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THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

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THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

SELECTED ISSUES

September 4, 2015

Approved By
The African Department

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INTRODUCTION [1]

1. Beyond its core focus on macroeconomic and financial policies, the Fund is increasingly concerned with how income inequality affects growth and macroeconomic stability. Over the last decade, many of the countries that have entered a path of fast economic development and reduced poverty simultaneously experienced a rising gap between the rich and poor. As a result, in many of them, including those in sub-Saharan Africa (SSA), income inequality has increased. The relationship between growth and inequality is a complex one, given that the causality may go in both directions, and the effect of inequality on growth may change with a country's stage of development. A growing body of research indicates the adverse implications of inequality for development and macro stability, arguing that it may lead to political and economic instability, weaken support for economic reforms, and undermine progress in education and health (Persson and Tabellini, 1994; Easterly, 2007; Berg, Ostry and Zettelmeyer, 2012; Ostry et al., 2014). Recent empirical work conducted at the Fund confirms this relationship between rising income inequality and its impact on economic growth (Dabla Norris et al., 2015).[2]

2. Ethiopia's experience is a case in point for the complex interaction between inequality and growth.[3] Unlike other rapidly growing economies, the country has not experienced a significant increase in inequality, as measured by the Gini coefficient, even as poverty reduction occurred at a rapid pace. The government's development plans have had a strong focus on inclusive growth, together with an increase in pro-poor spending.[4] Yet, structural transformation and poverty reduction may require the implementation of reforms that could lead to an increase in income disparities. This highlights the potential policy trade-offs between growth and inequality.

3. The objective of this paper is twofold. First, it reviews the evolution of inequality in Ethiopia, puts it in context with other countries in the region, and discusses the role of various macroeconomic policies as well as structural factors. Second, it quantifies the distributional impact of a set of selected growth enhancing policy measures, including long-standing IMF recommendations. To this end, a dynamic general equilibrium model is developed and tailored to capture the specifics of the Ethiopian economy.

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[1] The team is grateful to Michael Atingi Ego, Andrew Berg, Rupa Duttagupta, Chris Papageorgiou, Catherine Pattillo, David Owen, and Andrea Richter Hume for helpful comments and suggestions.

[2] The study has found that raising income inequality by 1 percentage point (i.e.: through increasing the income share of the top 20 percent of the population) reduces GDP growth on average by 0.08 percentage point. Instead, a similar decline in income inequality (by increasing the income share of the bottom 20 percent) has been associated with on average 0.38 percentage point higher growth.

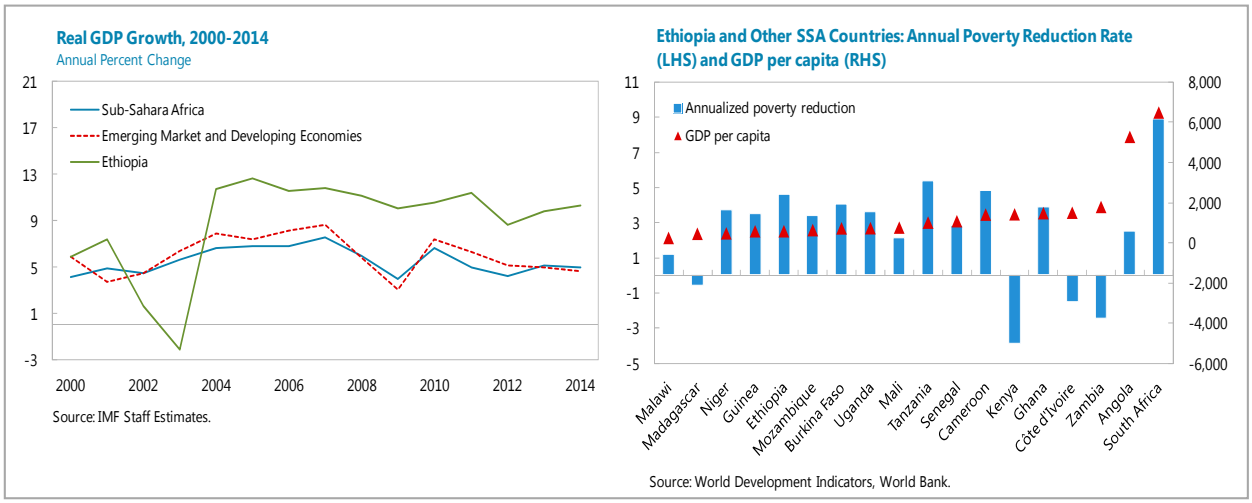
[3] Ethiopia is as a pilot case for the Fund's project to operationalize its work on inequality, as the issues related to equitable growth are deemed macro-critical.

[4] The commitment to broad-based growth was expressed in the two medium-term national plans, i.e., the Plan for Accelerated and Sustained Development to End Poverty (PASDEP), spanning the years 2005/06–2009/10, and the Growth and Transformation Plan I (GTP I) from 2010/11–2014/15.

EQUITABLE GROWTH AND POVERTY REDUCTION IN ETHIOPIA[5]

4. Over the past decade, Ethiopia has benefited from robust economic growth. Real GDP increased on average by 10.8 percent per year during 2004-2013, and Ethiopia's growth has exceeded its regional peers and other developing and emerging market countries. Rapid growth, driven by large public investment and growing services, has contributed to impressive progress in poverty reduction, measured as a change in the share of the population living below the poverty line.[6] In this regard, Ethiopia has outperformed most SSA countries, even those with more fiscal space (to conduct social policies), and with higher GDP per capita.[7]

5. The share of the population living below the poverty line halved between 1995 and 2010, from 60.5 percent down to 29.6 percent. In addition, discrepancies in poverty among regions have narrowed, indicating a better balance in regional development.[8] This can be attributed largely to public infrastructure investment, which provides better market access, thus incomes, for these areas. Absolute poverty has declined as well, and it became lower than food poverty.[9] Nevertheless, despite significant expansion of government programs to combat food insecurity, food price shocks remain the biggest threat to Ethiopia's poorest households.



[5] The main sources of data on poverty and inequality in Ethiopia are "Household Income, Consumption and Expenditure Survey for 2010/11" (HICES 2010/11), and the World Bank study: "Ethiopia: Poverty Assessment 2014".

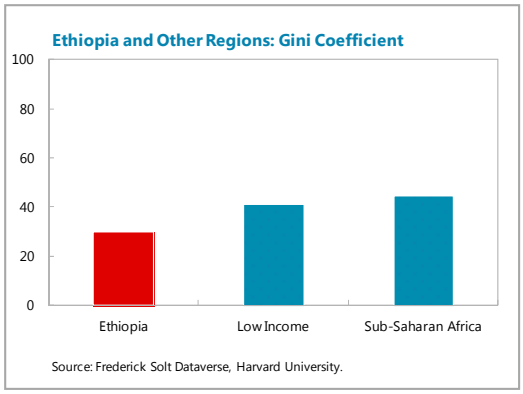
[6] The poverty line is defined as the percentage of the population living on less than $1.25 per day, purchasing power parity adjusted.

[7] Ethiopia's annual progress in poverty reduction puts it at par with Senegal, which has twice as large GDP per capita (see "Ethiopia: Poverty Assessment 2014", World Bank).

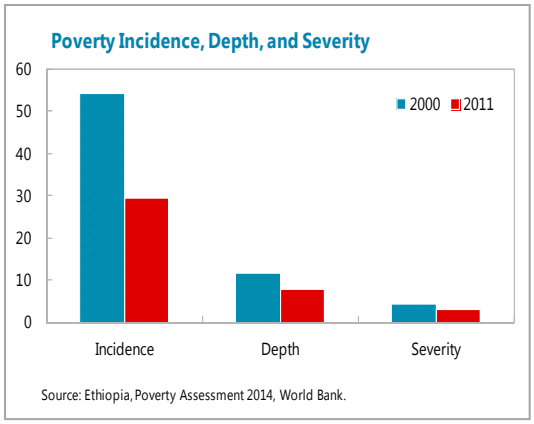
[8] See HICES, 2010/11

[9] Food poverty can be defined as an inability to afford, or to have access to food, which provides a healthy diet.

6. With a Gini coefficient of 30, Ethiopia remains among the most egalitarian countries in the world. This mirrors a very equal consumption distribution in rural areas, but also results from regulations that prevent farmers from consolidating land (which inhibits the growth of farm size). Given that the majority of the population still lives in the countryside, a low rural Gini contributes to the low national measure. In the cities, on the contrary, after a decline in inequality between 2004 and 2010 (by 6.2 percentage points), most recent developments indicate that the income gap is widening again.[10] The rising skill premia for higher education and the changes in the household characteristics (younger households, living alone, or in couples with no children) are the key factors behind the increasing income disparities.[11]



7. The most vulnerable households seem to experience less benefit from growth than those in the higher income deciles.[12] Despite strong economic growth and the broader reach of government policies, the reduction in poverty depth and severity do not go hand in hand with the decline in overall poverty rates.[13] Moreover, overall vulnerability to food price shocks has increased almost tenfold, despite stepping up government's policy efforts.



[10] Information is based on the discussions with the authorities.

[11] The government is working with the World Bank to design a new policy instrument, which would target specifically the urban poor and increasing inequality in cities.

[12] See also discussion in the 2013 and 2014 Staff Reports for Ethiopia (IMF Country Reports No. 13/308 and 14/303 respectively), and the 2013 Selected Issues Paper on Inclusive Growth in Ethiopia (IMF Country Report No. 13/309).

[13] *Incidence of poverty* is the share of the population living below the poverty line. *Depth of poverty* (poverty gap) indicates how far average poor households are from the poverty line; it is calculated as the mean consumption shortfall relative to the poverty line across the population. *Poverty severity* (squared poverty gap) is defined as the distance of the poor household from the poverty line and takes into consideration the inequality among the poor. Poverty severity puts a higher weight on households, who are further below the poverty line. See: Ethiopia, Poverty Assessment 2014, World Bank

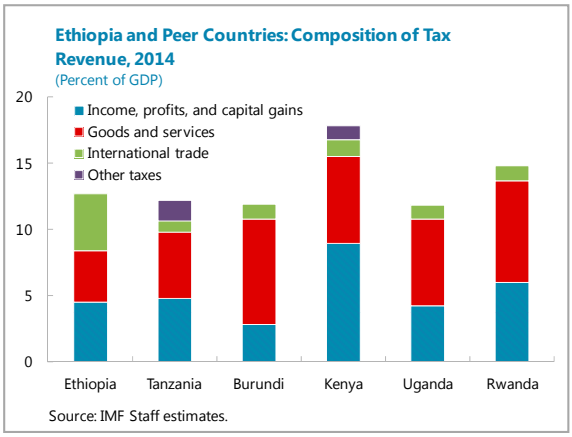
IMPACT OF FISCAL AND SOCIAL POLICIES ON INCOME DISTRIBUTION

8. Fiscal policy remains the main tool to affect income distribution and reduce income inequality. Fiscal instruments, such as income taxes and transfers, can reduce inequality of disposable incomes directly through households' decisions to seek employment, increase labor effort, save, and invest. In-kind benefits (such as spending on education, health care, and housing) can impact the inequality of market incomes through their effect on future earnings, health condition, ability to work, and living standards.[14]

9. Fiscal policy in Ethiopia has an overall positive distributional impact on income inequality, but its efficacy could be improved. A larger fiscal space for pro-poor spending could be created by strengthening tax collection and eliminating tax exemptions. Tax brackets should be revised upwards to ensure that they keep up with changing income levels. Indirect subsidies (in particular on electricity) should be replaced with direct transfers, which are more efficient in addressing the needs of the most vulnerable households. The government should build on the successful experience of their productive safety net program (PSNP) to nimbly respond to the recently growing needs of the urban unemployed.

Revenue policy

10. In terms of tax revenue collection, Ethiopia faces the typical challenges of a developing country. These include a low tax-to-GDP ratio, heavy reliance on trade taxes as a source of revenue generation, and generous tax exemptions and expenditures.[15] Only recently, stronger efforts in tax administration allowed Ethiopia to catch up with some peer countries in the region (e.g.: Tanzania and Uganda). Nevertheless, it still falls behind its own targets, and the average performance in SSA and

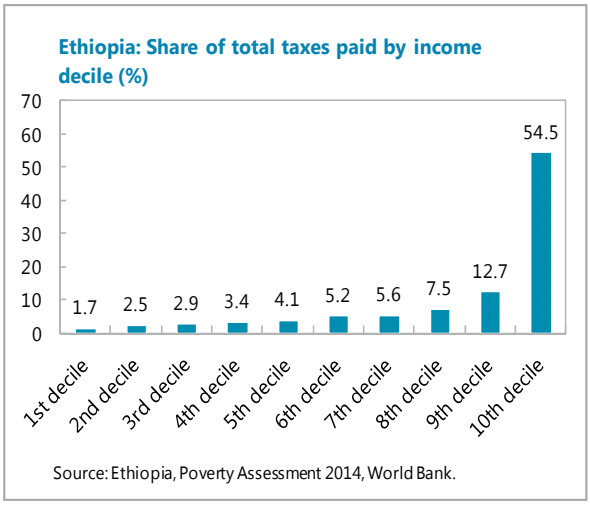


[14] Although the impact of redistributive policies is smaller in low-income countries (LICs) compared to advanced economies, they still play an important role in reducing inequality. It is estimated that redistributive transfers and taxes reduce inequality in advanced economies by about 30 percent, with about 60 percent of this reduction coming only from transfers. The impact of in-kind benefits is estimated to further reduce the market Gini, on average, by around 10 percent. In LICs, lower taxes and public spending, together with the smaller share of spending allocated to social transfers, hinder redistribution through fiscal policy. Larger underemployment and limited formal employment reduce the scope of progressiveness coming from income taxes (See: Fiscal Policy and Income Inequality, IMF Policy Paper, 2014).

[15] This section summarizes the findings of a comprehensive analysis of the incidence of fiscal policy and draws the policy advice (see also Chapter 5 in Ethiopia, Poverty Assessment 2014, World Bank; and Woldehanna et al., 2001).

low-income countries (LICs). Greater efforts are needed through tax design and administrative measures to support inclusive growth and create sufficient fiscal space for scaling up the most needed social spending. The main consideration should be given in this context to reduction of excessive tax exemptions and tax holidays, as well as to policies promoting private sector development, which would facilitate broadening of the tax base.

11. Direct taxes are the main instrument of redistributive policy affecting income inequality. While direct taxes (personal income and business income) remain progressive, overall, their contribution and efficacy should be strengthened. They account for a relatively small portion in overall tax revenue, which limits their ability to reduce inequality. The analysis of the incidence of personal income taxes showed that they are progressive, as the main burden of these taxes is carried by the rich (67 percent is paid by the top 20 percent). However, lack of revisions to the tax brackets for a decade, and the relatively low threshold of the first tax bracket, suggest that Ethiopia levies more taxes on the lowest income households compared to other countries.[16]



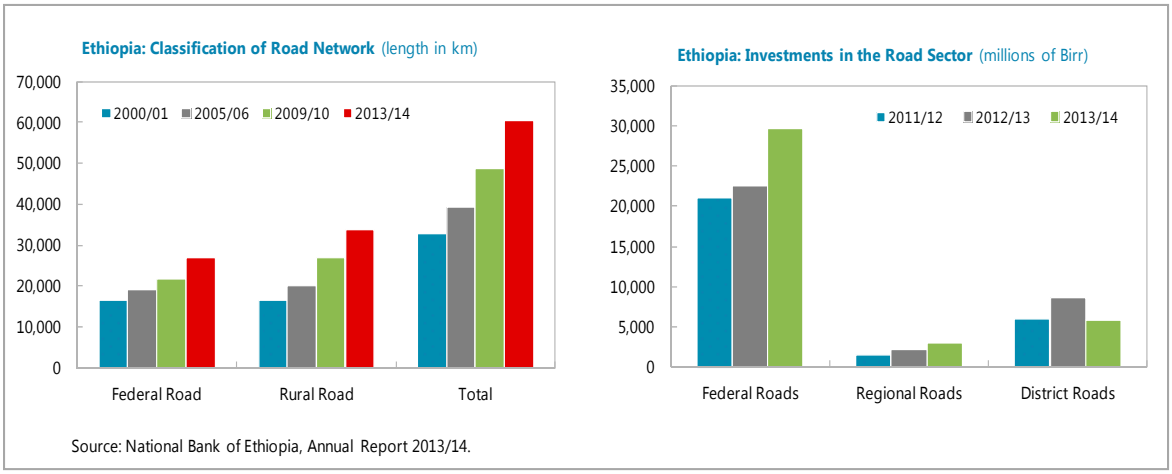
12. The contribution of agricultural taxes and land fees to the overall tax collection could be scaled up. Despite being a predominantly agricultural society, agriculture contributes less than 1 percent to total tax revenue. These taxes and fees are decided by regional governments, and they are levied according to the land size and land fertility. As such, they do not consider income from agricultural production, size of the cattle herds, or income from other productive assets for assessing the tax base. The land fees are rather regressive, since they only change with the land size. To some extent, this policy provides a simple way to estimate and collect taxes. However, defining commercial agriculture, and ensuring that it is captured accurately in the tax net, would help broaden the tax base.

Expenditure and social policies

13. The structure of government spending has been instrumental in addressing income inequality and reducing poverty in Ethiopia. The national strategy identifies the five areas through which the government's inclusive growth policy is realized: education, health, agriculture, access to water/sanitation, and roads. Over the last five years, spending on those five areas accounted for 70 percent of total expenditure. Within the pro-poor spending, education and roads

[16] See Ethiopia, Poverty Assessment 2014, World Bank.

comprise the highest share (25 percent and 20 percent respectively).[17] Heavy investment in roads has paid off as the total road length has increased by 30 percent, while road conditions have improved, and access to all-weather roads has expanded.[18]



14. However, the pro-poor policy of the government realized by indirect subsidies could be revamped to better target low-income households. Electricity subsidies are the main indirect subsidy, with an estimated cost of Birr 1.5 bn (equivalent to 2.6 percent of general government spending). Given that the largest benefits of this subsidy are channeled to relatively better-off households, this subsidy should be replaced with direct transfers. This would improve efficiency of pro-poor oriented policy and transparency of government operations.

15. Ethiopia should build on its successful experience with the Productive Safety Net Program (PSNP) to address the growing needs of the urban poor. The program was introduced in 2005 as a new approach following 30 years of emergency food aid programs. Ten years after its inception, the program now targets more than 8 million beneficiaries (9 percent of total population), primarily in famine-prone areas in Ethiopia. It became the second largest protection program in Africa and is critical for poverty reduction, and for addressing the needs of the most vulnerable households. The PSNP integrates cash transfers with public-work employment in an innovative way. With the government strategy to accelerate structural transformation, the rural-to-urban migration is likely to grow. The program remains a good example on which the experience can be drawn to address the increasing income disparities in urban areas.

[17] Spending on agriculture and health account for a lower portion of pro-poor spending, at 15 and 7 percent, respectively.

[18] In Ethiopia, where remoteness is still a big challenge and a source of poverty and inequality, the World Bank study found that poverty incidence declines by 7 percent with every 10 kilometers closer to an urban market.

FINANCIAL INCLUSION

16. There is a growing body of economic literature arguing that financial development has a positive impact on economic growth, while dividing benefits of the growth more equally. Cross-country analysis has found that the Gini coefficient falls more rapidly in countries with more developed financial intermediaries (Back, Demirguc-Kunt, Levine, 2007). Another study, conducted for India, found that output increased and poverty declined with greater access to finance (Burgess and Pande, 2005).[19]

17. There are broad benefits of financial development. Financial development allows for channeling capital to more productive sectors and creating a larger pool of resources available for investment. A better developed financial system allows for reducing cash and barter transactions, limit cost of remitting funds, and allows for smoothing income and consumption over time. Insurance services help households and firms to better withstand unexpected shocks and reduce their vulnerability to adverse events. Some studies indicate that greater financial inclusion reduces inequality directly by easing constraints to credit.

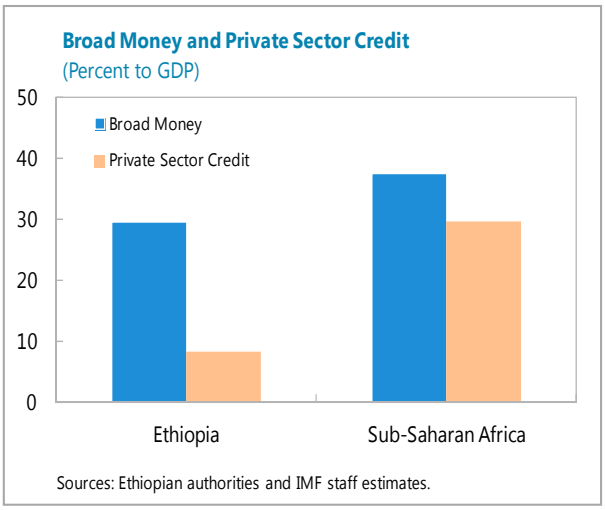
18. Financial development in Ethiopia should focus particularly on rural areas where the majority of the population resides. In Ethiopia, access to finance is primarily through the banking sector and microfinance institutions (MFIs). There are 18 commercial banks and one state-owned development institution (Development Bank of Ethiopia). The sector is highly concentrated, with the largest, state-owned commercial bank comprising about 70 percent of total assets. Banks have been rapidly expanding their branches, which have increased four-fold since 2010. However, as more than a third of branches is located in Addis Ababa, the rural areas (with almost 80 percent of population) still lack good access to financial services. Despite rapid growth, compared to other countries in the region, the population per bank branch remains high (35,957 as of March 2015).

19. Microfinance institutions (MFIs) and Savings and Credit Cooperatives (SACCOs) should increase their reach to the poor. In 1996, the National Bank of Ethiopia (NBE) developed a prudential regulatory framework for microfinance to supply financial services to the poor. The Microfinance Proclamation 40/1996 opened the possibility for the establishment of deposit-taking MFIs.[20] Despite these efforts, in March 2015, there were only 24 MFIs providing financial services. Their penetration ratio is still low, with less than 4 percent of the population being served. Similarly, SACCOs, which are voluntary associations with a purpose to save and lend money to its members, remain small by international standards. Although they are growing in number, their coverage is insignificant relative to the size of the unbanked population.

[19] These findings are also relevant for advanced economies; for instance, better access to bank branches lowered income inequality in the USA (Beck, Levine, Levkov, 2010).

[20] In many SSA countries, MFIs have greatly benefited from access and tapping to resources of NGO, IFC and other organizations, to secure financing for the private sector development in the rural areas.

20. There is room for more financial inclusion. Compared to other countries in the region, Ethiopia's broad money to GDP accounts for 75 percent of the regional average, while the private sector credit to GDP is only 25 percent of the regional average. Growth in Ethiopia's banking sector has not kept up with other, more vibrant, sectors of the economy.[21] Despite strong efforts undertaken by banks to offer new financial products to attract clients and to offer novel financial services, such as electronic and mobile banking, financial inclusion still has a long way to go.

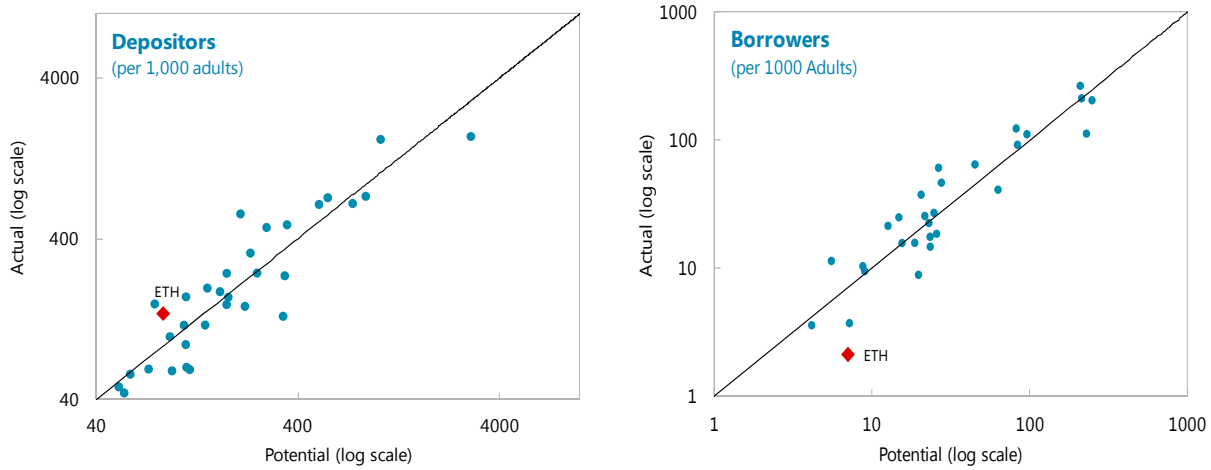


21. Although the recent efforts undertaken by banks to branch-out have resulted in a better performance of deposits, access to credit remains severely constrained in Ethiopia. Use of bank accounts and ATMs is less widespread than in other SSA countries. A simple regression analysis (Appendix 1) suggests that improvements in the ICT infrastructure could raise the potential for deposit mobilization. However, access to credit remains the lowest among the SSA countries. Ethiopia lags far behind both its potential and other countries in the region. In addition, credit growth to the private sector seems stalled, and increased only marginally from 8.2 percent of GDP (2003) to 9.4 percent of GDP in 2015. Conversely, in SSA credit to the private sector grew fivefold over 2003–14, with an annual increase of 16 percent, doubling its size when measured as a percent of GDP. [22]

[21] Bank penetration, defined as total assets to GDP, is also relatively low in Ethiopia compared to other countries in the region (at 42 percent of GDP versus close to 60 percent in SSA). Moreover, it has declined over the last 12 years (by 41 percent), while in the region this ratio has increased by almost 50 percent. See also: forthcoming 2015 Regional Economic Outlook for SSA, Chapter 1.

[22] See forthcoming 2015 Regional Economic Outlook for SSA, Chapter 1.

Ethiopia: Financial Inclusion, Potential and Achievements



Source: World Development Indicators, 2013; and IMF staff estimates.

22. Credit allocation is distorted by heavy intervention in financial sector policies, which does not allow banks to achieve the most from their operations.[23] With the majority of credit channelled to state-owned enterprises, the private sector needs to rely on informal lending and their own savings. Limited financial credit products (e.g.: lack of availability of personal loans), and high cost and lenthy procedures to seize collateral, hinder the development of the credit market, and do not allow for credit to play an adequate role in smoothing consumption, income, and investment. Negative real interest rates distort the pricing mechanism, erode incentives to save, and hamper financial intermediation.

23. The government should reform its financial sector policies to reap the full benefits of financial deepening. Stronger efforts should be undertaken to promote mobile banking, which has made a significant contribution in neighboring countries. The rapid development of M-Pesa in Kenya should serve as a good model to follow. It is a private sector-led innovation to address constraints related to information asymmetry, risks and overall high costs of traditional financial intermediation, supported by an enabling policy environment, including better regulation. Financial policies constraining availability of credit to the private sector should be eliminated. Decisive efforts need to be undertaken to promote capital market development, as an alternative to bank credit as a source of financing.

[23] Since 2011, private banks are required to invest the equivalent of 27 percent of their new loans in NBE bonds, the proceeds of which are used to finance the DBE. From this pool of funding, DBE on-lends the resources to priority sectors.

24. Mobilizing private savings remains critical for economic development. It may require a combination of legislative changes, and incentives tailored toward improving the availability and return on existing financial instruments and introducing new instruments. The authorities should encourage banks, and particularly MFIs and SACCOs, to increase their outreach by opening them up to institutions willing to provide capital, and by ensuring an appropriate regulatory environment for such institutions. Easy access to convenient and safe saving instruments can raise savings significantly. The promotion of financial instruments that suit the needs and preferences of rural savers is vital for generating and mobilizing savings among the rural population.

MACROECONOMIC AND DISTRIBUTIONAL IMPLICATIONS OF REFORM: A MODEL-BASED APPROACH

25. This section analyses the macroeconomic and distributional implications of reforms using a dynamic general equilibrium model. In light of the focus on equitable growth, it is crucial for policy analysis to go beyond the impact on macroeconomic variables and to understand the heterogeneous effects that reforms may have across the income spectrum. As some reforms focusing on structural transformation could lead to higher inequality and poverty, the welfare implications of such reforms might not be straightforward. While various empirical studies on Ethiopia, including the World Bank's 2014 Poverty Assessment, have documented the impact of past and current policies on inequality using household data, only a formal model can provide the framework necessary to quantify the effects of counterfactual policy alternatives.

26. The analysis follows an approach that has been at the center of a well-established literature in quantitative macroeconomics. Analyses that jointly consider macro and distributional issues have been applied to advanced economies for more than two decades. By explicitly modeling a very large number of individual households and their interactions, these studies can generate a high-resolution picture of the income and wealth distribution.[24] These models can be adjusted to account for the particular structure of the Ethiopian economy. The availability of a rich set of household data for Ethiopia then allows for a careful calibration of the model.[25]

27. The results of this study show how polices that seek to increase domestic resource mobilization—which is critical to finance Ethiopia's development—can be consistent with higher and more equitable growth. The study focuses on the macroeconomic and distributional impacts of two policies that Fund staff have recommended to increase domestic

[24] Appendix II reviews the existing literature and its connections to the model for Ethiopia.

[25] We thank the World Bank for providing us the Household Consumption, Income and Expenditure Survey (2004-05) and the Ethiopia Socioeconomic Survey (2010–11) which were used in our analysis.

resource mobilization: (i) streamlining tax incentives, and (ii) reforming the DBE's funding modality.[26] The study then considers complimentary policies that could foster equitable growth.

A model of the Ethiopian economy

28. The model is calibrated to reflect key features of the Ethiopian economy. Details on the specific structure of the model can be found in Box 1. The principal features include:

- A very significant role for agriculture, given its share in GDP (43 percent), its role for employment (almost 80 percent of the workforce), and its importance for exports (accounting for 90 percent of goods exports, and a third of total exports)
- A relatively small manufacturing sector, which is however developing.
- Exports remain heavily concentrated, primarily on commodities.
- A relatively basic financial market, with limited opportunities for risk sharing.

29. Because agriculture is so important, its key features are explicitly considered in the analysis. First, the agricultural supply is built from the bottom up and is constituted by the output of a large number of agricultural households ranging from subsistence farms (that barely generate any surplus above subsistence needs) to higher productivity farms active in domestic and international markets. Commodity exports (coffee for example) are relatively low value-added activities and are traded at prices determined in international markets. Domestic food prices are determined by the interaction of supply and demand. Fluctuations in agricultural prices play an important redistributive role in the model (evidence by Dercon (2004) shows this is empirically relevant for Ethiopia) as higher food prices distribute income towards surplus farmers.

30. The model also includes Ethiopia-specific policies, which are adjusted in the analysis to assess the impact of the changes on macroeconomic and distributional outcomes.

- The current sources of funding of the DBE have been perceived by Fund staff as a policy measure contributing to an increased cost of financial intermediation and limited resources available for private sector investment. The DBE funding policy requires commercial banks to invest 27 percent of their new loans in five-year bonds issued by the NBE at nominal interest rates that deliver a negative real rate of return. This policy represents an implicit tax on financial intermediation, which reduces the resources available for private banks to lend.

[26] The DBE (Development Bank of Ethiopia) is a state-owned financial institution, which was created to provide financing for the development of so-called "priority sectors". DBE can mobilize its funding from domestic and foreign resources, including through the requirement imposed on the private banks (see paragraph 30).

- Streamlining tax incentives and expenditures would increase revenue mobilization. Tax incentives for export-oriented firms (envisaged in the model) are estimated to reduce tax revenue by 2.8 percent of GDP per year.[27] Since exports as a share of GDP have not changed much in the last 15 years, it is unclear, however, to what extent these tax incentives have been successful in catalyzing additional investment in export-oriented firms. The revenue gain of streamlining tax incentives could therefore be substantial, without necessarily impacting the growth of the export industry.

Box 1. General Structure of the Model

- Small open economy with three consumption goods: domestically produced food, imported food, and non-food goods (manufacturing and services).
- There are four types of households: rural, urban, government employees, and entrepreneurs (capital holders). Within each of the first three types, there is a continuum of households, equal ex ante, but facing idiosyncratic risk. Households solve dynamic optimization problems taking prices and government policies as given.
- Three goods are produced: (i) domestic food (produced by rural households), (ii) non-food items (manufacturing and services), produced either by urban households (in family businesses) or by entrepreneurs (the industrial sector). Entrepreneurs also produce (iii) traditional exports, which are not consumed domestically and are exported at a price given by international markets.
- The only financial assets available are one-period bonds, and they are traded among households to allow for risk sharing (in the baseline only urban households have access to the bond market). The interest rate of these bonds and the price of domestic food are determined by supply and demand forces in equilibrium.
- The government collects tax revenue (on income, consumption, etc.). This revenue is used to fund government expenditures (including public sector wages, capital investment and pro-poor spending).
- The model is thus a dynamic general equilibrium including a continuum of households facing idiosyncratic risk (as in the income inequality literature) and also multiple sectors (as in the structural transformation literature).

Empirical underpinnings: Matching key features of Ethiopia's macro and household level data

31. The model qualitatively and quantitatively reproduces key macroeconomic trends in Ethiopia. In particular, because of the focus on how a change in resource reallocation can impact growth, special attention is devoted to capturing the specific tax structure of Ethiopia, the size of the incentives to exporters, and the relative size of the manufacturing and services sectors. Therefore, for the baseline year (i.e., 2011), in the model as in the data, the agricultural sector accounts for 41 percent of GDP, tax incentives to exporters are approximately 2.8 percent of GDP, and tax

[27] FAD Technical Assistance Report on "Tax Incentives, Tax Expenditures, and Transfer Pricing", IMF, 2012.

revenues are 13 percent of GDP. The share of income, corporate, and trade taxes are also determined. These data moments are matched by calibrating the differences in TFP across sectors in the economy, as well as the sector specific parameters of the production functions, and implicit tax rates.

32. The model replicates key distributional features of Ethiopia's household level data. The persistence and variance of the households' idiosyncratic shocks are calibrated to reproduce the Gini coefficients of consumption observed in the data. In addition, the model is calibrated to match households' consumption patterns with the objective of capturing the distributional implications of the policy changes.

Policy measures and reforms for equitable growth

33. The policy changes assessed in this model consist of reforming the DBE's funding policy and tax incentives for exporters in a revenue neutral way. The "27 percent investment requirement" is eliminated, which, ceteris paribus, increases the return from lending operations of private commercial banks. Streamlining tax incentives generates enough revenue to fund the DBE and to finance policies that support equitable growth.

34. The equitable growth policies considered in the model are: (i) doubling the size of the PSNP; (ii) deepening access to financial services and improving financial policies; and (iii) fostering rural to urban migration. The size of the PSNP is doubled from 1 percent of GDP (its actual value in the base year) to 2 percent of GDP. The financial development policies assume an additional 25 percent of the rural population gains access to financial services, and also a reduction in the risk premium in loans to all borrowers (from 15 percent to 5 percent). Finally, 2.7 percent of the rural population migrates to urban areas, which expands labor supply to the modern manufacturing and services sectors by 19 percent.

Illustrative scenarios: Quantitative results

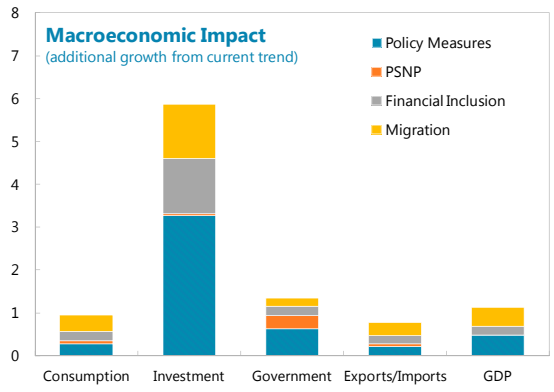
35. The current funding policy for the DBE is an implicit tax on the returns to investment. The reform aims at removing such tax, which increases the return on capital held by the private sector. As a result, private investment increases by 3 percent. This increases the productive capital stock of the economy, which contributes to higher output, and ultimately also larger consumption (Figure 1).

36. Changing the DBE's funding policy would promote structural transformation. Since manufacturing is more capital intensive than agriculture or services, when implicit taxes on financial intermediation are lowered and more resources for investment become available, manufacturing receives the largest stimulus (Figure 1). The manufacturing sector acquires more capital, which in turn increases the productivity of labor, and labor demand. As a result, wages increase. The average welfare of the urban sector improves after the reform.

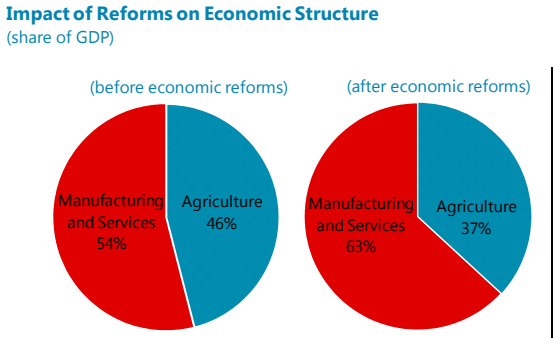
These reforms benefit urban households more than rural households. The effect on rural households depends on the final effect on the prices of agriculture goods. The traditional exports sector faces higher wages and demands less labor and less agricultural goods. As a result, farmers switch from producing commodities for export to producing domestic food. This increase in supply more than compensates the higher demand from the urban sector and the price of agriculture goods falls, lowering the welfare of rural households (Figure 1). In the short run inequality increases.

Figure 1. Ethiopia: Distributional Impact of Economic and Financial Reforms

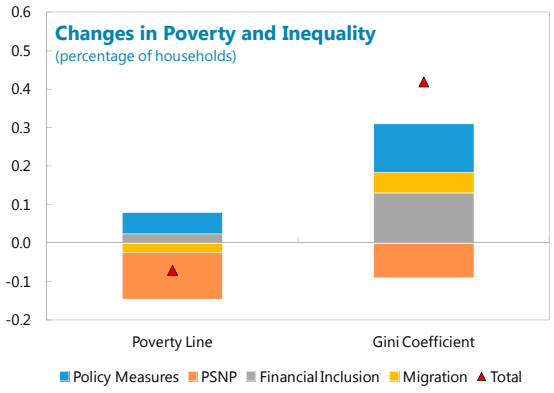
The reforms would have a strong positive macroeconomic impact…



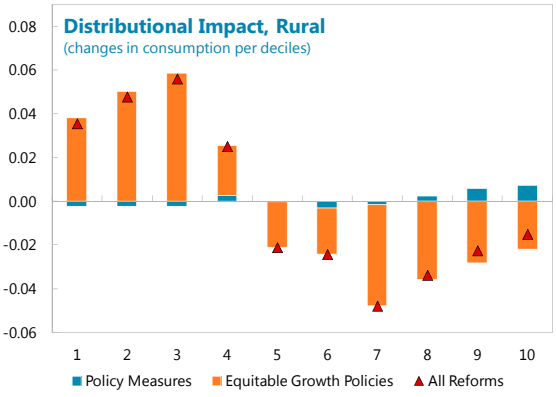
…and promote structural transformation.



Poverty falls, but inequality increases…



… although the poorest in rural areas would enjoy higher consumption than before.



Source: IMF staff estimates.

Policies for equitable growth

37. The proposed reform alone generates macroeconomic growth, but has a distributional cost in terms of inequality and poverty. Therefore to sustain inclusive growth it needs to be accompanied by policies that address those who may lose out from the reform, by redistributing the benefits across all agents in the economy. As mentioned before, we consider three such policies: (i) cash transfers (expansion of the PSNP), (ii) rural-urban migration, and (iii) financial sector deepening.

38. Targeted cash transfers to the rural poor reduce inequality. These transfers can be financed from the increased economic activity that results from fostering private investment and from streamlining tax incentives. Targeting the rural poor is particularly pertinent when the price of agricultural goods is negatively affected by the proposed reform. In the model, households receive these transfers and optimally allocate them between consumption and savings. In the simulation, increasing cash transfers reduces both inequality, measured by the Gini coefficient and reduces the proportion of households below the poverty line (Figure 1).

39. Financial deepening, especially in rural areas, reduces consumption inequality and supports economic growth. Rural households benefit from greater access to saving, which allows them to smooth out their consumption over time. The impact of financial development is especially strong for those households that had wanted to save, but were not able, due to lack of access to financial services. Financial deepening that lowers risk premia (which could arise from a better regulatory environment that allows banks to monitor and enforce contracts more efficiently) frees up resources for private investment and thus has a similar effect as reductions in implicit taxes. We estimate that financial development helps to boost private investment growth (by 1 percentage point per year), and output (by 0.3 percentage point per year) (Figure 1).

40. Rural-to-urban migration contributes to the equalization of labor returns in urban and rural areas. Rural-to-urban migration also facilitates the structural transformation process of the economy because it makes available inexpensive labor to foster growth in the emerging manufacturing and services sectors. As a result, rural-to-urban migration increases private investment growth (by 1 percentage point per year), and output (by 0.5 percentage point per year) (Figure 1).[28]

41. This analysis shows that to assess the impact of policies that promote growth and address inequality, an in-depth understanding of the economy's structure, the channels of policy transmission, and the possible synergies and trade-offs between objectives is needed. It requires taking into account: (i) the distribution of income and consumption at a micro level, and their interconnections with the overall macroeconomic and policy framework; (ii) the depth, access, and efficiency of the financial sector; and (iii) the effects that structural reforms and policies may have on different sectors and households, and possible tradeoffs with other objectives. The illustrative scenarios considered in this model show that a well-designed set of policies can indeed increase efficiency and protect equitable growth objectives, in particular for the rural poor.

[28] The Regional Economic Outlook: Sub-Saharan Africa; April 2015 (http://www.imf.org/external/pubs/ft/reo/2015/afr/eng/pdf/sreo0415.pdf), considers a set of specific policies that may support the creation of jobs in urban areas, as well as a number of country-case studies that offer further insights of challenges and successful implementation.

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APPENDIX I. REGRESSION ANALYSIS FOR POTENTIAL FINANCIAL INCLUSION

1. To assess a country's potential for financial inclusion we follow the approach of Allen et al., (2013)[1] and regress outcomes on a set of structural variables that are frequently associated with financial development. The fitted values are interpreted as potential outcomes which are used as a benchmark against which the actual outcomes can be compared. We use 2013 data from all Sub-Saharan African countries, but some observations are omitted due to data gaps. The regression table shows the effect of each variable on the number of depositors and the number of borrowers in an economy.

	Dependent variable:	
	log(Depositors per 1000)	log(Borrowers per 1000)
log(GDP per capita)	0.286	-0.317
Oil-rich	**-0.937**	-0.022
Rule of law	0.260	0.349
Political stability	**0.453**	**0.693**
Population density	0.000	-0.002
Rural	-0.012	-0.001
Inflation	**0.055**	0.015
Internet per hundred	**0.031**	**0.059**
Mobile cellular subscriptions	**0.000**	0.000
Public credit bureau coverage		0.033
Private credit bureau coverage		0.020
Constant	3.763	**5.231**
Number of observations	34	29
Adjusted R-squared	0.77	0.75

Note: bold-typed coefficients indicate statistical significance at the 5-percent level

[1] Allen, Franklin, Elena Carletti, Robert Cull, Jun Quian, Lemma Senbet and Patricio Balenzuela, 2013: ''The African Financial Development and Financial Inclusion Gap,'' Wharton Financial Institutions Center Working Paper 13-09, University of Pennsylvania.

Appendix II. Connections to the Literature

1. Models have been used for more than two decades to evaluate the possible macro and distributional impacts of alternative policies. A key branch of the quantitative macroeconomics literature relevant to studying income and wealth inequality originated from the work of Bewley (1983). In this class of models, individual agents that are ex-ante identical in terms of preferences face uninsurable idiosyncratic risks (e.g. to their income) and must self-insure against these risks by saving in a set of given assets. The first studies to treat this problem quantitatively, and to derive implications for income and wealth distributions for the U.S., were Huggett (1993) and Aiyagari (1994), and a large literature followed, both for developed and middle-income countries, studying household distributions in both infinitely-lived and life-cycle contexts.

2. An essential input into the model is an empirical measure of the idiosyncratic risk that households face. In developed countries, the standard procedure to measuring idiosyncratic risk is to use panel household data, and to use statistical methods to decompose income risk into idiosyncratic and permanent components. Modern approaches to income uncertainty measurement are represented by, e.g., Guvenen (2007), Heathcote, Storesletten and Violante (2010), Huggett, Ventura and Yaron (2011), and Guvenen and Smith (2013).

3. In the context of developing countries, the main challenge then is the lack of appropriate data to calibrate the model. Without household panel data of adequate frequency and length, it is difficult to estimate the extent of uncertainty faced by households in their income, for example. Nevertheless, as household panel data become available in developing countries, every effort needs to be made to use the available techniques to quantify the extent of household-level risk. Deriving quantitative predictions from a model requires estimating the parameters of the model based on relevant data. Parameters are generally estimated, either by a method of moments (most commonly Simulated Method of Moments), or by indirect inference. Methods of moments always involve minimizing the (squared, weighted) distance between empirical moments and those from the model. The estimation methods alluded to here are described in, e.g., McFadden (1989), Gourieroux and Monfort (1999), and Gourinchas and Parker (2002).

Appendix III. Model Details

1. The model presented here is a dynamic stochastic general equilibrium model of a small open economy with multiple sectors. There are a large number of households that are heterogeneous, both within and across sectors. Urban and rural households differ with respect to their occupations as well as to their access to financial intermediaries. Within-sector heterogeneity is due to household specific shocks to productivity.

Economic sectors

2. There are four types of occupations in the economy, three urban and one rural:

- Agricultural workers (rural)
- Entrepreneurs (urban)
- Public sector workers (urban)
- Private sector workers (urban)

Households are confined to their sectors and cannot easily switch occupations.

Production

3. Agricultural workers use their own labor to produce food which they can then either consume or sell on the market. Public sector workers work for the government which does not produce marketable goods. Private sector workers provide their labor to the entrepreneurs. Additionally, both private and public sector workers devote some of their time to producing a nonfood product.[2]

4. The entrepreneurs produce the non-food item using capital and labor.[3] This non-food good can then either be sold to consumers or converted into capital using an intermediary. Each entrepreneurial household owns its own capital stock which cannot be converted back into a non-food consumption good. Capital depreciates over time, so that new investments are necessary to maintain the capital stock.

Besides the domestically produced food item and the non-food product, there is also an agricultural export product. The production of this good (e.g., coffee in Ethiopia, tobacco in Malawi, cocoa in Ghana) takes place in firms owned by entrepreneurs. It uses the food item as input which is then refined and packaged using labor.

[2] This assumption is made to capture Ethiopia's large informal sector.

[3] Hence the non-food product is produced both within the entrepreneurs' firms and informally by workers at home.

Production Structure			
Good	**Producer**	**Input**	**Use**
Imported food	Foreigners		Consumption
Domestic food product	Agricultural workers	Agricultural labor	Consumption, production of agricultural exports
Non-food product	Entrepreneurs	Private sector labor, capital	Consumption, investment
	Private / public sector workers	Informal technology	
Agricultural export	Entrepreneurs	Domestic food product, private sector labor	Export

Preferences and household decisions

5. Households live forever and are forward looking. In every period, they decide how much of their disposable income to consume and how much to save. Households face uncertainty regarding their future income and are risk averse: they want to avoid large fluctuations of their consumption over time. Having access to a financial intermediary allows them to accumulate a buffer of financial wealth as insurance against future drops in income. Households facing more severe shocks can borrow to smooth consumption if they have access to finance.[4]

6. Only private and public sector workers and a given fraction of agricultural workers have access to finance. The remaining farmers can neither save nor borrow.

7. Households also decide how to allocate their consumption expenditure over two food items (domestically produced and imported) and the non-food item.

8. Workers also make a decision on how much of their time to devote to the formal labor market and how much to work in the informal sector.

Financial intermediation and financial sector policies

9. Financial intermediaries have two distinct roles in the economy:

- They convert non-food goods into capital.
- They allow workers to save and borrow.

The government imposes a tax on financial intermediation, which means that, if households can save at the real interest rate r, borrowers face the interest rate $r+\tau^s$, where τ^s represents the

[4] The model thereby highlights the role of financial inclusion not just as a measure of mobilizing resources for investment but also as an insurance mechanism that reduces consumption inequality.

intermediation tax. Similarly, to increase the capital stock by an amount I, entrepreneurs must pay $(1+\tau^{s})I$.[5]

Fiscal policy parameters

10. Apart from the tax on financial intermediation, the government in the model has access to a rich set of taxes and transfers to pay the public sector workers and to provide insurance to vulnerable households. These policies are captured by a set of exogenous policy parameters:

- A tax on entrepreneurs' capital income
- A tax on private and public sector workers' wage earnings
- Sector specific and means-tested transfers

Idiosyncratic shocks

11. Each non-entrepreneurial household's productivity is subject to random changes over time, but these changes in productivity are different across households. At each point in time, some households are lucky while others are unlucky. There is no aggregate uncertainty and, given the large number of households, a law of large numbers applies, so that the distribution of shocks across households within each sector remains constant. That is, the number of unlucky households is always the same.

Equilibrium and steady state

12. At each point in time, prices, wages, and interest rates are set to ensure that the markets for all three domestically produced goods, for credit, and for labor clear. Moreover, given these prices (both in the present and future) and government policies, all household decisions are made to maximize the present value of lifetime utility. The prices of imported food and of agricultural exports are exogenously given.

13. The economy is in a steady state. Aggregate variables and prices are constant over time, as is the distribution of wealth, income, and consumption across households. The income, wealth, and consumption of individual households however changes over time with the realization of their idiosyncratic shocks.

[5] This intermediation tax is a simple way of modeling the DBE's 27 percent rule which lowers the return of financial intermediaries' assets.