



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Distortions to Agricultural Incentives in Ethiopia

Shahidur Rashid, Meron Assefa and Gezahegn Ayele

International Food Policy Research Institute (IFPRI)

s.rashid@cgiar.org

IFPRI-Addis Ababa

m.assefa@cgiar.org

Ethiopian Development Research Institute

g.ayele@ethionet.et; or ayeleg2002@yahoo.com

Agricultural Distortions Working Paper 43, December 2007

This is a product of a research project on Distortions to Agricultural Incentives, under the leadership of Kym Anderson of the World Bank's Development Research Group. The authors are thankful to Taddasse Kumu for sharing his data on the coffee and hides and skin markets, to Kassu Wamisho for providing us various macro data, to Abera Birhanu for providing information on the chat markets, and to Alemayehu Seyoum for insightful discussions. The authors are also grateful for helpful comments from workshop participants and for funding from World Bank Trust Funds provided by the governments of the Netherlands (BNPP) and the United Kingdom DfID).

This Working Paper series is designed to promptly disseminate the findings of work in progress for comment before they are finalized. The views expressed are the authors' alone and not necessarily those of the World Bank and its Executive Directors, nor the countries they represent, nor of the countries providing the trust funds for this research project.

Distortions to Agricultural Incentives in Ethiopia

Shahidur Rashid, Meron Assefa, and Gezahegn Ayele

Over the past half century, Ethiopia has gone through three ideologically distinct political regimes: the monarchic regime during 1950-1974, the central planning regime (*Derge* regime) during 1974-1991, and the regime that has been in power since the collapse of *Derge* regime in May 1991.¹ Each shift in political regime has been marked by dramatic change in economic policies with direct implications for the agricultural sector in terms of both access to factors of production and marketing of inputs and outputs. During the monarchic regime, the land tenure system was complex, private transfer of land was practically non-existent, and ownership was skewed with the state and the church maintaining control over large shares of agricultural land.² In fact, it was one of the central forces that mobilized rural peasants and urban intelligentsia, with the popular slogan “land to the tiller”, which eventually brought down monarchic regime in 1974.

After the 1974 revolution⁴, the *Derge* government introduced all aspects of centrally planned economy. It nationalized rural land, abolished tenancy, ordered all commercial farms to remain under state control, redistributed lands, and maintained a highly overvalued currency.³ The most direct interventions included fixed pan-territorial grain prices, restrictions on private inter-regional grain movements, and producer grain quota (Lirenso 1987 and Franzel, Colburn, and Degu 1989). The outcomes of these policies are well-known: economic growth was thwarted, farmers smuggled cash crops to neighboring countries (because of highly overvalued exchange rates), and civil strife gained momentum. To make matter worse, the country was hit by a devastating famine in 1984. The problems became even more acute in the late 1980s when

¹ The monarchic regime started earlier, but the country adopted its first five-year plan in 1956; and there was a transitional government following the revolution that was in power until 1995.

² For example, in the Southern part of the country, agricultural lands were equally distributed among the state, churches, and the local people; the tenancy ranged between 65 and 80 percent of land holdings and the tenants’ payments to landowners reached as high as three-fourth of total production (Zewde 2002 and Cohen 1987).

³ For further details on the policy actions and their consequences, see Zewde (2002) and McCann (1995).

Soviet assistance decreased and armed insurgencies in the North escalated. The *Derge* eventually collapsed on 28 May 1991.

Following the fall of *Derge* regime, the transitional Government embraced market oriented economic policies. It adopted structural adjustment programs, abolished agricultural price control, established macroeconomic stability, and emphasized agriculture as the priority sector in its strategy document, called Agricultural Development Led Industrialization (ADLI). According to many studies, the reforms paid off, but the country is still struggling to transform its agriculture.⁴ While agricultural sector has registered a growth rate of 1.7 percent since 1992, both production and prices continue to be more volatile than most developing countries; and the government has occasionally intervened in agricultural markets, through public enterprises, to ensure price stability and an adequate distribution of inputs.⁵

The objective of this chapter is to trace out the broad policies under different political regimes and examine how they affected agricultural incentives, economic growth, structural changes and poverty over time. We provide a brief history of politics and policy evolution, examine the trends in growth and structural changes across sectors and within agriculture, catalog the changes in agricultural pricing, taxation, and investment policies, and estimate the extent of distortions to agricultural incentives for selected commodities. The analysis covers the time period 1981 to 2005, and generates estimates of distortions for eight commodities which together account for about 80 percent of export value and about 60 percent agricultural value added.⁶

Historical overview of politics and economic policies⁷

The Ethiopian state originated in the *Askumite* kingdom. It emerged as a trading state around the first century A.D. and maintained trading relations with the Byzantine Empire, Egypt, and the

⁴ Many studies have documented the impacts of policy reforms, notably Negassa and Jayne (1997), Dessalegn, Jayne and Shaffer (1998) and Gabre-Madhin (2001).

⁵ One recent such intervention was an export ban on cereals in the wake of increasing prices in February 2006.

⁶ The numbers are based on a new Social Accounting Matrix (SAM) developed at IFPRI-Addis Ababa.

⁷ This section draws from Zewde (2002) and McCann (1995).

Arabs. Since then, Ethiopia has traveled a very long and troubled path in history which, in many respects, is unique in Africa. We begin from the mid-1950s when the monarchic regime, led by Haile Selassie, formulated the First Five Year Plan (1957-61) in the country's history.

Three key messages emerge from the major political events and economic policies of the past half century (Appendix Table 1). First, throughout its modern history, Ethiopia has suffered from political instability. Among other problems, the monarchic regime survived a coup attempt in the early 1960s, and encountered strong insurgencies from the Eritrean Peoples' Liberation Front (EPLF) and from the increasing discontent of tenant farmers and the urban intelligentsia. The first few years of the *Derge* regime were full of internal conflicts, violence, and bloodshed until Mengitsu came out victorious in 1977. However, the regime was constantly challenged by regional rebel groups, most notably the EPLF and the Tigray Peoples' Liberation Front (TPLF), which eventually forced him to go on exile to Zimbabwe in 1991. While the country has enjoyed relative stability over the past 10 years, the current government also had a tough time at the beginning and continues to face civil strife in pockets of the country. After Eritrea's independence in 1993, the tensions between the two countries continued. In May 1998, a dispute over the un-demarcated border with Eritrea led to a war between the two countries that lasted until June 2000. More recently, following a dispute over the general election of May 2005, political violence erupted in several places in June and November 2005.

Second, Ethiopia has embraced all dominant ideologies and associated economic policies since the mid-1950s. In its first Five Year Plan (1957-1961), the monarchic regime adopted an export promotion strategy with an elaborate incentive package to attract foreign direct investment. However, the policy outcome did not meet expectations and the government aligned its development strategy along the lines of the Prebisch-Singer's import substitution theory, which the regime continued until its fall in 1974. The *Derge* clearly embraced a socialist view of the world, imitating almost all aspects of economic management that the former Soviet Union developed. The current government adopted a more liberal approach and implemented many aspects of the World Bank/IMF Structural Adjustment Program (SAP). That included devaluing its currency, and taking measures to establish macroeconomic stability. The reforms in the agricultural sector included withdrawal of all restrictions on private inter-regional trade, elimination of officially fixed prices, removal of compulsory delivery quotas, and abolition of grain rationing to urban consumers.

Finally, albeit with varying degrees, each regime has taken some control over agricultural markets. The monarchic regime used two control mechanisms: large state ownership of land with very limited property rights and control of international trade through state enterprises.⁸ The policies of the *Derge regime* controlled almost all aspects of the agricultural markets: it outlawed private ownership of land holdings over 10 hectares, abolished rural wage labor, set production quotas and agricultural prices, and empowered state enterprises to control practically all aspects agricultural markets (Zewde 2002, EEA 1999/2000). The most pervasive distortion in Ethiopian agriculture during this regime was control over farm gate prices through the Agricultural Marketing Corporation (AMC), which imposed fixed prices and sales quotas that ranged from 50-100 percent of traders' turnover and 10 to 50 percent of the farmers' harvest at consistently lower than market prices (McCann 1995, Dercon and Lulseged 1995).

After the fall of *Derge* regime, the new government gradually eliminated many of the government controls. However, it supported 24 public enterprises in 2001, which incurred a net loss of ETB 51.5 millions (equivalent of about USD 6.5 million) and reported a net retained earnings of ETB -1.65 billions (or US\$ -19.1 million). In 2005, the number of public enterprises was reduced to 19 and the net loss declined to about ETB 24.8 million (about US\$ 2.8 million). However, the agricultural input marketing parastatals continued to dominate the markets. In 2005, the Agricultural Input Supplies Corporation (AISC) controlled more than 80 percent of the market shares in improved seeds, chemical fertilizers, and pesticides.⁹

All three factors have negatively effected agricultural development in the country. The most direct consequence was perhaps the reduction of public spending on agriculture, as public resources were diverted to finance wars and subsidize public enterprises. (Appendix Figure 1 presents public expenditure, as percentage of GDP, for various sectors during 1981-2003. The upward trend in defense expenditure clearly corresponds with the years of civil strife. In the

⁸ In the southern part, the state and the church owned two-third of the land. The northern part had nontransferable communal kinship ownership, which it wanted to protect and sowaged a defensive struggle against the government's land privatization policy. Furthermore, the government made extensive land grants to its supporters, the military and public officials in order to broaden its power base (Cohen 1987, US Library of Congress 2004). Regarding control of export by public enterprises, Zewde (2002) reports that the first public enterprise in Ethiopia, called the Ethiopian National Corporation (ENC), was established in the early 1942 by the ministry of commerce and agriculture; and the Coffee Board, the Livestock and Meat Board, and the Grain Corporation were the successors of ENC, designed to control the three most important agricultural commodities.

⁹ Preliminary calculations based on data from the Ethiopian Seed Enterprise and the Agricultural Input Supplies Enterprise.

1980s, defense expenditure accounted for 7-11 percent of GDP. It came down to about 2 percent after the fall of *Derge*, but picked up again during the war with Eritrea.) By contrast, expenditure on agricultural research, as well as on other social development, remained flat throughout the *Derge* regime. There was higher spending on agriculture compared to other social sectors though, because agricultural expenditure included subsidies to public enterprises which were a large part of total expenditure on agriculture. According to one study, between 1977 and 1990 state farms expanded their holdings from 550,000 to 2,100,000 hectares, absorbing 64 percent of the all public expenditure on agriculture and accumulating a net loss of approximately US\$300 million (Rahmato 1990, McCann 1995).¹⁰

Economic growth, structural changes and poverty

Since 1960, economic growth rates have varied significantly both across and within each of the three political regimes. Table 1 shows that the monarchic regime fared well compared to the other two regimes. Although per capita rates were negative in a few years (Appendix Figure 2), the overall growth rates in all three sectors were positive during the last fourteen years of its reign. On average GDP grew at 3.7 percent, agriculture at 2.1 percent, and both industry and the service sector grew at more than 7 percent during 1960-74.¹¹ The structure of the economy also changed. The share of agriculture in GDP declined from 76 percent in 1961 to 62 percent in 1973, and the shares of both industry and services grew by 3 percent and 11 percent, respectively.

The *Derge* regime did more harm to agricultural production than the other two regimes. On average, the agricultural sector registered a little more than half a percentage point growth, and both total GDP and sectoral GDP suffered negative growth rates in a number of years. Of the seventeen years of its rule, overall GDP growth rates were negative in 9 years, agricultural growth rates in 11 years, and industrial growth in 7 years. Declines in growth rates of GDP and in the agricultural sector were as high as 12 percent and 15 percent in the mid-1980s.

¹⁰ Unfortunately, continuous time series data on public subsidies are not available.

¹¹ Detailed time series data are presented in Appendix Table 2.

The withdrawal of the government from agricultural markets in the early 1990s provided a much-needed boost to agricultural production and, given its large share of GDP, to the overall economy. During 1992 and 2004, the country achieved an overall GDP growth of 4.6 percent, agricultural growth of 2.3 percent, industrial growth of 5.3 percent, and about a 7 percent growth in the services sector. The share of agriculture in the total economy declined from 56 percent in 1991/92 to about 42 percent in 2003/04.¹² The most significant growth in agriculture took place in the early 1990s, mostly driven by crop area expansion in response to liberalization, the strong emphasis on extension, and a credit-led push toward agricultural intensification. However, the early growth slowed in the later part of the 1990s, and the country experienced large fluctuations in both production and prices. As a result, per capita agricultural GDP and per capita grain production continued their long-term decline, at -1.8 and -0.6 percent, respectively (Byerlee et al. 2006).

Economic growth and structural changes impact on poverty and food security in complex ways, and assessment is hampered also by the unavailability of historical data on poverty. The *World Development Indicators* (WDI) of the World Bank has only two estimates of headcount poverty, one for 1996 (46 percent) and the other for 2000 (44 percent). Similarly, the FAO's *State of Food Insecurity* has information only for a few years. As an alternative, we use two crude measures, namely food availability and the food gap, to assess changes in poverty and food security. (The food gap is defined as the population's basic food requirement of 220 kg of cereal per capita per year less net cereal production domestically.) These data are presented in Figure 1.¹³ They indicate that: (i) while the food gap has increased since the early 1980s, per capita food availability has remained relatively stable over the years; (ii) food availability was high and stable during the monarchic regime, and (iii) despite relative stability and higher economic growth, food security has not improved under the current regime.

Food availability remained more stable due to generous inflow of food aid, which averaged 388,230 tons per year during *Derge* and 715,345 tons per year during 1991-2002¹⁴; and the higher and stable per capita food availability during the monarchic regime is consistent with the stable growth during 1960 to 1973.

¹² Calculated from Appendix Table 2.

¹³ Detailed data are presented in Appendix Table 3.

¹⁴ Food aid figure are calculated from WFP data reported in FAOSTAT. No data are available for the monarchic regime, but food import averaged only 28,068 tons per year during 1960 to 1973.

But why has food security not improved under the current regime, despite significant liberalization and relatively robust growth? A possible explanation may be that most of the cereals in Ethiopia are non-tradable and their production is largely weather dependent. Only about 10 percent of the total cereal cropland is irrigated and yield variability at the regional level is one of the highest in the developing world (World Bank 2006, Rashid et al. 2005). Therefore, while liberalization resulted in positive supply responses for most cash crops, the cereal sector lagged behind. Without technological innovation and reductions in transaction costs, this scenario is unlikely to change in the near future. This is a reason for concern, as the sub-sector is the largest employer in agriculture and accounts for about 50 percent of agricultural value added (GOE 1998). Indeed, a recent study concludes that growth in staple crops has the highest potential to reduce poverty in Ethiopia (Diao et al. 2005). Specifically, that study predicts that, between 2003 and 2015, a 2.1 percent cereal yield growth combined with 1.3 percent area expansion would result in a 10 percent reduction in poverty, 3.9 percent growth in GDP, and 3.5 percent growth in agricultural GDP per year.

To summarize, while each regime change is marked by heroic efforts of Ethiopians to embrace new ideas and policies, their livelihoods and well-being have changed little. The Human Development Index (HDI) has worsened between 1987 and 1996, the food gap has increased from 0.75 million tons in 1979 to 6 million tons in the 1990s and early 2000s, and consequently the country has become increasingly dependent on food aid to feed its populations (EEA 2003/04).

Measuring distortions to agricultural incentives

The main focus of the present study's methodology (Anderson et al. 2008) is on government-imposed distortions that create a gap between domestic prices and what they would be under free markets. Since it is not possible to understand the characteristics of agricultural development with a sectoral view alone, the project's methodology not only estimates the effects of direct agricultural policy measures (including distortions in the foreign exchange market), but it also generates estimates of distortions in non-agricultural sectors for comparative evaluation.

More specifically, this study computes a Nominal Rate of Assistance (NRA) for farmers including an adjustment for direct interventions on input markets. It also generates an NRA for nonagricultural tradables, for comparison with that for agricultural tradables via the calculation of a Relative Rate of Assistance (RRA).

A large share of Ethiopian agricultural products are non-tradable. This sub-group, which includes almost all cereals and tubers, accounts for about half of all agricultural value added (MoFED 1998). There are no subsidies (or taxes) on these products except for emergency food assistance and food distribution under social safety net programs.

However, the country has consistently received large volumes of food aid that impact on the markets for these products. Given that significance of food aid in Ethiopia,¹⁵ we need to incorporate the effects on agricultural incentives of the government's decision to accept food aid.¹⁶ If the food aid depresses prices, it implicitly serves as both a consumer subsidy and a producer tax. We calculate the rate of that distortion as the product of the percentage change in cereal availability due to food aid and the inverse of the price elasticity of demand. Since food aid comes mostly in the form of wheat, to calculate the change in the wheat price we use its own-price elasticity and the cross-price elasticity (with respect to wheat) for the other two key cereals. With this qualification, Anderson et al.'s (2008) formula for the CTE/NRA for our nontradables becomes

$$NRA = CTE = \beta_i \times \eta_i^{-1} / \left(1 + \frac{\varepsilon}{\eta}\right) \quad (1)$$

where β_i is the percentage change in total cereal availability and η and ε are the own-price elasticities of supply and demand, respectively.

Data and product coverage

¹⁵ It amounts to about 13 percent of cereal utilization, which is equivalent to about 25 percent of total human consumption (where in addition to human consumption, cereal utilization includes seed, feed and waste).

¹⁶ A number of studies have analyzed the disincentive effects of food aid flow, and come up with very different conclusions. While Abdulai et al. (2005) argue that food aid had no adverse impact on agricultural incentives, Demeke et al. (2004) find significant negative effects, both indirect (through depressed producers price) and direct (through reduced production).

Price and quantity data were collected from various local and international sources. Local sources include the National Bank of Ethiopia, Central Statistical Authority (CSA) of Ethiopia, Ministry of Agriculture (MoA), Ministry of Finance and Economic Development (MoFED), and the Ethiopian Economic Association. Although data on the same variable were available from alternative sources, reconciling them was a difficult task. For instance, FOB prices are available from a number of local sources as well as from the FAO, but the differences, in any given year, are as high as 100 percent. In general, we found NBE data on macro variables, CSA data on prices, FAO data on production, and the transaction costs data from MoFED to be more consistent across years. In years when differences were large, data from alternative sources were included in the analysis. The policy review did not pose any significant problem, as most of information was available from a government publication called *Negarit Gazeta*, which is often synthesized by the Ethiopian Economic Association.

The NRAs are calculated for five exportable commodities and three non-tradable commodities in which Ethiopian agriculture is largely specialized. Although the country is the largest recipient of food aid, commercial import (or export) of cereals is limited because of a large gap between the FOB export price and the CIF import price. According to various NBE publications, the agricultural imports as a percentage of agricultural exports have ranged from 14.6 percent during 1986-90 to only 5.5 percent in during 1993-2000. Thus, importable commodities, except food aid, are very few. On the export side, the analysis has included all five exportable commodities, which have historically accounted for more than 80 percent of total agricultural export values (Appendix Table 3). Furthermore, the analysis includes all three major cereals (teff, wheat, and maize), which are commonly regarded as non-tradable and whose domestic prices have been depressed by the government's policy of accepting food aid from abroad as explained using equation (1) above.

NRA results for agriculture

A summary of commodity specific NRA estimates is presented in Table 2. For the main products, the NRAs became more negative through the 1980s and early 1990s but, since then,

they have declined as a consequence of the recent reforms. The exceptions that still have high negative NRAs are Chat (a minor stimulant leaf from an evergreen shrub) and hides and skins, but they account for only about 1 percent of the value of agricultural production (Appendix Table 5(c)). The decline is most pronounced in the cases of coffee and pulses, which have received more policy attentions since the late 1990s. The weighted average NRA of all commodities, both tradable and non-tradable, has also declined and in 1995-2005 it was only two-thirds of the average for 1990-94 (-13 instead of -22 percent). This trend is consistent with the country's liberalization program that withdrew price controls and reduced export taxes in the mid-1990s and eliminated them by 2002. The trend for Chat is different mainly because it has always remained outside of parastatal control and its export continues to be taxed at 29 percent.¹⁷ No change in the NRA for hides and skins is rather surprising, particularly because there have been number of government initiatives to improve the sector.¹⁸

To the NRA for covered products we need to add our guesttimate of the NRA for non-covered products. This is shown on the top of Table 3. Non-product-specific assistance also could be included but, as shown in Table 3, we assume that to be zero. During the central planning regime, the government did provide farmers with inputs through parastatals. However, detailed data could not be obtained from official sources. In recent years, the government has been distributing fertilizers through cooperatives and extension offices, which enjoy some preferential treatment such as cheap credit and public warehousing facilities. Arguably, these are some forms of, albeit implicit, non-product-specific subsidies. However, one could also argue that these are essential interventions to address market failures, in which case they should not be included in the NRA calculations.

While the overall trends of the NRA estimates are consistent with the country's policy changes, the magnitudes of the estimates need to be interpreted cautiously. From the NRA estimates it appears that the liberalization has not brought about significant changes. Actually it did, but the change is not fully reflected in the estimates because they do not factor in the parastatals' overhead costs during the *Derge* regime, due to data unavailability. Byerlee et al. (2006) report that seed parastatals' overhead for maize seed is as high as 65 percent of the sale

¹⁷ In fact, due to its addictive effects, governments in the region (Ethiopia, Somalia, and Djibouti) have tried to prohibit Chat cultivation at various points in time – but without much success.

¹⁸ The GoE, with financial support for the USAID, is currently implementing a large multi-year multi-million dollar project to improve the sector's performance

price. If such costs were factored in for the 1980s, it would be clear that farmers were even worse off than our NRA estimates for the 1980s suggest.

Second, given government has almost completely withdrawn from the market, and the fact that NRA accounts for all the costs (including traders' opportunity costs) from farm gate to the border, one might argue that the NRAs should theoretically have been zero. True, but our data, particularly on transactions costs, are less than perfect. For example, transportation costs in Ethiopia are notoriously unpredictable. Our interviews with traders indicate that transporting a ton of coffee from Sidamo (the main coffee growing region) varies from ETB 400 to ETB 750 within a period of 15 days. Furthermore, trade margins, which we obtained from official sources may be much smaller than what the traders and exporter actually incur.

Finally, although they have improved in the 1990s, farmers' shares in the final sales price continue to remain low. Figure 2 shows the farm gate price as a percentage of the FOB price for three products: the farm gate price of coffee in the 1980s averaged about 40 percent of the FOB prices – and only 20 percent in 1985 – whereas during the post-liberalization period that share increased to an average of 53 percent, with a high of 80 percent in 2002. Similar patterns are shown for oilseeds and pulses. However, these numbers are still low relative to other countries. For example, Kenyan coffee farmers received about 87 percent of the FOB prices (Winter-Nelson and Argwings-Kodhek 2007). These numbers reflect the fact that infrastructure is still weak and transaction costs are still relatively high in Ethiopia—something that the liberalization program has not changed.

Available calculations suggest that the wholesale prices of all three major cereals—wheat, maize, and teff—lie within the export and import parity bound (Appendix Figures 3 to 5), which is why we consider them nontradable. According to our calculations, these products are much less heavily taxed than exportables, ensuring that the NRA for all covered products is far less negative than for exportables alone (Table 2 and Figure 3). However, these calculations do not consider the depressing effects on domestic cereal prices of food aid. Since food aid has accounted for roughly 25 percent of human cereal consumption, accounting for food aid affects would significantly change the figures. Our crude estimates suggest that food aid flows have depressed domestic prices within the ranges of 2 to 26 percent for wheat, 3 to 13 percent for

maize, and 2 to 11 percent for teff.¹⁹ These are conservative estimates, but they are large enough to change the tradability status of the cereals: all three cereals would become importable had these negative effects of food aid not depressed the Addis Ababa wholesale prices (Appendix Figures 3 to 5). This implies that food aid can distort both farmers' incentives (through depressing farm prices) and traders' incentives (by distorting their arbitrage opportunities in domestic and international markets). Thus if one took food aid as well as price and trade policies into account, one would conclude that farming has been discouraged even more in Ethiopia than our NRA estimates suggest.

RRA results

The estimates of relative rates of assistance (RRAs), which account also for distortions to other sectors producing tradables, are presented in Table 3 and Figure 4. Nonagricultural importables are subject to sizeable tariffs, according to the WITS (2006) database at UNCTAD. Using the ad valorem equivalent of those as a measure of NRA for the import-competing part of non-farm goods sectors, and assuming exportables are not distorted and that all services are nontradable, we obtain the NRA for all non-agricultural tradables and thus can calculate the RRA, as shown in the last two rows of Table 3.

The broad picture that emerges is that the NRA_{nonag} rose in the 1980s as the NRA_{ag} became more negative, so the RRA shows an even more accentuated fall than the NRA_{ag} in the 1980s/early 1990s, to below -60 percent, before becoming gradually less negative in the period since 1992 so that it averaged around -25 percent in 2000-05 and just -15 percent in 2005. That is, policy induced distortions to farmer incentives in Ethiopia have declined to much lower levels in recent years than prior to the mid-1990s. The remaining challenges for the country, apart from bringing those NRAs and hence the RRA closer to zero, are to minimize food aid-related distortions and to reduce the still-high transaction costs of trade.

¹⁹These estimates are sensitive to the price elasticities used in the calculations. However, food aid seems to depress price under a wide range of elasticities. For our calculation, we have used an estimate of -0.50 for own-price elasticity of wheat and 0.8 and 0.7 for cross-price elasticities of maize and teff, respectively. These are based on estimates of Alemayehu Seyoum.

The final two rows of Table 3 show what the NRAs for agriculture and the RRAs would have been if the exchange rate distortions had been ignored in our analysis. A comparison with rows 3 and 6 above suggests that the exchange rate distortion is responsible for around half of the anti-agricultural bias up to the early 1990s.

Policies behind agricultural disincentives

As in many other developing countries, in Ethiopia exchange rate controls, prohibitive trade taxes, and agricultural price policies have historically been the main sources of distortions to agricultural incentives. All of these have changed significantly since the early 1990s. This section summarizes the broad changes, relates them to the measures of distortions presented above, and identifies the areas that continue to dampen production and trade incentives.

Exchange rate policies

Until the introduction of the auction system in May 1993, Ethiopia had followed a pegged exchange rate regime, which was one of the most significant sources of distortion to agricultural incentives. Due to high overvaluation of the currency, a parallel market for foreign exchange flourished. Between 1975 and 1992, the black market premium for foreign currency averaged 117 percent, and at its highest in 1988 it reached 226 percent. One documented consequence of this was the smuggling of cash crops to neighboring countries, which in turn reduced official export and foreign currency earnings.²⁰

After the fall of *Derge*, the transitional government undertook a series of measures to correct for exchange rates misalignment, including devaluing currency by more than 100 percent (from 2.5 to 5.5 ETB per US dollar), eliminating foreign exchange rationing, inaugurating FOREX auction markets in 1993, allowing commercial banks to open foreign exchange bureaus in 1996, and permitting inter-bank foreign exchange trading (GOE 2004). Under the current

²⁰ On coffee smuggling and supply responses, see Dercon and Lulseged (1995).

system, the National Bank of Ethiopia is the sole provider of foreign exchange, and only the authorized banks and the investors who are able to bid for at least US\$0.5 million are allowed to participate in the auction. The marginal rate of each auction, which takes place once a week, serves as the official rate until a new rate is determined during the next auction.

The impact of the reduction in currency misalignment on agricultural incentives is non-trivial prior to the devaluation of 1993. As shown by comparing the MEMO section at the bottom of Table 3 with the corresponding rows above them, the distortions to the market for foreign exchange accounts for around one-third of the NRA for agriculture as a whole and for about half of the RRA. This contribution is larger than in many other countries, but that is partly because there are no large import-competing sectors in Ethiopian agriculture that were benefiting from an overvalued exchange rate.

Agricultural taxation policies

Heavy agricultural taxation in Ethiopia dates back to mid-1940s, when an elaborate proclamation, called the Customs and Export Duties Proclamation, was issued in 1943 (Cohen 1987, GOE 1999, Zewde 2002). The tax system was complex and applied on the basis of quantity exported or imported. Taxation on coffee is a good illustration of the nature of the tax system, which was elaborated in a proclamation in the mid-1950s and continued, with minor changes, until 1993. For each ton of coffee export, an exporter had to pay 200 ETB as custom duty, 400 ETB as surtax, 15 ETB as cess tax, and a 2 percent (deducting other taxes) of transaction taxes. When added, all these taxes amounted to about 11 to 27 percent of the farm gate price in the 1980s. In addition to these, the government also collected progressive taxes based on the international price of coffee. Converted to ad valorem rates at the official exchange rate, this tax ranged from about 1 percent when the international price was US\$820 per ton to about 15 percent when the international price reached US\$1000 per ton.

Since 1993, the tariff structure has undergone extensive reforms. The government has issued a number of proclamations and regulations to revise and streamline the old tax system. Four important proclamations are Tax Amendment Proclamation No. 38/1993, Sales and Excise

Tax Proclamation No 68/1993, Duty Drawback Proclamation No. 69/1993, and Value Added Tax (VAT) Proclamation No. 282/2002. These policy initiatives have brought about five distinct changes: (i) the former system of specific duties/taxes (weight-based) have almost completely been converted to ad-valorem, making tax administration much more efficient, (ii) the maximum tariff has declined from a high 230 percent to 50 percent, and the difference between the maximum and minimum tariff has declined from 225 percent to 45 percent, (iii) the proportion of duty free imports has declined from 60 percent to 3 percent, (iv) the sales tax, on both imported and exported goods, has been reduced to 5 percent on essential commodities and to a uniform 12 percent on all other commodities (GOE 1999), and finally (v) the country's tax structure has been harmonized with the COMESA member countries in 2002 (GOE 2003).

There has been another proclamation regarding taxes on exportable commodities, initially for coffee (Proclamation No. 287/2002) and later for other commodities. The 1993 proclamation replaced the complex tax structure of *Derge* regime by introducing a flat 6.5 percent tax on coffee exports, which was completely eliminated in 1998 following declining coffee prices in the international market. The Proclamation No. 287/2002 is a follow-up to the 1998 tax elimination decision. With these reforms, most exports are now free of tax. Of the commodities included in this paper, only Chat remains subject to a 29 percent export tax. The elimination of export taxes has further boosted exports, particularly of oilseeds and pulses. Total export of oilseeds and pulses jumped from about 100 thousand tons in 2003 to 184 thousand tons in 2005/06. During the first half of 2006, total export earnings from oilseeds and pulses exceeded that from coffee, which has historically been the number one export crop in the country.

Agricultural output price policies

Ethiopia has experimented with a whole spectrum of agricultural pricing policies, ranging from parastatal-centric control through production quota and trade control during the *Derge* regime, to a dual pricing approach during 1992-99, to total liberalization (except security reserve and safety nets) with ad hoc interventions since 1999. As a first step toward liberalization, the transitional government undertook substantial reforms in agricultural marketing in 1992, which included

elimination of wheat subsidies, closing of all eight regional Agricultural Marketing Corporation (AMC) offices, and a reduction in the number of branch offices from 27 to 11 and of grain procurement centers from 2013 to only 80 (Gabre-Madhin and Mezgebou 2006). Since then there have been five important government proclamations that highlight the shifts in policy objectives over time (see Appendix Table 6), three points about which are worth noting.

First, the Ethiopian Grain Trading Enterprise (EGTE), a downsized version of the former AMC, was mandated to stabilize prices, maintain food security reserves, and export agricultural commodities to generate foreign currency. These are clearly conflicting mandates. While the involvement of a government agency in food price stabilization and the maintaining of food security stocks may be justified if there are market failures, it is not clear why EGTE was mandated to also export in liberalized markets. Furthermore, since the FIB-CIF gap in grain prices is such that cereals are non-tradable, they can be exported only with subsidies. The policy turned counter-productive in 1997, when EGTE exported 48,000 tons of grain at a subsidized price only to face the daunting challenge of managing domestic price hikes a few months later. The export transaction turned out to be unprofitable for EGTE, as the export price was 15 percent lower than the domestic sales price (Bekele 2002).

Second, despite the 1997 export experience, the policy of export promotion continued as a central mandate of EGTE. In a 1999 proclamation (No. 58/1999), another public enterprise, Ethiopian Oilseeds and Pulse Export Corporation (EOPEC), was merged with EGTE to consolidate public export functions into one agency. Although the private sector dominates exports of oilseeds and pulses, EGTE continues have a large export share, despite having much larger marketing costs than the private sector.

Third, there are indications that the absence of food price stabilization and ad hoc pricing policy are sending mixed signals to the producers. Two recent examples can substantiate this statement. Two consecutive years of bumper crops resulted in a precipitous 80 percent decline of producer prices in early 2002. As the ratio of input prices to maize prices increased from 1.7 in 2000 to 9.0 in 2002, maize production became a highly unprofitable business. This led farmers to abandon their maize crop in the field and reduce their fertilizer use by up to 20 percent.²¹ Due to low rainfall, maize production in the subsequent year dropped dramatically and prices sky

21

rocketed. The second example is more recent. In January 2006, at the time Ethiopian Christmas and other religious festivals, cereal prices went more than 20 percent higher than the previous months and the government announced a ban on exports for an indefinite period of time (Sunday Times 2006).

To summarize, while there have been extensive reforms to dismantle the policies of the central planning regime, a large public agency continues to operate with conflicting mandates. Export promotion, in most cases of non-tradable, continues to be an important mandate for EGTE even in the most recent government proclamations. This is very different from the rural/agricultural development policies adopted elsewhere in developing countries, where food self-sufficiency came before export promotion and the policies focused, among other things, on ensuring price stability and giving proper incentives to farmers to adopt best-practice technology (Rashid et al. 2005, World Bank 2006, Byerlee et al. 2006).

Farm input market policies

Modern input use in Ethiopia is limited. Available estimates suggest that the Ethiopian farmers apply about 16 kgs of nutrients per hectare of cultivated land (EEA 2004/05), and only 3 to 5 percent of the farmers apply modern seeds (Byerlee et al. 2006). A host of factors—such as limited irrigation facilities, weak dissemination, and suitability of these inputs—are responsible for low adoption of modern seed-fertilizer technology. However, government policies towards input markets, which are heavily controlled by the public sector, might also be a contributing factor. The following are reviews of the public policies towards the two most commonly used modern inputs in the country, fertilizer and improved seeds.

Between 1984 and 1993, government parastatals had monopoly control over fertilizer importation, distribution, and pricing. In 1993, the government issued its National Fertilizer Policy, which allowed the private sector to participate in fertilizer imports and distribution. A few importers and several wholesalers and retailers entered the market, but two years later the government decided to create regional holding companies with strong ties with regional governments (GOE 2001). This policy created disincentives for the private sector, as the government provided these companies preferential access to foreign currency to import and

distribute fertilizers under its large intervention program, called New Extension Intervention Program. By 1996, this program accounted for 67 percent of the country's fertilizer distribution, with the holding companies being awarded virtually all of the fertilizer supply contracts (Stepanek 1999). This preferential treatment, along with subsidized storage and transportation to the holding companies, discouraged the private sector and forced many companies to exit the market. As of 2001, two regional holding companies and AISC, input marketing parastatals, accounted for all fertilizer imports and local distribution (Jayne et al. 2003). Since 2004, though, farmers' cooperatives and Unions, which enjoy preferential access to credit, have emerged as buyers and distributors of fertilizers.

The modern seed sector in Ethiopia is dominated by the Ethiopian Seed Enterprise (ESE), especially for hybrid maize and wheat. Only Pioneer Hybrid, an international seed company, is involved in the production and marketing of seed, mainly hybrid and Open Pollinated Variety (OPV) maize. According to a recent government report, ESE's shares in total modern maize seed production are 82 percent and 70 percent of the hybrid and OPV varieties, respectively. Furthermore, although there are private firm/farmers who multiply seeds under contract arrangements, only ESE and Pioneer carry out the marketing and distribution (Alemu and Spielman 2006). The dominance of ESE in an arguably liberalized market is not clear, particularly because available data suggest that the marketing of improved seed production can be lucrative. The non-emergence of private sector firms in the country's seed industry can perhaps be due to preferential treatment that ESE is granted for its operation.

Summary and implications

With three ideologically distinct political regimes, Ethiopia has embraced all major waves of economic policy thinking over the past fifty years. It pursued export promotion in the 1950s, Prebisch-Singer's import substitution in the 1960s, central planning during 1974-1991, and more market-oriented policies since the early 1990s. This chapter has provided a critical review of the broad economic policies since 1950s and time series estimates of rates of distortion to agricultural incentives since 1981. The review suggests that, albeit to varying degrees, policies of

all political and policy regimes distorted agricultural incentives. The monarchic regime controlled land and exports of cash crops, the central planning regime controlled almost all aspects of agricultural markets, and the current regime, which has implemented substantial reforms, continues to intervene in output markets through ad hoc policies and input markets through marketing parastatals .

The estimates of the rates of assistance/taxation are in line with the broad environment under each political regime. Due to high taxation and an overvalued currency, both NRAs and RRAs were high in the 1980s compared to the 1990s. The estimates also suggest that, while farmers were heavily taxed in the 1980s, the government did not generate revenues in real terms due to high parastatals' overhead costs and an overvalued currency.

The currency devaluation, abolition of price controls, and streamlining of tax systems have resulted in significant declines in the rates of distortions since the mid-1990s. The improvement in agriculture's NRAs and RRAs have contributed to the higher volumes of exports of all major exportable farm commodities. However, although they increased in the 1990s, the farmers' shares in the FOB price remain low compared to those in neighboring countries. Our analysis also suggests that three forms of distortions still persist: control over input markets, ad hoc government interventions in output (mainly cereal) markets, and disincentives through depressed prices due to the continued inflow of food aid.

Is the current situation likely to improve in the future? There are reasons to be optimistic. Ethiopia is now in the process of WTO accession and, to acquire membership, the country may have to withdraw from the farm input markets and stop intervening in the farm output markets. The government of Ethiopia has also placed more emphasis on developing infrastructure, market institutions (commodity exchanges are in the making), and designing more effective social safety net programs. If these initiatives are successful, and political stability is maintained, agricultural incentives may well improve further in the future.

References

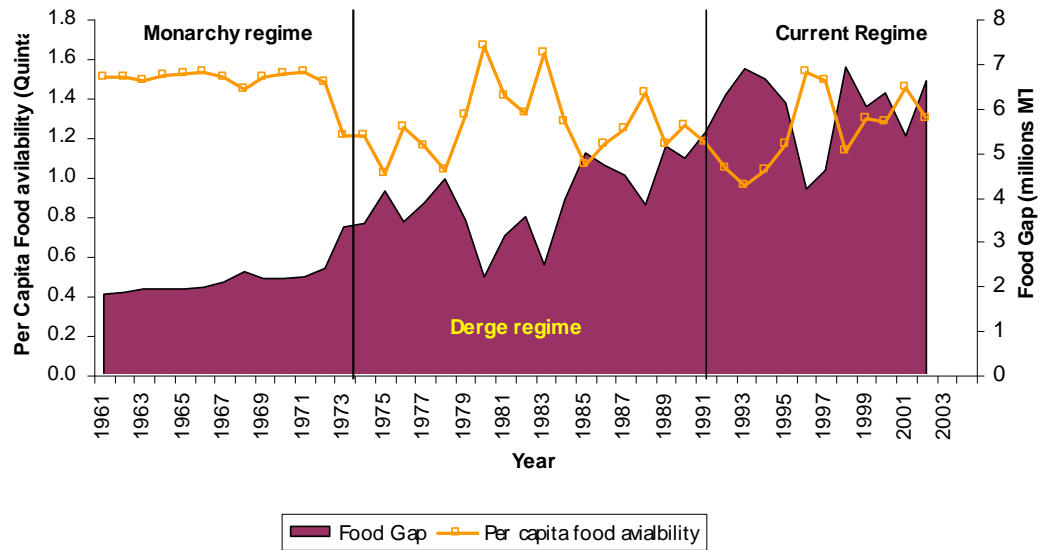
- Abdulai, A., C.B. Barrett, J. Hoddinot (2005), “Does Food Aid Really Have Disincentive Effects? New Evidence for Sub-Saharan Africa”, *World Development* 33(10): 1689-1704.
- Alemu, D. and D. J. Spielman (2006), „Ethiopian Seed Systems: Regulation, Institutions and Stakeholders”, mimeo.
- Anderson, K., M. Kurzweil, W. Martin, D. Sandri and E. Valenzuela (2008), “Methodology for Measuring Distortions to Agricultural Incentives,” Agricultural Distortions Working Paper 02, World Bank, Washington DC, revised January.
- Bekele, G. (2002), “The Role of the Ethiopian Grain Trade Enterprise in Price Policy”, in T. Bongor, E. Gebre-Medhin, and S. Babu (eds.), *Agriculture Technology Diffusion and Price Policy in Addis Ababa*, 2020 Vision Network for East Africa Report 1, Addis Ababa: Ethiopian Development Research Institute and Washington DC: International Food Policy Research Institute.
- Byerlee, D., D. Spielman, D. Alemu, and M. Gautam (2006), “Policies to Promote Cereal Intensification in Ethiopia: Help or Hindrance?”, Paper presented at the International Association of Agricultural Economics (IAAE) meeting, Gold Coast, Qld., August.
- Central Statistics Authority (CSA) of Ethiopia (various years), *Report on Area and Production of Major Crops*, Addis Ababa: CSA.
-
- _____, (various years), *Report on Monthly Average Producers’ Price of Agricultural Products in Rural Areas*, Addis Ababa: CSA.
- Cohen, J.M. (1987), *Integrated Rural Development: The Ethiopian Experience and the Debate*, Uppsala: Scandinavian Institute of African Studies.
- Demeke, M., F. Guta and T. Ferede (2004), “Agricultural Development in Ethiopia: Are There Alternatives to Food Aid?”, Department of Economics, Addis Ababa University.
- Accessed at:
[/www.sarpn.org.za/documents/d0001583/FAO2005_Casestudies_Ethiopia.pdf](http://www.sarpn.org.za/documents/d0001583/FAO2005_Casestudies_Ethiopia.pdf).
- Dercon, S. and A. Lulseged (1995), “Smuggling and Supply Responses: Coffee in Ethiopia”, *World Development* 23(10): 1795-1813.
- Dessalegn, G., T.S. Jayne and J.D. Shaffer (1998), “Market Structure, Conduct, and Performance: Constraints to Performance of Ethiopian Grain Market”, Working Paper No. 20, Grain Market Research Project, Ministry of Economic Development and Cooperation, Addis Ababa.

- Diao, X., A.N. Pratt, M. Gautam, J. Koeough, J. Chamberlin, L. You, D. Puetz, Resnick and B. Yu (2005), “Growth Options and Poverty Reduction in Ethiopia”, DSGD Discussion Paper No. 20, International Food Policy Research Institute, Washington DC.
- EEA (Ethiopian Economic Association) (1999/00), *Annual Report on the Ethiopian Economy*, Vol. 1, edited by B. Nega and B. Degefe, Addis Ababa: EEA.
- EEA (Ethiopian Economic Association) (2000/01), *Second Annual Report on the Ethiopian Economy*, Vol. 2, edited by B. Degefe, B. Nega and G. Taffesse, Addis Ababa: EEA.
- EEA (Ethiopian Economic Association) (2003/04), *Report on the Ethiopian Economy: Industrialization and Industrial Policy in Ethiopia*, Vol. 3, Addis Ababa: EEA.
- EEA (Ethiopian Economic Association) (2004/05), *Report on the Ethiopian Economy*, Vol. 4, Addis Ababa: EEA.
- FAOSTAT (2005), FAO Statistical Databases CD-ROM 1 and 2, Rome: FAO.
- Franzel, S.F. Colburn and G. Degu (1989), “Grain Marketing Regulations: Impact on Peasant Production in Ethiopia”, *Food Policy* 14: 347-58.
- Gabre-Madhin, E.Z. (2001), *Market Institutions, Transaction Costs, and Social Capital in the Ethiopian Grain Market*, Research Report 124, International Food Policy Research Institute, Washington DC.
- Gabre-Madhin, E.Z. (2003), “From Crop Surplus to Food Shortage: What Happened?”, *Daily Monitor*, January 23, Addis Ababa. Accessed on:
<http://www.globalpolicy.org/soecon/develop/africa/2003/0123surplus.htm>
- Gabre-Madhin, E.Z. and T. Mezgebou (2006), “Prices and Volatility in the Ethiopian Grain Market”, mimeo, Ethiopian Strategy Support Program of IFPRI and EDRI, Addis Ababa.
- Government of Ethiopia (GOE) (1997), *ABC of Taxes in Ethiopia (1942–1996)*, Ministry of Finance, Addis Ababa.
- _____(various years), *Negarit Gazeta*. Berenea Selam Printing Enterprise, Addis Ababa.
- _____(1998), *National Economic Parameters and Conversion Factors for Ethiopia*, Ministry of Economic Development and Cooperation (MEDaC), Addis Ababa.
- _____(1999), *Survey of the Ethiopian Economy: Review of Post Reform Developments (1992/93 - 1997/98)*, Ministry of Economic Development and Cooperation (MEDaC), Addis Ababa.

- _____ (2001), *Report to the NFIA on the Performance of Ethiopia's Fertilizer Sub-sector*, National Fertilizer Industry Agency (NIFA), Federal Government of Ethiopia, Addis Ababa.
- _____ (2003), *Customs Tariff* (Vol. I and II), Ethiopian Customs Authority, Federal Government Revenue Board, Addis Ababa.
- _____ (2004), *The Ethiopian Trade and Transformation Challenges: Diagnostic Trade and Integration Study*, A Joint Work Undertaken by an International and Ethiopian Team of Trade and Sector Specialists, Vol. 2, Addis Ababa.
- Jayne T.S., J. Govereh, M. Wanzala, and M. Demeke (2003), "Fertilizer market development: a comparative analysis of Ethiopia, Kenya, and Zambia" *Food Policy* 1(28): 293–316.
- Lirenso, A. (1987), *Grain Marketing and Pricing in Ethiopia: A Study of the Impact of Grain Quota and Fixed Grain Prices on Grain Producers*, Research Report No. 28, Institute of Development Research, Addis Ababa University, Addis Ababa.
- McCann, J.C. (1995), *People of the Plow: An Agricultural History of Ethiopia, 1800-1990*, Madison: University of Wisconsin Press.
- National Bank of Ethiopia (various years). *Annual and Quarterly Reports*.
- Negassa, A., and T.S. Jayne (1997), "The Response of Ethiopian Grain Market to Liberalization", Working Paper No.6, Grain Marketing Research Project, Addis Ababa.
- Rahmato, D. (1990), "Cooperatives, State Farms, and Smallholder Production", in S. Pauswang et al. (eds), *Ethiopia: Rural Development Options*, London: Zed Books Ltd.
- Rashid, S., Cummings R. and A. Gulati (2005), "Grain Marketing Parastatals in Asia: Why Do They Have to Change Now?", Discussion Paper 80, International Food Policy Research Institute, Washington DC.
- Stepanek, J. (1999), *Lessons from Ethiopia's High-Input Technology Promotion Program: How the Organization of the Fertilizer Sub sector Affects Maize Productivity*, unpublished PhD Dissertation, Michigan State University, East Lansing.
- Sunday Times (2006), "Ethiopia Bans Grain Exports", Accessed on: <http://www.sundaytimes.co.za/zones/sundaytimesNEW/basket6st/basket6st1138625379.aspx>
- United Nations Development Programme (UNDP) (2003), *Human Development Indicators*, New York: United Nations.

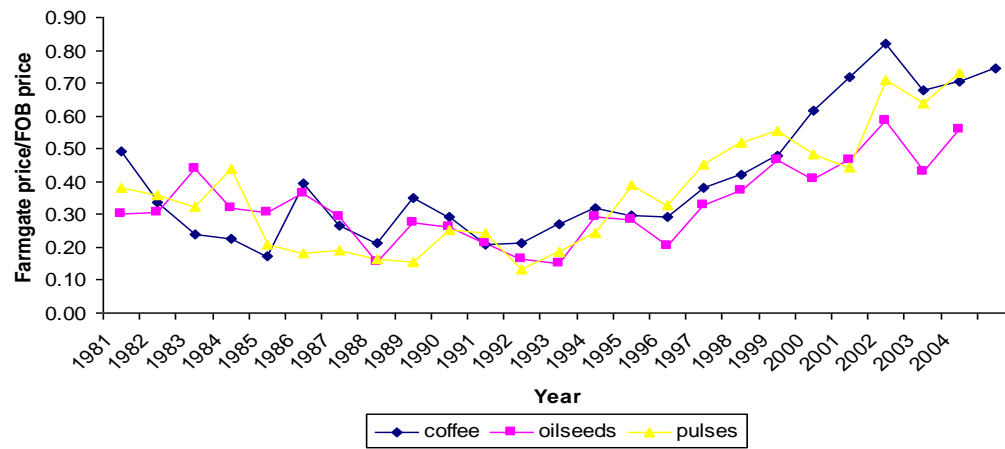
- United Nations Development Programme, Emergencies Unit for Ethiopia (UNDP-EUE) (2001), *Khat (Catha edulis): Botany, Distribution, Cultivation, Usage and Economics in Ethiopia*, by Dechassa Lemessa, Addis Ababa: UNDP.
- US Library of Congress (2004), Accessed on: <http://countrystudies.us/ethiopia/>
- Winter-Nelson, A. and G. Argwings-Kodhek (2007), “Distortions to Agricultural Incentives in Kenya”, Agricultural Distortions Working Paper 45, World Bank, Washington DC, December.
- WITS (2006), *World Integrated Trade Solution database*, World Bank and United Nations Conference on Trade and Development (UNCTAD). Available at wits.worldbank.org.
- Wood, A. (1988), “Global Trends in Real Exchange Rates: 1960-84”, World Bank Discussion Paper No. 35, Washington DC.
- World Bank (1997), *Global Development Finance*, CD ROM.
- World Bank (2005), *World Development Indicators 2005*, Win*Star, v. 4.2: CD-ROM, Washington DC: World Bank.
- World Bank (2006), *Ethiopia: Policies for Pro-Poor Agricultural Growth*, Washington DC: World Bank.
- Zewde, B. (2002), *A History of Modern Ethiopia: 1855-1991*, Athens: Ohio University Press.

Figure 1: Food availability and food gap by political regimes, Ethiopia, 1960 to 2004



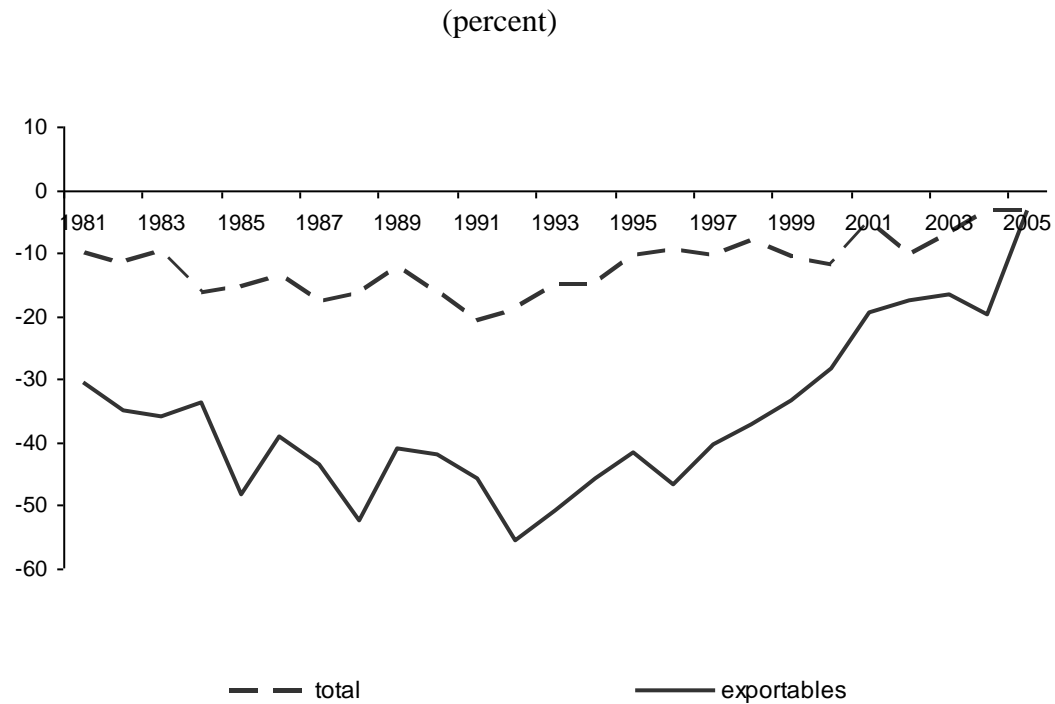
Source: FAOSTAT, MoA, and NBE

Figure 2: Farmers' shares in FOB prices of coffee, oilseeds, and pulses, Ethiopia, 1981 to 2004



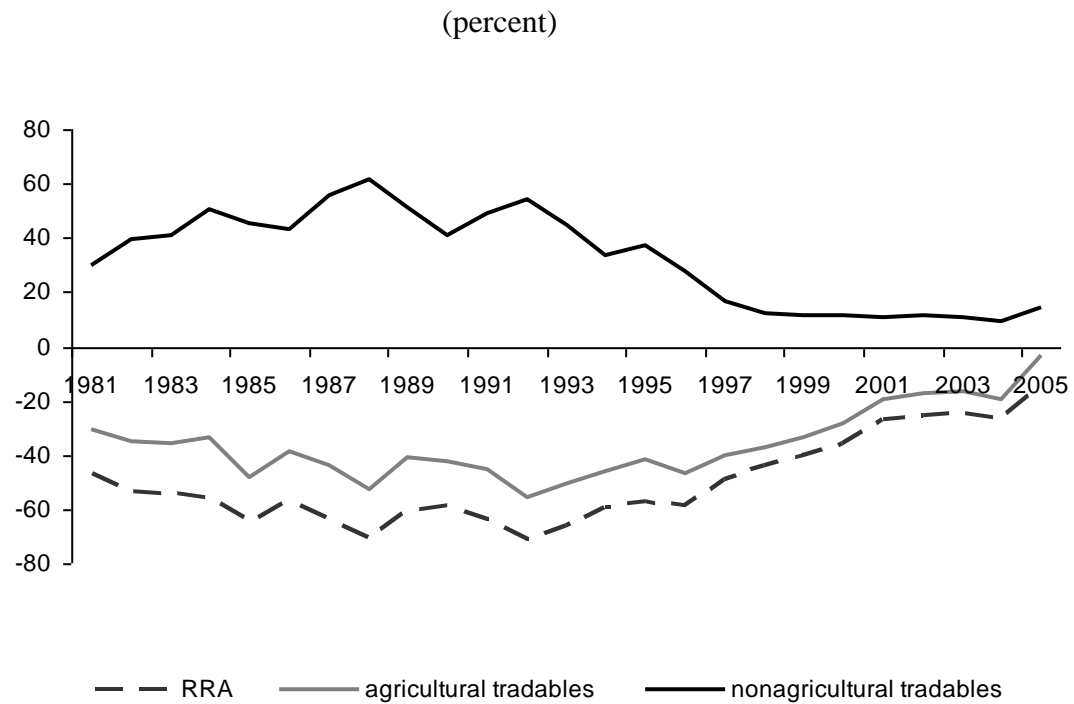
Source: Authors' spreadsheet

Figure 3: Nominal rates of assistance to exportable and all agricultural products, Ethiopia, 1981 to 2005



Source: Authors' spreadsheet

Figure 4: Nominal rates of assistance to all nonagricultural tradables, all agricultural tradable industries, and relative rates of assistance,^a Ethiopia, 1981 to 2005



Source: Authors' spreadsheet

a. The RRA is defined as $100 \times [(100 + \text{NRA}_{\text{ag}}^t) / (100 + \text{NRA}_{\text{nonag}}^t) - 1]$, where NRA_{ag}^t and $\text{NRA}_{\text{nonag}}^t$ are the percentage NRAs for the tradables parts of the agricultural and nonagricultural sectors, respectively.

Table 1: Economic growth and structural changes, Ethiopia, 1960/61 to 2004/05

Sectors/ sub-sectors	Regimes					
	Monarch (1961-1973)		Dergue (1974-1990)		Current (1991-2004)	
	Growth** rates	Shares in total GDP	Growth rates	Shares in total GDP	Growth rates	Shares in total GDP
Total GDP	3.7	100.0	2.0	100.0	4.6	100.0
Agriculture	2.0	68.0	0.6	55.6	2.3	47.3
Industry	7.0	9.4	3.6	11.4	5.3	11.0
Services	7.3	23.1	3.8	33.0	6.9	42.0

Source: Computed by the authors from various publications of the National Bank of Ethiopia

** Growth rates are calculated by fitting a log-linear trend

Table 2: Nominal rates of assistance to covered farm products, Ethiopia, 1981 to 2005

(percent)

	1981-84	1985-89	1990-94	1995-99	2000-05 ^c
Exportables^a	-33.8	-44.9	-48.0	-40.0	-17.5
Pulses	-32.6	-56.3	-52.0	-35.1	-17.7
Chat	-52.4	-45.3	-45.1	-43.0	-39.5
Hides and skins	-46.9	-49.8	-51.6	-49.0	-48.4
Oilseeds	-43.3	-48.2	-57.2	-52.5	-40.1
Coffee	-28.5	-32.7	-38.5	-36.4	-6.2
Nontradables^a	-5.6	-8.4	-9.3	-4.8	-5.5
Wheat	-6.9	-10.6	-11.8	-6.1	-4.4
Maize	-4.3	-6.6	-7.4	-3.8	-6.1
Teff	-4.9	-7.6	-8.5	-4.3	-7.0
Total of covered farm products^a	-11.9	-15.0	-17.1	-9.7	-6.8
Dispersion of covered products ^b	26.4	28.2	28.0	29.1	20.6
% coverage (at undistorted prices)	61	60	60	59	61

Source: Authors' spreadsheet

a. Weighted averages, with weights based on the unassisted value of production.

b. Dispersion is a simple 5-year average of the annual standard deviation around the weighted mean of NRAs of covered products.

Table 3: Nominal rates of assistance to agricultural relative to nonagricultural industries, Ethiopia, 1981 to 2005

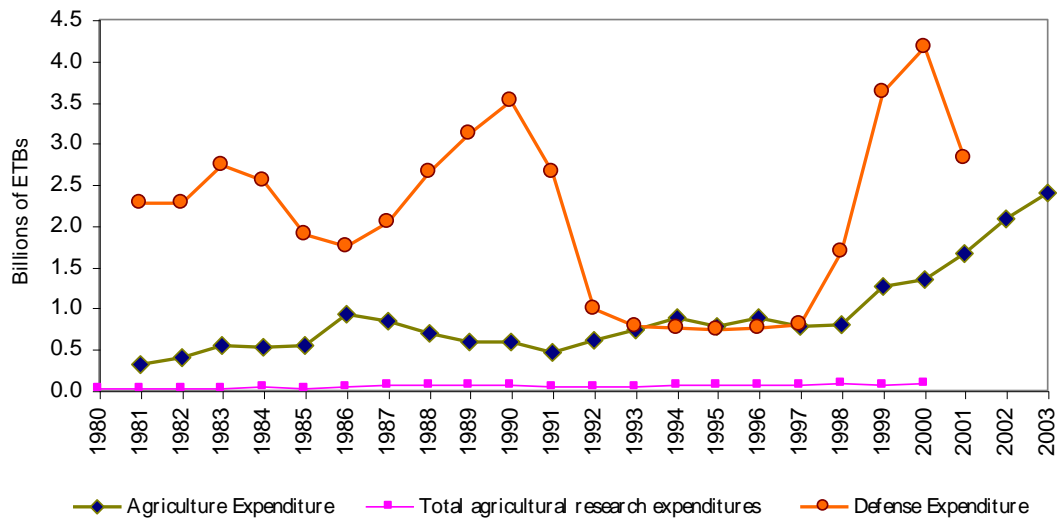
(percent)

	1981-84	1985-89	1990-94	1995-99	2000-05
Covered products	-11.9	-15.0	-17.1	-9.7	-6.8
Non-covered products	-26.1	-33.4	-35.3	-29.5	-14.6
All agricultural products	-17.5	-22.3	-24.4	-17.8	-9.9
<i>Assistance to just tradables:</i>					
All agricultural tradables	-33.8	-44.9	-48.0	-40.0	-17.5
All non-agricultural tradables	40.2	51.3	44.5	20.8	11.1
Relative rate of assistance, RRA^a	-52.6	-63.4	-63.8	-49.8	-25.8
MEMO, ignoring exchange rate distortions:					
NRA, all agric. products	-10.2	-12.0	-13.5	-15.9	-9.9
RRA (relative rate of assistance) ^a	-27.3	-28.4	-29.6	-42.1	-25.3

Source: Authors' spreadsheet

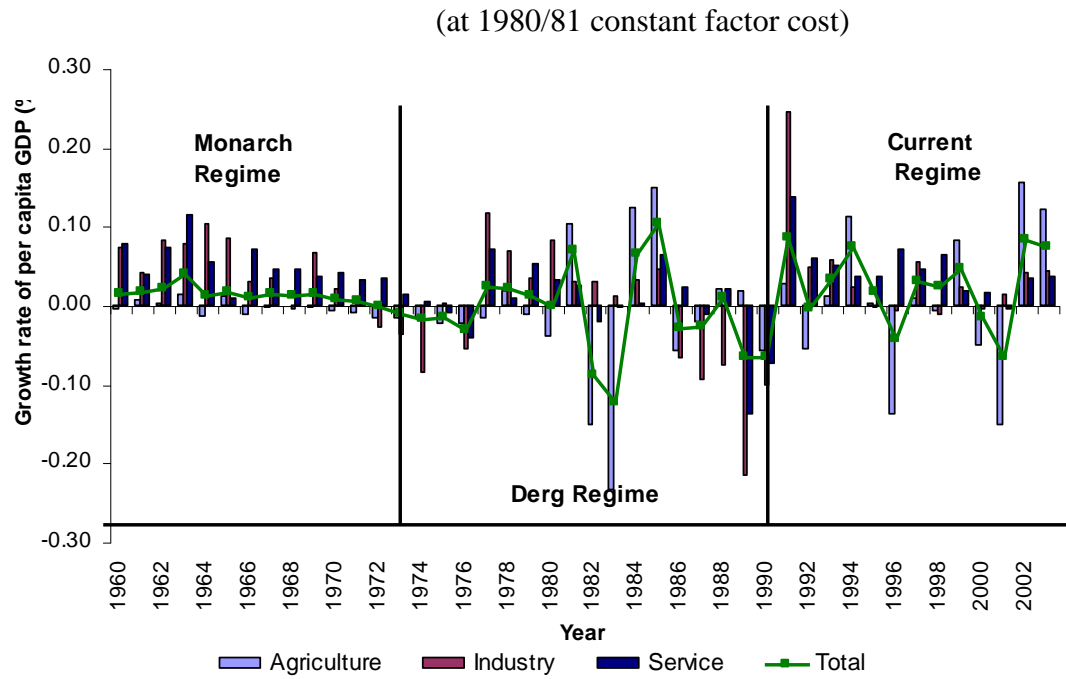
a. The RRA is defined as $100 * [(100 + \text{NRA}_{\text{ag}}^t) / (100 + \text{NRA}_{\text{nonag}}^t) - 1]$, where NRA_{ag}^t and $\text{NRA}_{\text{nonag}}^t$ are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

Appendix Figure 1: Public expenditure on agriculture and defense, Ethiopia, 1980/81 to 2004
(at 1980/81 constant prices)



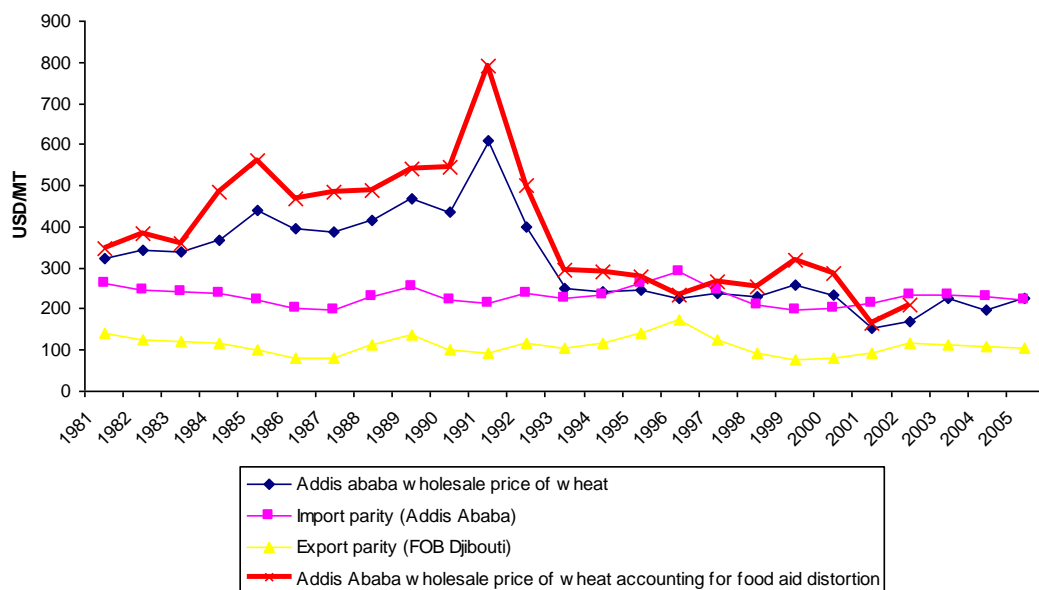
Source: Government of Ethiopia (various years)

Appendix Figure 2: GDP growth by sector and political regime, Ethiopia, 1960 to 2004



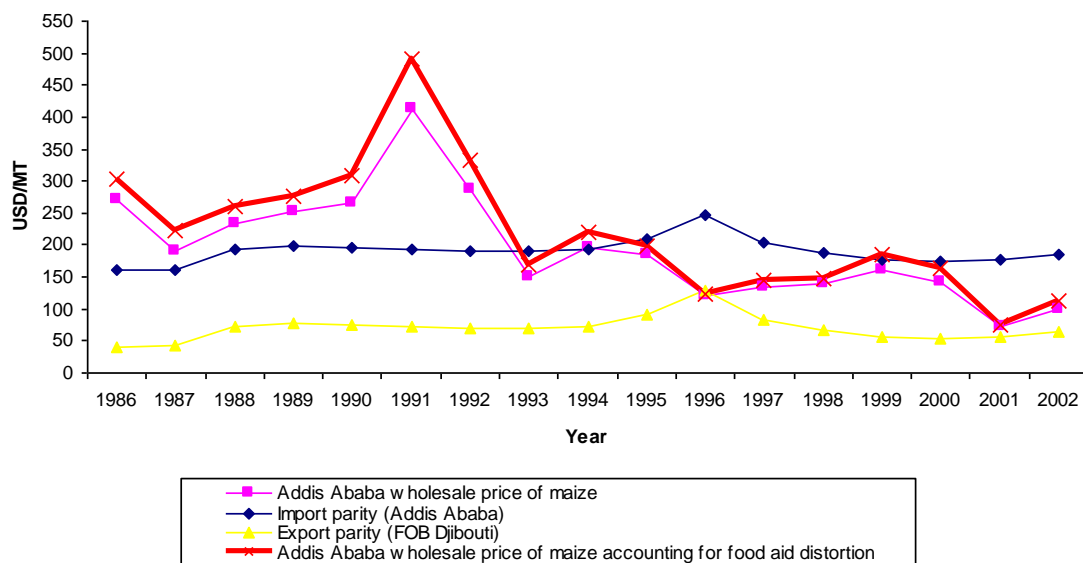
Source: Government of Ethiopia (various years)

Appendix Figure 3: Food aid and the wholesale wheat price, Ethiopia, 1981 to 2002



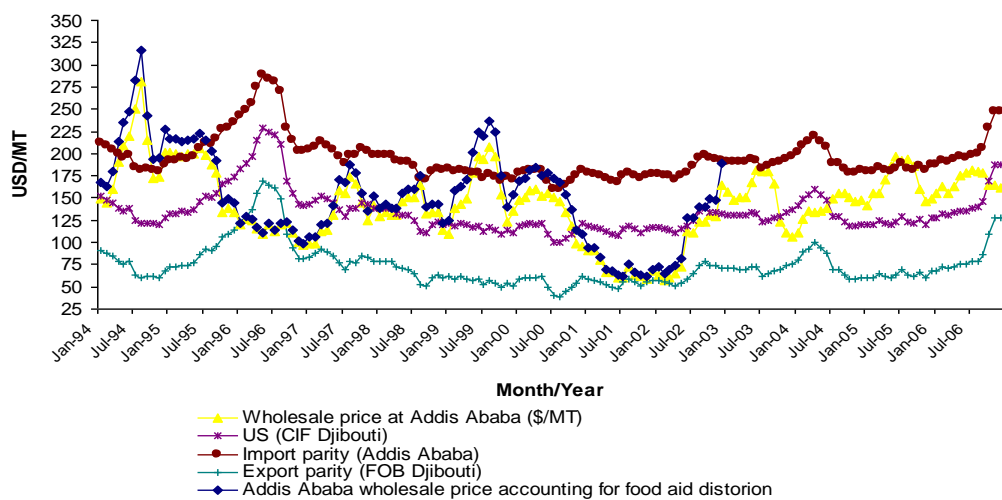
Source: Government of Ethiopia (various years)

Appendix Figure 4: Food aid and the wholesale maize price, Ethiopia, 1986 to 2002



Source: Government of Ethiopia (various years)

Appendix Figure 5: Import and export parity prices for maize, Ethiopia, 1994 to 2006



Source: Government of Ethiopia (various years)

Appendix Table 1: A synopsis of political events and economic policies under three political regimes, Ethiopia, 1960 to 2005

Political Regimes	Major political events	Broad economic policies	Agricultural sector policy		Food security
			Input market	Output market	
MONARCHIC REGIME	<ul style="list-style-type: none"> Conquered many southern regions in the early years. Failed coup attempt in 1960; Increasing insurgencies by the Eritrean Liberation Front; Land tax bills vehemently opposed by the landed aristocracy and reduced monarch's power base; Administrative change in 1955 constitution 	<ul style="list-style-type: none"> Export promotion in the 1950s with elaborate incentive package including tax holidays to attract FDI; Import substitutions in the 1960s with prohibitive taxes; import tax rates (ad-valorem) range from 5% -100%; 	<ul style="list-style-type: none"> Skewed distribution of land. In the south, equally distributed between churches, state, and local people. Granted more land to military and coup sympathizers; Communal lands were non-transferable Large and privileged state farms across the country; Farmer's rent was as high as 50 percent of the produce; 	<ul style="list-style-type: none"> Prices determined by the market forces locally, but the import taxes were prohibitively high for selected import competing commodities; 	<ul style="list-style-type: none"> Famine broke out in 1972 and lasted until the regime fall in 1974; claimed about half a million Ethiopian lives; Average food gap was 2-3 million tons.
DERGE REGIME	<ul style="list-style-type: none"> Intense power struggle between 1974 and 1977. Within six months, the Derg state chief was killed along with 59 prominent political prisoners. After a few more internal conflicts and deaths, <i>Mengitsu</i> came out as the <i>Derg</i> leader in February 1977; Civil strife continued, and intensified in the late 1980s, by the insurgent groups from the north; Due to civil strife, and other internal pressure, <i>Derg</i> was forced to introduce short-lived mixed economy in 1990; When Soviet support decreased in the late 1980s, <i>Mengitsu's Derg</i> regime collapsed in May 28, 1991. 	<ul style="list-style-type: none"> Aligned with the Soviet; and adopted central planning policies; In 1987, the nation officially became peoples' democratic republic of Ethiopia (PDRE). A new constitution provided civilian participation in the government, but the <i>Derg</i> leadership maintained control; Tightly controlled foreign exchange and the difference between official and black market rate reached as high as 250 percent; Import tax rates (ad-valorem) range from 5% to 200%. 	<ul style="list-style-type: none"> Drastic land reform with nationalization of private and church properties; Labor sales and mobility prohibited; Fertilizer importation, distribution, and pricing were controlled by a government parastatal since 1984; Agricultural inputs distribution is controlled by the public enterprises; No tariffs on importation of agricultural key inputs, but very high tariffs on others; Cooperatives were favored in terms of access to inputs. 	<ul style="list-style-type: none"> Enforced production quota, set prices of pretty much all commodities; Restrictions on goods and labor movement across regions; Marketing controlled by the state owned enterprises; Agricultural income tax rate was progressive and was as high as 89 percent in the highest income bracket; High taxation on exports of main crops—some years as high as 100 percent of farm gate price. 	<ul style="list-style-type: none"> Chronic food insecurity through out 1980s; Devastating famine in 1984 and claimed life of nearly a million people, became more regular (repeats the cycle every 10 years); Average food gap increased to 5.47 million tons; Ethiopian Relief and Rehabilitation commission was established to handle relief and disaster management.

Appendix Table 1 (cont'd): A synopsis of political events and economic policies under three political regimes, Ethiopia, 1960 to 2005

Political Regimes	Major political events	Broad economic policies	Agricultural sector policy		Food security
			Input market	Output market	
CURRENT REGIME	<ul style="list-style-type: none"> ○ Eritrea becomes independent in 1993 and Ethiopia became land locked; ○ A new constitution adopted 1994 and first multi-party election was held in 1994; ○ War with Eritrea began in 1998 and lasted until 2000; ○ National assembly election held in 2000; ○ Second multi-party parliamentary election held in 2005. 	<ul style="list-style-type: none"> ○ Agricultural Development Led Industrialization (ADLI) was announced in 1992; ○ Decentralization in 1992; ○ The currency was devaluated by more than 100 percent in 1993 (2.5 to 5.5 ETB / US\$) and further devaluation in 1996 (6.50 ETB/US\$); ○ Ethiopia became member of the COMESA in 1994; ○ Harmonization of tariffs in line with COMESA agreements in 2002; ○ In 2002, Sustainable Poverty Reduction Strategy (PRSP) was introduced. 	<ul style="list-style-type: none"> ○ Agricultural input market liberalized, in 1992, while land still remained public in the hands of the Government (no sale or exchange except lease and rent); ○ Agricultural input marketing is dominated by a few types of inputs, fertilizer and seed, still dominated by the public sector; ○ Maximum duty rate in 1993 reduced from 230% to 80%. 	<ul style="list-style-type: none"> ○ Output market was liberalized and the quota system entirely lifted up. ○ Major price collapse for agricultural products in 2002. ○ The public marketing enterprise, EGTE, established in 1992 with responsibility to stabilize the national grain market. ○ The Government has cancelled all taxes levied on export of goods, including major export agricultural products while a 5% sales tax is paid on selected lists of agricultural products. ○ The maximum tariff on import was reduced to 50% down from 230%. ○ Agricultural income tax is allocated by Regional states with the provision of the 1994 constitution and progressive ranging from 5%-40%. 	<ul style="list-style-type: none"> ○ The food insecurity situation is worsened and food insecure population reached about 14 million in 2003, another cycle after 10 years, but managed to save lives this tim; ○ The RRC became DPPC in naming, with additional function to handle early warning systems and the modalities to link relief with Development; ○ Food deficit has widened and drought occurrences cycles shortened and safety net programme has been introduced in 2003.

Source: Authors' compilation from various government documents.

Appendix Table 2: Gross domestic product by industrial sector, Ethiopia, 1960 to 2004
(at 1980/81 constant factor cost)

Year /Political regime	GDP (in millions of Birr)				Growth rate of Per Capita GDP (%)			
	Agriculture	Industry	Services	Total	Agriculture	Industry	Service	Total
Monarchic regime								
1960	3,884.68	357.52	883.09	5,125.29				
1961	3,953.02	392.00	971.97	5,316.99	0.00	0.07	0.08	0.01
1962	4,069.44	417.16	1,032.92	5,519.53	0.01	0.04	0.04	0.02
1963	4,164.69	461.21	1,133.54	5,759.44	0.00	0.08	0.07	0.02
1964	4,320.41	508.49	1,292.41	6,121.30	0.01	0.08	0.12	0.04
1965	4,356.64	573.46	1,395.48	6,325.59	-0.01	0.10	0.06	0.01
1966	4,504.46	637.07	1,441.02	6,582.55	0.01	0.09	0.01	0.02
1967	4,551.99	671.86	1,578.80	6,802.65	-0.01	0.03	0.07	0.01
1968	4,651.84	710.38	1,690.69	7,052.91	0.00	0.03	0.05	0.01
1969	4,762.85	723.54	1,808.83	7,295.23	0.00	0.00	0.05	0.01
1970	4,860.38	789.03	1,918.46	7,567.87	0.00	0.07	0.04	0.01
1971	4,936.88	823.87	2,044.02	7,804.77	-0.01	0.02	0.04	0.01
1972	5,007.90	849.22	2,158.41	8,015.53	-0.01	0.01	0.03	0.00
1973	5,059.09	846.46	2,289.25	8,194.80	-0.02	-0.03	0.03	0.00
Derge regime								
1974	5,083.63	833.21	2,370.44	8,287.28	-0.02	-0.04	0.01	-0.01
1975	5,124.68	781.31	2,437.42	8,343.42	-0.02	-0.08	0.00	-0.02
1976	5,144.83	803.92	2,480.00	8,428.75	-0.02	0.00	-0.01	-0.02
1977	5,162.65	778.81	2,439.72	8,381.18	-0.02	-0.06	-0.04	-0.03
1978	5,208.72	892.07	2,682.24	8,783.04	-0.02	0.12	0.07	0.02
1979	5,449.15	978.70	2,781.06	9,208.91	0.02	0.07	0.01	0.02
1980	5,384.81	1,011.80	2,927.94	9,324.55	-0.01	0.03	0.05	0.01
1981	5,189.69	1,097.57	3,028.10	9,315.36	-0.04	0.08	0.03	0.00
1982	5,895.30	1,162.25	3,196.25	10,253.80	0.10	0.03	0.03	0.07
1983	5,155.85	1,231.76	3,220.58	9,608.19	-0.15	0.03	-0.02	-0.09
1984	4,079.02	1,284.79	3,313.10	8,676.91	-0.23	0.01	0.00	-0.12
1985	4,732.64	1,369.17	3,434.21	9,536.02	0.12	0.03	0.00	0.06
1986	5,620.43	1,478.61	3,775.72	10,874.76	0.15	0.05	0.06	0.10
1987	5,465.02	1,422.50	3,981.46	10,868.98	-0.06	-0.07	0.02	-0.03
1988	5,521.26	1,327.81	4,056.99	10,906.06	-0.02	-0.09	-0.01	-0.03
1989	5,814.40	1,265.29	4,269.89	11,349.58	0.02	-0.08	0.02	0.01
1990	6,114.89	1,024.13	3,799.22	10,938.24	0.02	-0.22	-0.14	-0.07
Current regime								
1991	5,947.60	951.28	3,635.73	10,534.61	-0.06	-0.10	-0.07	-0.07
1992	6,308.32	1,221.90	4,268.57	11,798.79	0.03	0.24	0.14	0.08
1993	6,078.00	1,307.05	4,614.20	11,999.25	-0.06	0.05	0.06	0.00
1994	6,284.00	1,412.54	4,947.81	12,644.35	0.01	0.06	0.05	0.03
1995	7,206.20	1,488.87	5,292.01	13,987.08	0.11	0.02	0.04	0.07

Source: NBE

Appendix Table 2 (cont'd): Gross domestic product by industrial sector, Ethiopia, 1960 to 2004

(at 1980/81 constant factor cost)

Year/ Political regime	GDP (in millions of Birr)				Growth rate of Per Capita GDP (%)			
	Agriculture	Industry	Services	Total	Agriculture	Industry	Service	Total
1996	7,453.90	1,530.57	5,655.80	14,640.27	0.00	0.00	0.04	0.02
1997	6,620.60	1,566.60	6,241.90	14,429.10	-0.14	-0.01	0.07	-0.04
1998	6,873.50	1,700.90	6,719.70	15,294.10	0.01	0.05	0.05	0.03
1999	7,024.70	1,731.30	7,356.34	16,112.34	-0.01	-0.01	0.06	0.02
2000	7,831.10	1,821.40	7,705.20	17,357.70	0.08	0.02	0.02	0.05
2001	7,651.00	1,864.00	8,057.80	17,572.80	-0.05	0.00	0.02	-0.02
2002	6,687.00	1,943.40	8,252.70	16,883.10	-0.15	0.01	0.00	-0.07
2003	7,953.80	2,080.60	8,783.80	18,818.20	0.16	0.04	0.03	0.08
2004	9,154.80	2,228.60	9,349.30	20,732.70	0.12	0.04	0.04	0.07

Source: Ministry of Finance and Economic Development (MoFED)

Appendix Table 3: Food availability and food gap, Ethiopia, 1961 to 2004

Year	Production (Mt millions)	Feed (Mt)	Seed (Mt)	Waste (Mt)	Imports (Mt)	Food aid (WFP shipment in MT)	Exports (Mt)	Net cereal production (MT)	Population (millions)	Per capita food availability ²² (MT)	Food requirement (MT millions)	Food gap ²³ (MT millions)
1961	4.2	100,000	235,170	209,900	4,789		975	3.66	24	0.15	5.48	1.81
1962	4.3	100,000	236,847	213,741	7,554		3,648	3.73	25	0.15	5.60	1.87
1963	4.3	80,000	237,604	214,970	7,301		5,800	3.77	25	0.15	5.72	1.95
1964	4.5	70,000	241,821	222,435	8,922		1,895	3.93	26	0.15	5.85	1.92
1965	4.6	70,000	244,904	228,135	27,156		2,612	4.04	27	0.15	5.98	1.94
1966	4.7	80,000	245,007	233,520	57,315		143	4.16	27	0.15	6.12	1.96
1967	4.7	80,000	246,578	236,139	31,152		139	4.19	28	0.15	6.26	2.07
1968	4.7	90,000	249,822	232,451	23,868		127	4.10	28	0.14	6.41	2.31
1969	5.0	90,000	253,191	247,547	31,250		82	4.39	29	0.15	6.56	2.17
1970	5.1	100,000	256,243	255,064	75,403	3,400	3,616	4.53	30	0.15	6.71	2.17
1971	5.2	100,000	252,778	263,154	53,421	24,900	201	4.67	31	0.15	6.86	2.19
1972	5.2	100,000	210,380	258,415	12,761	1,800	4,586	4.61	31	0.15	7.02	2.41
1973	4.4	80,000	213,140	221,593	23,998	96,100	14,367	3.86	32	0.12	7.20	3.34
1974	4.3	90,000	180,129	225,215	123,857	54,100	12,235	3.96	33	0.12	7.36	3.40
1975	3.8	80,000	157,129	225,830	73,080	86,650	2,936	3.42	34	0.10	7.54	4.12
1976	4.7	100,000	162,074	239,432	97,682	74,700	594	4.30	34	0.13	7.74	3.44
1977	4.4	100,000	169,312	235,534	198,516	76,000	199	4.07	35	0.12	7.94	3.87
1978	4.0	80,000	176,652	235,019	229,602	162,544	-	3.74	36	0.10	8.15	4.41
1979	5.2	100,000	190,753	276,936	260,465	111,442	51	4.90	37	0.13	8.37	3.47
1980	6.4	120,000	180,016	339,141	404,913	227,986	2,249	6.17	37	0.17	8.37	2.20
1981	5.6	90,000	186,088	293,071	218,372	189,710	3	5.26	37	0.14	8.38	3.12
1982	5.4	110,000	200,739	291,805	283,968	356,362	3	5.07	38	0.13	8.63	3.55
1983	6.7	140,000	181,659	348,546	362,566	171,940	2	6.41	39	0.16	8.88	2.47
1984	5.5	100,000	188,540	287,902	279,632	868,932	453	5.22	41	0.13	9.16	3.94
1985	4.2	80,000	202,852	269,304	783,904	799,182	-	4.47	42	0.11	9.47	5.00
1986	4.8	80,000	196,283	297,469	833,025	570,413	500	5.08	43	0.12	9.78	4.70
1987	5.7	90,000	207,024	318,713	491,077	823,814	60	5.58	45	0.12	10.08	4.50
1988	6.1	100,000	197,886	361,972	1,092,674	626,799	4	6.57	46	0.14	10.39	3.82
1989	5.7	90,000	194,638	332,428	455,163	538,409	202	5.57	48	0.12	10.72	5.15
1990	6.1	100,000	171,405	341,949	677,814	860,926	32	6.20	49	0.13	11.06	4.86
1991	5.8	100,000	171,838	352,645	794,010	1,035,160	204	5.98	51	0.12	11.42	5.44

²² Food availability refers to per capita availability of net cereal production

²³ Food Gap= Food requirement: population * 220 KG – net cereal production

Appendix Table 3 (cont'd): Food availability and food gap, Ethiopia, 1961 to 2004

Year	Production (Mt millions)	Feed (Mt)	Seed (Mt)	Waste (Mt)	Imports (Mt)	Food aid (WFP shipment in MT)	Exports (Mt)	Net cereal production (MT)	Population (millions)	Per capita food availability ²⁴ (MT)	Food requirement (MT millions)	Food gap ²⁵ (MT millions)
1992	5.0	100,000	144,880	339,493	1,030,425	865,289	24	5.48	52	0.10	11.79	6.31
1993	5.3	70,000	211,830	332,923	454,831	590,299	155	5.13	53	0.10	12.03	6.90
1994	5.2	70,000	254,165	352,314	1,097,544	727,358	157	5.67	55	0.10	12.30	6.63
1995	6.7	100,000	284,937	383,583	645,248	491,482	35,068	6.58	56	0.12	12.68	6.10
1996	9.4	100,000	265,126	486,075	401,746	119,857	32,668	8.90	58	0.15	13.08	4.18
1997	9.5	100,000	236,797	494,034	285,318	548,296	40,041	8.89	60	0.15	13.47	4.59
1998	7.2	100,000	280,744	441,215	587,836	463,336	4,794	6.96	62	0.11	13.88	6.92
1999	8.4	100,000	267,197	464,671	704,842	1,030,780	3,774	8.25	63	0.13	14.29	6.04
2000	8.0	100,000	295,028	502,823	1,272,828	1,198,970	5,008	8.37	65	0.13	14.70	6.33
2001	9.6	100,000	250,247	534,394	1,109,291	299,341	41,899	9.76	67	0.15	15.12	5.36
2002	9.1	100,000	242,760	530,670	745,934	1,213,970	39,716	8.94	69	0.13	15.55	6.61
2003	9.0					941,976		0.00	8.96		2.02	2.02
2004	8.6							0.00	8.56		1.93	1.93

Source: FAOSTAT, MoA, and NBE

²⁴ Food availability refers to per capita availability of net cereal production

²⁵ Food Gap= Food requirement: population * 220 KG – net cereal production

Appendix Table 4: Composition of export earnings by major agricultural commodity group, Ethiopia, 1980/81 to 2003/04

(percent)

Year	Shares of total agricultural exports					
	Coffee	Hides and skins	Chat	Oilseeds	Pulses	Others
1980/81 - 1989/90	62.8	13.0	2.5	2.0	2.5	17.2
1990/91 - 1999/00	60.6	10.2	8.5	4.3	2.4	14.2
2000/01	39.3	16.4	13.2	7.0	1.9	22.3
2001/02	36.1	12.3	10.8	7.2	7.3	26.3
2002/03	34.2	10.8	12.0	9.2	4.1	29.3
2003/04	37.2	7.3	14.7	13.8	3.8	23.3
1980/81 - 2003/04	52.9	11.0	9.0	5.4	3.0	18.4

Source: Authors' computation based on the data from NBE.

Appendix Table 5: Annual distortion estimates, Ethiopia, 1981 to 2005

(a) Nominal rates of assistance to covered products

(percent)

	Chat	Coffee	Hides & skins	Maize	Oilseed	Pulse	Teff	Wheat	All covered
1981	-51	-15	-46	-2	-52	-35	-2	-3	-10
1982	-52	-26	-47	-4	-48	-34	-4	-6	-12
1983	-53	-35	-47	-2	-29	-36	-2	-3	-10
1984	-53	-37	-48	-10	-44	-25	-11	-16	-16
1985	-51	-46	-46	-9	-45	-54	-10	-14	-15
1986	-50	-23	-46	-6	-39	-58	-7	-9	-14
1987	-37	-34	-53	-8	-46	-55	-9	-13	-18
1988	-46	-41	-52	-6	-65	-57	-6	-9	-16
1989	-43	-21	-52	-5	-46	-57	-6	-8	-12
1990	-44	-32	-52	-8	-49	-44	-9	-13	-16
1991	-45	-39	-49	-9	-55	-44	-11	-15	-21
1992	-45	-43	-52	-8	-63	-62	-9	-12	-19
1993	-45	-39	-51	-6	-66	-56	-6	-9	-15
1994	-46	-41	-53	-6	-52	-54	-7	-10	-15
1995	-43	-39	-50	-4	-55	-36	-5	-7	-10
1996	-45	-42	-52	-1	-62	-43	-1	-1	-9
1997	-44	-39	-51	-4	-52	-36	-5	-6	-10
1998	-43	-34	-47	-3	-50	-32	-4	-5	-8
1999	-41	-28	-45	-7	-44	-29	-8	-11	-11
2000	-41	-15	-50	-8	-46	-31	-9	-12	-12
2001	-43	-4	-50	-2	-40	-17	-2	-3	-5
2002	-47	2	-49	-7	-32	-14	-8	-11	-10
2003	-26	-10	-47	-10	-47	-18	-12	0	-7
2004	-41	-7	-46	-4	-36	-9	-5	0	-3
2005	na	-3	na	-6	na	na	-7	0	-3

Appendix Table 5 (continued): Annual distortion estimates, Ethiopia, 1981 to 2005
(b) Nominal and relative rates of assistance to all^a agricultural products, to exportable^b and import-competing^b agricultural industries, and relative^c to non-agricultural industries

(percent)

Total ag NRA					Ag tradables NRA			Non-ag tradables NRA RRA	
Covered products		Non-covered products	All products (incl NPS)	Export-ables	Import-competing	All			
Inputs	Outputs								
1981	0	-10	-23	-15	-31	na	-31	30	-47
1982	0	-12	-27	-18	-35	na	-35	40	-53
1983	0	-10	-27	-16	-36	na	-36	41	-54
1984	0	-16	-28	-21	-34	na	-34	51	-56
1985	0	-15	-36	-24	-48	na	-48	45	-64
1986	0	-14	-30	-20	-39	na	-39	43	-57
1987	0	-18	-33	-24	-44	na	-44	56	-64
1988	0	-16	-37	-25	-52	na	-52	62	-71
1989	0	-12	-31	-20	-41	na	-41	51	-61
1990	0	-16	-32	-23	-42	na	-42	41	-59
1991	0	-21	-35	-26	-46	na	-46	49	-63
1992	0	-19	-39	-27	-56	na	-56	55	-71
1993	0	-15	-36	-24	-51	na	-51	45	-66
1994	0	-15	-34	-22	-46	na	-46	34	-59
1995	0	-10	-31	-19	-42	na	-42	37	-57
1996	0	-9	-32	-19	-47	na	-47	27	-58
1997	0	-10	-30	-18	-40	na	-40	16	-49
1998	0	-8	-28	-16	-37	na	-37	12	-44
1999	0	-11	-27	-17	-34	na	-34	11	-40
2000	0	-12	-23	-16	-28	na	-28	12	-36
2001	0	-5	-15	-9	-20	na	-20	10	-27
2002	0	-10	-16	-12	-17	na	-17	11	-26
2003	0	-7	-14	-10	-17	na	-17	10	-25
2004	0	-3	-16	-8	-20	na	-20	9	-27
2005	0	-3	-3	-3	-3	na	-3	14	-15

a. NRAs including assistance to nontradables and non-product specific assistance.

b. NRAs including products specific input subsidies.

c. The Relative Rate of Assistance (RRA) is defined as $100 \times [(100 + \text{NRA}_{\text{ag}}^t) / (100 + \text{NRA}_{\text{nonag}}^t) - 1]$, where NRA_{ag}^t and $\text{NRA}_{\text{nonag}}^t$ are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

Appendix Table 5 (continued): Annual distortion estimates, Ethiopia, 1981 to 2005
(c) Value shares of primary production of covered^a and non-covered products,
(percent)

	Chat	Coffee	Hides & skins	Maize	Oilseed	Pulse	Teff	Wheat	Non- covered
1981	0	7	1	17	3	4	4	24	40
1982	0	5	0	19	3	5	4	24	39
1983	0	3	0	20	1	8	2	24	40
1984	0	3	0	24	3	5	5	22	38
1985	0	3	0	33	2	3	3	17	40
1986	0	5	0	20	2	4	3	26	39
1987	0	6	0	20	3	4	3	25	39
1988	0	5	0	24	4	3	3	20	41
1989	0	4	0	24	2	4	3	24	40
1990	0	3	0	32	3	6	3	13	39
1991	0	3	0	17	3	8	4	26	38
1992	0	4	0	26	3	4	4	18	40
1993	0	5	0	21	3	3	5	23	41
1994	0	7	0	25	2	2	4	20	40
1995	0	4	0	27	2	3	4	20	41
1996	0	5	0	24	2	3	4	19	42
1997	0	4	0	27	1	3	2	22	40
1998	0	3	0	25	1	2	3	24	41
1999	1	2	0	32	1	1	3	20	40
2000	1	3	0	32	1	3	4	17	39
2001	1	3	0	18	1	4	3	29	40
2002	1	2	0	21	1	2	4	30	38
2003	0	2	0	32	0	0	3	23	39
2004	1	2	0	29	0	0	4	24	40
2005	na	2	na	33	na	na	na	26	39

Source: Authors' spreadsheet

a. At farmgate undistorted prices

Appendix Table 6: Government's proclamations regarding price policies, Ethiopia

Proc./Reg. No.	Agency Responsible	Tasks and objectives
Regulation No. 104/1992	Ethiopian Grain Trade Enterprise (EGTE)	<p>Mainly involved in consumer and producers price stabilization,</p> <ol style="list-style-type: none"> 1. to stabilize markets and prices to farmers produces to encourage them to increase their output; 2. to stabilize grain prices and markets to protect consumers from unfair grain price increase; 3. when necessary, to export grains to the world market to generate foreign exchange; 4. to maintain grain buffer stock for market stabilization; and 5. to engage in any other related activity for the attainment of its objectives.
Proclamation No. 58/1999	Ethiopian Grain Trade Enterprise (EGTE)	<ol style="list-style-type: none"> 1. to purchase grain from farmers and sell in local and mainly in export markets; 2. to contribute towards the stabilization of markets for farmers' produces so that they will be encouraged to increase their outputs; and 3. to engage in other related activities conducive to the attainment of its purposes.
Proclamation No. 380/2004	Ethiopian Grain Trade Enterprise (EGTE)	No explicit mention of price stabilization, but performing the task on an <i>ad hoc</i> (as and when required) basis.
Regulations No. 67/2000	Emergency Food Security Reserve Administration	<p>The reserve has the following objectives:</p> <ol style="list-style-type: none"> 1. The objective of the Emergency Food Reserve is to provide adequate capacity to prevent disasters at the occurrence of slow and fast-onset-disasters, through loan provision, to the Commission (DPPC) and Organizations engaged in relief activities until additional relief food can be mobilized through other mechanisms; and 2. The objective of the Non-Food Relief Items Reserve is to provide adequate capacity to prevent disasters at the occurrence of fast-onset-disaster, though loan provision or provision on returnable basis, to the Commission and Organizations engaged in relief activities until additional non-food relief items can be mobilized through other mechanisms.

Source: Government of Ethiopia, *Negarit Gazeta* (various years).