married women attend school (World Bank 2018a). These inequalities are likely to have a negative impact on the ability of women to access economic opportunities generated by growth.

Over-burdened Courts and High Cost of Contract Enforcement

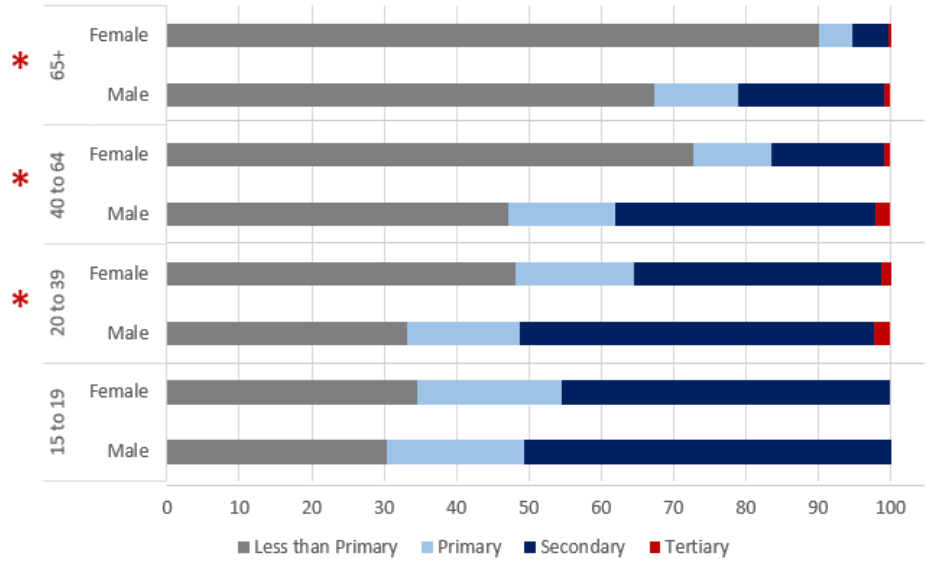
Other research has noted that Malawi law tends to mimic the de jure legal framework of more developed countries while the de facto enforcement of these rules follows a very different pattern (Bridges and Woolcock 2017). Similarly, the Constraints Analysis finds that Malawi often performs well on indices measuring the quality of its legal framework even while consultations revealed that issues related to the enforcement of these legal frameworks falls short in practice. For this and other reasons, courts and contract enforcement are among the areas of interest for Malawi's growth trajectory.

In 2010, according to the World Bank's Doing Business data, Malawi had the fourth highest cost of enforcing a contract in the world, with an estimated cost of 94% of the claim. However, in 2011, Malawi introduced a system of commercial courts which included an automatic intermediation process led by a sitting justice. Since this time, the cost of enforcing contracts has fallen significantly (see Figure 20), although still somewhat elevated in the most recent Doing Business data from 2017, at about 69% of the claim, relative to most of its comparators.

Driving the high cost of contract enforcement are attorney's fees and the costs associated with the enforcement phase of the dispute. Similarly, Figure 21 shows that the recovery rate on defaulting loans in Malawi is unusually low, which is also likely to have a dampening effect on the scope and type of contractual relationships that businesses in Malawi are willing to enter. However, using the various sub-indicators that comprise the Doing Business data, MCC was unable to identify evidence that contract enforcement has been a primary driver impacting investment decisions in Malawi (a necessary condition for a problem such as this to rise to the level of binding constraint), although evidence is sparse on this front. On balance, these indicators are nevertheless sufficient to suggest some friction in Malawi's commercial judicial system.

34 Ravenga and Dooley (Applying the Engendered HRV: Malawi Case Study 2019)

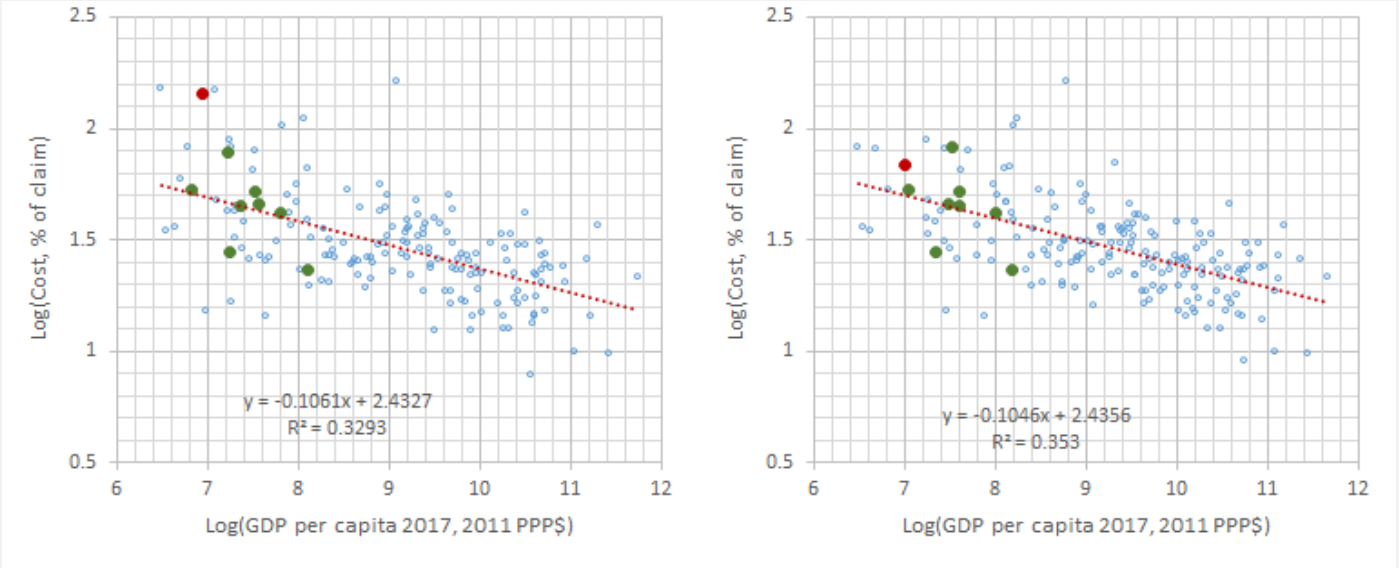
FIGURE 19: Malawi's gender gap in human capital, 2015.



Literacy Rate (15+)	2015
Male	69.8%
Female	55.2%

Source:Wittengenstein Centre for Demography and Human Capital (2018); World Bank (2018a)

FIGURE 20: The cost of enforcing contracts in Malawi according to the World Bank's Doing Business Report in 2010 (left) and 2017 (right).



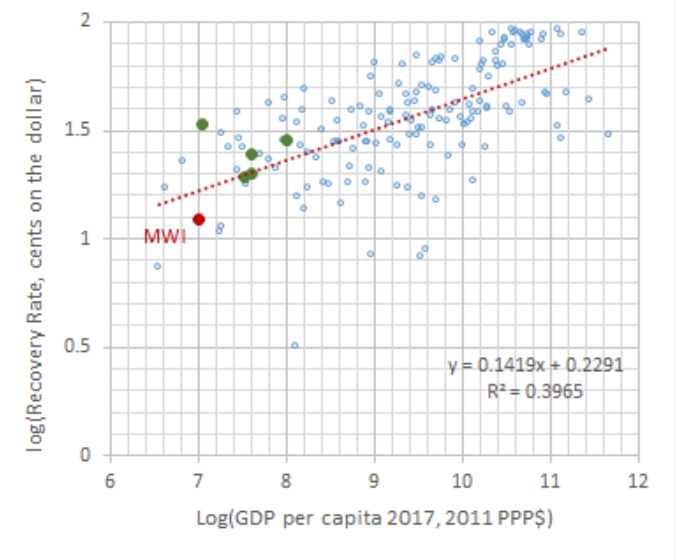
Source: Doing Business (2019).

Conversely, the Constraints Analysis finds that Malawi does well for such a poor country on the issue of the time to resolve insolvency or enforce contracts, (see Figure 22 as an example), although this indicator has worsened from less than 1.2 to more than 1.4 years from 2011 to 2017, somewhat complicating the picture. Finally, consultations identified the most common source of commercial disputes as the determination of interest and the joint problems of collateral and arrears, suggesting that problems in the finance and macro-sectors may also be a driving factor leading to problems in the commercial law system.

The methodology of the Doing Business indicators is to use carefully constructed scenarios for businesses operating in these countries, in order to improve comparability across countries. This methodology limits this data to studies of the formal, de jure institutions located in the capital or major business centers. However, during consultations the patterns suggested by the Doing Business data were generally confirmed, although interlocutors also pointed to the long case backlog in Malawi – the result of understaffed commercial courts – and a near absence of formal legal services in rural areas. The Constraints Analysis, therefore, concludes that the situation in Malawi is likely to be somewhat worse than suggested by the Doing Business data alone. Moreover, the lack of legal recourse in rural areas may be a contributing factor for the problems the Constraints Analysis uncovered in Malawi's agricultural sector, as MCC's due diligence found widespread side-selling among smallholders. Therefore, information collected during consultations suggests that the problems in Malawi's courts are at least somewhat more severe than the Doing Business data alone might suggest.

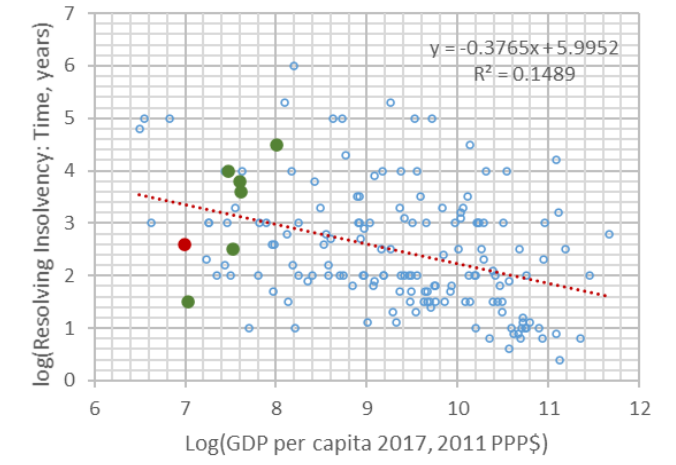
Overall, given the mixed evidence presented by the Doing Business indicators and the findings from consultations, we conclude that courts and contract enforcement are a near binding constraint based on evidence of high direct costs, but also relatively swift outcomes, both of which seem to be improving over time. Moreover, the absence of evidence that these problems drive investment could also indicate that other challenges, such as Malawi's unstable macro-economic environment, may be more binding constraints to Malawi's growth.

FIGURE 21: The loan default recovery rate for Malawi.



Source: Doing Business (2019).

FIGURE 22: The time to resolve insolvency in Malawi is relatively short.



Source: World Bank Doing Business (2019).

Conclusion

The three binding constraints presented in this report were presented to the Government of Malawi during a series of workshops with over 200 stakeholders in Malawi in June 2019. The government selected two of these constraints to address through compact projects: High Cost of Road Freight Transport, and Access to Land for Investment. Root Cause Analysis and project development began in July 2019.

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ANNEX: Constraints Analysis heatmap across all sectors considered

Following "the mindbook" of Hausman, Klinger, and Wagner, MCC conducted a series of tests (using the "four tests" framework) across the entire Malawian economy. The "four tests" are:

Test 1: The social or shadow price of the constraint is high.

Test 2: Changes in the constraint drive changes in growth or investment.

Test 3: Agents in the economy will seek (costly) ways to circumvent the constraint.

Test 4: "Camels and Hippos", i.e., When the constraint is present, only the firms that are adapted to the conditions will survive – just like there are camels, but no hippos, in the desert.

A Fifth pseudo-test that MCC conducts involves benchmarking quantity measures which helps to provide context for the constraints and the other four tests.

The Malawi constraints analysis was conducted in two stages. First, as many potential constraints as possible were eliminated from consideration using desk research in a deductive approach. In the next stage, MCC follows up on potential constraints: Evidence for a constraint needs to be verified through further testing, while mixed evidence may suggest the need to tweak our understanding of the constraint hypothesis and seek novel tests.

MCC summarizes the result of this process through color-coded "heatmaps". Figure A-1 summarizes the results for the constraints analysis using the heatmap developed during the constraints analysis process for each of the sectors considered during the second stage of follow-up testing. Additional sectors were examined but eliminated during the first stage.

FIGURE A-1: Summary of the Malawi constraint's analysis for each of the potential constraint sectors. In this table, the "Test" columns represent the summary of several tests, where each box is colored unless there is contradictory evidence (e.g., "green"-coded evidence and "orange"-coded evidence for the same sector and test would be coded "yellow" in this table).

	Benchmark Quantities	Test 1 Prices and Rationing	Test 2 Correlation with Growth	Test 3 Circumventing the constraint	Test 4 Camels and Hippos	Conclusion
Stable Macroeconomic Environment						
Land Access						
Rural Transport						
Finance						
Railroads						
Human Capital						
Courts and Contract Enforcement						
Health						
Electricity						
ICT						
Roads						
Taxes						
Water						
Air Transport						
Corruption						
Fiscal Space						
Political Stability						
Trade Openness						
Governance						
Innovation						

Constraint Evidence Legend	
Evidence that the constraint is binding	
Mixed evidence on whether the constraint is binding	
Evidence suggesting that the constraint is not binding	
No evidence, or no tests conducted	