

WPS 1392

POLICY RESEARCH WORKING PAPER

1392

FILE COPY

# Some Economic Consequences of the Transition from Civil War to Peace

*Jean-Paul Azam*

*David Bevan*

*Paul Collier*

*Stefan Dercon*

*Jan Gunning*

*Sanjay Pradhan*

Evidence from Africa, especially Ethiopia and Uganda, sheds light on why, when a civil war ends, it takes time to claim a peace dividend — and what governments can do to foster the confidence of a fearful private sector in war's aftermath.

The World Bank  
Policy Research Department  
Public Economics Division  
December 1994



## Summary findings

Drawing on evidence from Africa — especially Ethiopia and Uganda — the authors of this volume draw conclusions about economic policy in the aftermath of civil war. A sample of conclusions follows.

Civil wars differ from international wars. They are informal, often have no clear beginning and end, weaken rather than strengthen the authority of the state, and leave two unreconciled armies to be demobilized within one territory. Civil wars erode the institutions of civil society, leading to a decline in the stock of social capital, which takes some time to restore. Private investment and government revenue are slow to recover, and military expenditures are not easily reduced. As a result, there is little or no peace dividend in the short run.

The period of transition to peace is a particularly suitable time for radical policy reform, despite the high degree of polarization typical in countries engaged in civil war. And speedy reform, far from increasing uncertainty, is likely to reduce it. After a civil war, private agents are fearful both of each other and of the government. This, perhaps even more than physical damage to infrastructure, hinders private-sector-led recovery, as irreversible investment is delayed despite

being financeable. The transition to peace is primarily the transition from fear and the defensive responses that became ingrained in wartime. The peace dividend comes as a gradual recovery of confidence induces repatriation of financial and human capital.

Such confidence can be boosted by the early sequencing of investment-sensitive policy reforms and by preserving low inflation through direct consumer price index targeting. Lack of confidence can be compensated for by temporary undervaluation of the exchange rate, or by temporary tax incentives for investment which, however, may prove more difficult to make credibly time-bound. Finally, aid can permit accelerated rehabilitation of the infrastructure (especially transport networks) needed to return to a market economy.

Contrary to the study's hypothesis, the authors found that demobilization — at least in Uganda — did not lead to a significant upsurge in insecurity. In the short term, demobilization significantly reduced crime, unless the demobilized lacked access to land. If the demobilized returned to their home areas and were given some assistance, with identifiable exceptions they were able to find income-earning opportunities.

---

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to examine components of public spending (such as military expenditures) and the interface between the public and private sectors. The study was funded by the Bank's Research Support Budget under the research project "Some Economic Consequences of the Transition from Civil War to Peace" (RPO 677-31) and by the Africa Regional Office. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (139 pages). December 1994.

*The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be used and cited accordingly. The findings, interpretations, and conclusions are the authors' own and should not be attributed to the World Bank, its Executive Board of Directors, or any of its member countries.*

**POLICY RESEARCH WORKING PAPER**

# **Some Economic Consequences of the Transition from Civil War to Peace**

*Jean-Paul Azam, David Bevan, Paul Collier, Stefan Dercon,  
Jan Gunning and Sanjay Pradhan*

The World Bank  
Policy Research Department  
Public Economics Division



## *Contributors*

**Jean-Paul Azam**

CERDI, University of Auvergne

**David Bevan**

Centre for the Study of African Economies, Oxford University

**Paul Collier**

Centre for the Study of African Economies, Oxford University

**Stefan Dercon**

Centre for the Study of African Economies, Oxford University

**Jan Willem Gunning**

CEPR, Free University Amsterdam

**Sanjay Pradhan**

Policy Research Department, World Bank

Chapter 5 Demobilization and Insecurity - A Study in the Economics of the Transition from War to Peace .....	39
<i>Paul Collier</i>	
1. Introduction .....	39
2. Demobilization and Micro-insecurity .....	39
3. Demobilization and Macro-insecurity .....	44
4. Conclusion .....	45
Chapter 6 Food Markets. Liberalization and Peace in Ethiopia: an econometric analysis .....	47
<i>Stefan Dercon</i>	
1. Introduction .....	47
2. The effects of the quota system, trade controls and the war on grain prices .....	<b>48</b>
3. Teff Prices and Margins in Ethiopia .....	50
4. Analyzing market integration and the effects of liberalization and peace .....	53
5. Results .....	60
6. Conclusion .....	64
Chapter 7 Fiscal Aspects of the Transition from War to Peace: with Illustrations from Uganda and Ethiopia .....	<b>87</b>
<i>David Bevan and Sanjay Pradhan</i>	
1. Introduction .....	<b>87</b>
2. Fiscal Characteristics of Transition .....	<b>87</b>
3. The Revenue Transition .....	90
4. Expenditure Patterns .....	93
5. Decentralization .....	95
6. Conclusion .....	96
Chapter 8 Economic Aspects of the Ethiopian Transition to Peace .....	109
<i>David Bevan</i>	
1. Introduction .....	109
2. The Rural Economy .....	110
3. The Macroeconomy .....	113
4. Government Structures .....	116
5. Conclusion .....	117

Chapter 9 Economic Aspects of the Ugandan Transition to Peace . . . . .	119
<i>Paul Collier and Sanjay Pradhan</i>	
1. Introduction: The Economic Meaning of 'War' . . . . .	119
2. Aggregate Consequences of War and Peace: Production, Expenditure and Their Composition . . . . .	120
3. Private Responses to Peace . . . . .	125
4. Government Responses . . . . .	128
5. Donor Responses . . . . .	132
6. Conclusion: Commitment and Adjustment in a Frightened Society . . . . .	133
References . . . . .	135

List of Tables

Table 1.1. The Composition of Ugandan GDP by War-Vulnerability . . . . .	5
Table 3.1. A Taxonomy of Policy Uncertainty . . . . .	27
Table 3.2. Effects of a Devaluation on the Incentive to Repatriate . . . . .	27
Table 5.1. Regression Results for Crime and Demobilization . . . . .	42
Table 6.1: Margins between Addis Ababa Real Teff Prices and specific markets . . . . .	52
Table 6.2. Price differential among regional towns in Ethiopia . . . . .	54
Table 6.3. Cointegrating Relationships . . . . .	61
Table 6.4. Short-run integration (F(6,58)) . . . . .	63
Table 7.1. Ethiopia: fiscal accounts . . . . .	99
Table 7.2. Ethiopia: Public Expenditures Budget . . . . .	100
Table 7.3. Ethiopia--Composition of Public Expenditures . . . . .	101
Table 7.4. Uganda--Composition of Recurrent Expenditures . . . . .	102
Table 7.5. Uganda--Recurrent Expenditures . . . . .	103
Table 7.6. Uganda - Central Government Operations (As a % of GDP) . . . . .	104
Table 7.7. Economic Characteristics of <b>Infrastructure</b> Projects in Uganda . . . . .	105
Table 7.8. World Bank Projects Uganda, 1984--1989 . . . . .	106
Table 7.9. World Bank Projects Uganda, 1984--1989 . . . . .	107
Table 9.1. The Composition of GDP by War-Vulnerability . . . . .	121
Table 9.2. Index of Components of GDP by War-Vulnerability . . . . .	122
Table 9.3. Relative Price Changes by War-Vulnerability . . . . .	124





# Chapter 1

## Introduction

*Paul Collier*

### 1. Introduction

This study attempts to draw some general economic inferences about economic policy in the aftermath of civil war. It draws upon evidence from Africa, particularly Uganda and Ethiopia, but the emphasis is analytic rather than empirical. Civil wars differ from international wars: they are informal, often having no clear beginning and end, they weaken rather than strengthen the authority of the state, and they leave two irreconciled armies to be demobilized within the one territory. My main argument is that civil wars erode the institutions of civil society, leading to a decline in the stock of social capital. One consequence, discussed in the next section, is that there is little or no instant peace dividend. Section 3 discusses the gradual restoration of security. Sections 4 and 5 consider **inter-sectoral** and inter-temporal resource reallocations induced by civil war, and the scope for policy to assist in the reversal of these responses during the post-war recovery. Section 6 concludes.

### 2. Is there a Peace Dividend?

Civil wars vary greatly in terms of economic damage. The relatively short civil war in Nigeria appears **from** the National Accounts to have caused only a fairly small output loss which was fully recovered within three years of peace. By contrast, in Uganda, a conservative counterfactual is that without the long and intermittent civil war, by the arrival of more peaceful conditions **GDP** would have been double its actual level. Similarly dramatic magnitudes would apply to Mozambique and Angola.

However, while the potential for a peace dividend **may** thereby seem to be larger in these

long wars, the post-war recoveries have only been partial. There appears to be an initial boost to output: in Uganda, in the first two post-war years (1987 and 1988) the economy averaged 8.3% growth, and in Ethiopia in the first post-war year (1992) growth was 7%. These are high growth rates both historically and by African standards but left both economies well below plausible counterfactuals. In Uganda, even eight years **after** peace the economy is still far below its pre-war peak. Civil wars also lead to a loss of exchange **efficiency** and rapid recovery is a potential part of the peace dividend. However, a study of the reintegration of the Ethiopian grain market (Dercon, Chapter 6) finds that the contribution of peace was modest. Neither the private nor the public sectors behave as though in receipt of a prospective windfall. Collier and Gunning (Chapters 2 and 3) show that the private sector remained wary of recovery. It neither invested nor dissaved as might have been expected had it anticipated recovery with confidence. The fiscal implications of peace are also discouraging (**Bevan** and Pradhan, Chapter 7). Because of their informality, civil wars generally do not end in the same decisive manner as international wars and so military expenditure cannot be very easily reduced. In Uganda it actually rose 40% in the early years of peace. Further, revenue may **not** be buoyant. In Ethiopia during wartime the state used coercive measures for revenue-raising which had to be abandoned during peace, causing a revenue **decline**. In Uganda, where revenue had collapsed during the war, it was very slow to recover, for **reasons** discussed below. Finally, during the last years of a civil war the fiscal position may deteriorate to a position which is unsustainable. In

effect. the post-war government inherits an imperative need for fiscal retrenchment. In **summary**, there should be no expectation of a substantial 'peace dividend' either for the economy as a whole or for the government.

### 3. Re-establishing Security

Civil wars generate two types of insecurity. **Micro**-insecurity is the fear of personal violence and theft which is present in any society but is usually heightened in the context of civil war by the breakdown of policing. **Macro**-insecurity is the fear that the state will be used in a partisan way against some social groups, casting doubt over all aspects of economic life which depend upon the impartiality of state services, such as the enforcement of property rights. Evidently, during a civil war the state is partial, and the social groups which will in future control the state is contingent. Hence, both opponents and supporters of the current government face macro-insecurity. Both types of insecurity can be expected to have economic consequences, these being analyzed in Section 5. The ending of a civil war does not usually substantially resolve these concerns. **Micro**-insecurity persists because the reconstruction of peacetime security services takes time. Indeed, criminality may increase due to demobilization. **Macro**-insecurity is diminished, but there is a continuing risk that the war will be resumed and the state overthrown. Civil war starts in societies with underlying causes for conflict, and the war itself increases bitterness. Hence, when a war stops there is a significant risk that it will resume, as happened in Angola and, **intermittently**, in Uganda.

The study investigated whether demobilization worsens micro-insecurity, using data on the **demobilization** of 20,000 Ugandan soldiers in late 1992 (Collier, Chapter 5). The approach was to determine whether changes in crime in the 38 districts of Uganda could be related to the **district**-level incidence of demobilization. The composition of the army is also somewhat distinctive as a result of a civil war. In Uganda much of the army had been **recruited** in the bush as a guerilla force while very young and so had few non-military skills and little education. Almost all demobilized soldiers would need to earn their livelihoods in peasant agriculture. The results showed a signifi-

cant and distinctive impact effect in the three months following the demobilization: soldiers who had reported no access to land were one hundred times more likely than the Ugandan average to commit crime, while those with access to land significantly reduced crime. The latter effect was substantiated by interview evidence from community leaders who claimed that the presence of men with military training had discouraged existing criminals. In Uganda most soldiers had access to land and so the latter effect outweighed the former: crime fell by 7% **following** demobilization. Neither of these effects was sustained in the following nine months: there appeared to be no relationship between demobilization and the level of criminality. This may be because both types of soldiers rapidly civilianised. Alternatively, it might be because demobilized soldiers relocated from the home district to which they were discharged, although there is some evidence that this did not happen on a significant scale. The Ugandan demobilization was well-managed and indeed **long**-delayed after the end of the war, but could have been improved upon. Given the high propensity of the landless to commit crime and that only 12% of the army described themselves as landless, access to land could have been used as a criterion for selecting those to be demobilized.

**Macro**-insecurity is less **amenable** to investigation. Azam (Chapter 4) uses a simple **game-theoretic** framework in which peace can be maintained by a combination of military expenditure and redistributive expenditures in favor of the losers. The conversion of swords into plough-shares directly increases macro-insecurity and needs to be offset by a visible redistribution of plough-shares to the potential enemy. The winner is obviously regarded as partisan. Since this perception motivates the potential threat to the government, public gestures of redistributive expenditure are needed to counter it. On this analysis, the Angolan government made the mistake of reducing military expenditures without pre-committing to high redistributive expenditures. Demobilization can increase **macro**-insecurity not only by reducing the capacity of the government to defend itself, but by furnishing opponents or others with potential recruits. The demobilization of the Ethiopian army may have contributed in this direct way to the insurrection in

Oromo, and the Ugandan demobilization may have contributed to the civil war in Rwanda.

The implication is that military expenditures can be reduced without increasing either **micro**-insecurity or macro-insecurity, but that the government may need to have offsetting increases in expenditure in the form of compensation to losers.

#### 4. Civil War and **Inter-Sectoral** Substitution

The breakdown of security is not just an aggregate shock to the economy. Rather it induces both **inter**-temporal and **inter-sectoral** resource reallocations which the return to peace gradually reverses. I now consider the **sectoral** implications of social disorder. The argument is that social disruption jeopardizes transactions and assets and that this has differential consequences as between sectors of the economy.

An environment in which transactions can be conducted cheaply requires considerable social capital. The range of social capital required is rather wide. In the early 20th century informal agricultural marketing was greatly eased by the introduction of standardized weights and measures, which requires a continuous process of public checks (Ensminger (1992)). The provision of a legal system enables the parties to a contract to enforce it relatively cheaply. The provision of a communications system reduces the costs of information, and a transport system reduces the costs of movement. Many aspects of a transaction cannot be specified in a contract because not all contingencies can be anticipated. An environment of cooperation, achieved either by the internalization of activities within an organization (the integrated **firm**) or a high expectation of repeat transactions. is necessary to reduce the incidence of opportunistic behavior.

Activities vary considerably in their transactions intensity. The least transactions-intensive activity is subsistence production. However, it should be noted that although subsistence production does not, by definition, involve the marketing of output, it will still usually involve the purchase of some inputs. Hence, it is not immune from a rise in the cost of transactions. An intermediate stage in the hierarchy of transactions intensity are activities which depend upon the market for the sale of output, but are not very dependent upon it for

inputs. Marketed agricultural produce has this characteristic. The most vulnerable activities are those which depend upon the market for both inputs and outputs. **Formal** sector manufacturing is the main instance of such an activity.

That war jeopardizes assets follows as a special, but important, case of the more general decay of social capital. Assets depend upon enforceable rights. For example, in Uganda, when the Asians lost property the new owners held their claims in a most insecure form. Not only might they anticipate that at some stage the property might be restored to its Asian owners, but of more immediate concern, they lacked clear title and so could neither sell nor borrow against the asset, and risked having it reassigned to some other 'owner' through the same arbitrary process by which they themselves had acquired it. The illegitimate possession of an asset creates powerful incentives to strip it. Since possession is likely only to be temporary it is safest to transform it into an invisible **form**: invisibility is the best substitute for legitimacy other than the possession of overwhelming force. This transformation is worthwhile even if in the process a substantial part of the value of the asset is forfeit. Invisible assets take various forms. The least visible is an asset held abroad. Cash may also be easy to conceal. Finally, crops which can be kept underground (tubers) are safer than those which must be stored above ground (grains). In addition to invisibility, immobility is desirable in an asset. Immobility will not constitute a defense against large scale predation such as the arbitrary power of a ruler, but it is a defense against the **micro-insecurity** of casual theft. An immobile asset is only forfeit if another agent is able to secure the space on a long-term basis. Obvious immobile assets are land and buildings. There are no assets which are both immobile and invisible, but there are some which are both mobile and visible, such as vehicles and consumer **durables**.

Just as activities vary in their transactions intensity, so they vary in their intensity in visible and mobile assets. Manufacturing is again highly vulnerable since both its inputs and its outputs must be stored at the site of production and are by their nature mobile. Subsistence is in one respect more asset-vulnerable than production for market in that the latter can be sold as it is harvested, whereas the former cannot usually be eaten as it is

harvested (except for some tubers) and so must be stored on site. Livestock is a disastrously asset-vulnerable activity in that it is capital-intensive and the entire capital is fairly visible and highly mobile. The service sector is relatively invulnerable in that its inputs are largely people and buildings.

So far I have considered how sectors differ according to whether they use visible or mobile assets, and whether their production process is intensive in transactions. A particularly vulnerable sector on these criteria suffers a large cost-shock. However, additionally, some sectors produce either assets or transactions. These sectors suffer a demand collapse because war operates like a tax on their output. In African civil war contexts the asset-producing sectors are usually construction and livestock. Transactions production covers transport, trade, and the financial services sector. To give an illustrative parody of the above analysis, the worst possible activity in which to be engaged might be the manufacture of cash-registers. The production process is vulnerable because manufacturing uses mobile assets and has a high ratio of transactions to value-added. The demand for output collapses because it is a mobile capital good and one used only for processing transactions. At the other end of the spectrum would be growing cassava for own-consumption.

To summarize, I have distinguished activities according to whether they are transactions-intensive, vulnerable asset-intensive, transaction-providing, and asset-providing. I now show how this is consistent with the remarkable changes in the composition of Ugandan GDP both during and after the period of war.

In 1972 **Amin** declared "economic war" against the Asian community. Although violence did not erupt until later, from this date the business community could no longer regard the state as a neutral provider of services and the economic manifestations associated with civil war appeared: an exodus of human and physical capital, falling aggregate output, and a shift in the composition of output. The subsequent periodic warfare was substantially resolved in 1986 when the **NRA**

forces took Kampala. although low-intensity fighting continued until 1990. Hence, unlike an international war, a civil war tends to have somewhat imprecise dates. On economic criteria it seems reasonable to date the commencement from 1972 and the ending around 1986.

A measure of the relative performance of a sector is how the quantity of its value-added changed relative to GDP (see Table 1.1). The manufacturing sector, which I have suggested is both transactions intensive and asset-vulnerable, halved relative to GDP (which itself halved relative to a reasonable counterfactual). Manufacturing recovered post-1986, although even by 1993/94 it was still far below its 1971 share of GDP. The sector which contracted most severely during the war was the asset-providing sector, construction. This was the most successful sector post-1986. More limited evidence on livestock suggests that it followed a qualitatively similar pattern to construction. From 1982-86 there was a rapid absolute decline in the sector, which was reversed post-1986. However, since the livestock is concentrated in the North, which was the last part of the country to be pacified, the recovery would be expected to be limited. The other sector which suffered severely during the war period was the transactions-providing sector, commerce and transport. Again this grew more rapidly than GDP post-war, but remained much smaller relative to GDP than its pre-war level. The sector which did relatively well out of the war was subsistence agriculture. Subsistence grew relative to GDP during the war and contracted relatively thereafter. However, it is noteworthy that even subsistence output grew only slowly between 1971 and 1986: its performance is only good in relative terms. In effect, the substitution of resources into subsistence as they became less productive in other sectors, was offset by the negative effects of the war through the disruption of inputs and assets such as stored grain. Post-war, subsistence activities have grown least (25%), though only around half of the retreat in subsistence has been reversed.

Table 1.1. The Composition of Ugandan GDP by War-Vulnerability  
(% share of GDP at 1991 constant prices)

	1971	1986	1993/194
Transaction and asset intensity:			
high: manufacturing	8.8	4.4	6.0
medium: marketed agriculture	22.6	24.5	22.7
low: subsistence	20.5	36.0	32.1
Transaction-providing: transport and commerce	21.2	16.1	17.2
Asset-providing: construction	12.5	3.5	5.5
Unassigned activities	14.4	15.5	16.5

Note: The National Accounts provide data at 1966 prices for 1963-85 and at 1991 prices from 1982-93/194. 1982 was selected as the year to be used for conversion from 1966 to 1991 prices. Since output changes 1971-92 are only measured at 1966 relative prices, the conversion of 1971 output to 1991 prices is only approximate. Sector *i* in 1971 at 1991 prices is approximated as:  $[(\text{sector } i \text{ in 1971 at 1966 prices})/(\text{sector } i \text{ in 1982 at 1966 prices})] \cdot [\text{sector } i \text{ in 1982 at 1991 prices}]$ . This has the advantage that since 1982-91 GDP was calculated on a consistent set of definitions of sectors, changes in definitions between the 1966 series and the 1991 series only lead to a **mis-estimate** to the extent that they alter the growth rate of the sector between 1971-82. Total GDP in 1971 at 1991 prices was then calculated as the sum of the **sectoral** outputs so **revalued**. Note that this will differ from a direct adjustment of total GDP in 1971 by the factor  $[(\text{total GDP in 1982 at 1991 prices})/(\text{total GDP in 1982 at 1966 prices})]$ . Sector shares in 1971 at 1991 prices are then sector **output/GDP**.

The post-war recovery thus involves a return to the market and a restoration of confidence in assets. The latter is taken up in the next section, here the policy implications of the former are considered.

The return to the market is important both because market-based activities are normally more productive and because they provide opportunities for risk-reduction. The latter gives rise to an externality arising from the substitution of activities from subsistence back into the market: as markets become denser they become more reliable, so **that** society has an interest in subsidizing the return to the market.

One way in which this can be done is by the government setting both explicit and implicit taxation of transactions low in the early post-war years. Explicit taxation rates are commonly high in war economies as the government searches for revenue and uses coercion to offset the dis-

incentive problems which this would normally induce. Implicit taxation of transactions occurs through the inflation tax since domestic currency is held for market-derived income but not for subsistence income. The government should therefore set the inflation rate below the revenue-maximizing rate. The revenue-maximizing inflation rate for Uganda is not known, but that for Kenya is in the range 10-15% (Adam (1992)) so that the appropriate policy response might be to aim for inflation somewhat below this.

A second policy implication is that the return on the rehabilitation of transport infrastructure is likely to be high. Collier and Pradhan (Chapter 9) review all the road transport projects undertaken in Uganda since 1986 and find **an** average rate of return of **39%**, clearly a very high rate of return by the standards of public expenditure. This is supported by a rural household survey conducted in 1990 which asked which government actions had

been most appreciated since 1986 (Bigsten and Kayizzi-Mugerwa). Road improvements were the most popular choice.

## 5. Civil War and Inter-Temporal Substitution

During civil war private profits can be high. As markets become disrupted they become less competitive and so marketing margins widen. Taken to the limit, disruption eliminates trade and so eliminates profits, but at less severe levels profits might be sustained or even enhanced as reduced volumes of trade are offset by wider margins. Collier and Gunning (Chapter 2) cite evidence from Mozambique and Somalia, and Keen (1994) analyses the Sudan. In each case wartime conditions being associated with high profits. There are also opportunities to acquire assets by means that would normally be illegitimate but which become feasible once the state has abandoned its role of impartial defender of property rights. Those who make substantial trading profits or acquire assets in questionable ways have an incentive to have a high savings rate. The circumstances which have generated these opportunities are unlikely to persist, and luxury consumption is generally difficult and even dangerous in civil war conditions. Hence, those who do well out of civil war face portfolio choices. Civil war is not an environment conducive to investment (see Sen (1991)): there is too much uncertainty and, as discussed below, physical assets are vulnerable. The corollary is that savings are held in liquid form since during periods of high uncertainty liquid assets **carry** a premium in the form of an option value. **Normally**, during civil war domestic financial assets are subject to a high and variable inflation tax so that the only liquid financial assets available are foreign. The capital flight common during civil wars might therefore in part be a reflection of increased demand for liquidity. An indication of this is that in Ethiopia, where unusually civil war did not jeopardize price stability, there was a substantial increase in domestic liquidity. During the intensive phase of the war, 1986-91, the ratio of currency to GDP increased by 93%. Hence, by the onset of peace, a significant group of private agents are highly liquid, usually holding foreign assets.

The economics of the transition to peace can therefore be thought of in part as the process of shifting private portfolios from foreign liquid assets to domestic liquid assets. An equivalent gradual repatriation takes place with respect to human capital, since civil wars generate an exodus of the skilled. If these repatriations can be induced they deliver a genuine 'peace dividend' of potentially substantial proportions. For example, private transfers to Uganda are estimated to have grown at 35% per **annum** (in current dollars) in the past four years (1990-1993/94). By 1992-1993 they exceeded exports. Net emigration of Ugandan citizens fell from massive proportions during the civil war era to a few thousand a year in the late 1980s and a few hundred a year in the early 1990s, with net immigration of non-resident citizens. Here I focus upon financial repatriation, although some of the argument may extend to return migration of the skilled.

The uncertainties which gave rise to liquidity are not automatically removed by the end of civil war. A central proposition of the paper is that both micro and macro-insecurity continue at high levels in the post-war environment, so that the realization of a peace dividend is contingent upon the recovery of private sector confidence. The policy problem is therefore to allow for the initial **lack** of confidence and to assist in its restoration. Collier and Gunning (Chapters 2 and 3) explore the implications of a highly liquid private sector which is too fearful to make irreversible investments. They advance four policy prescriptions, two of which have as the objective the recovery of private investment and two of which are concerned with government macroeconomic management.

They argue that the recovery of private investment can be encouraged by a combination of reassurance and subsidy. A post-civil war government lacks reputation and so its promises lack value. Yet typically, during wartime the economy will have become heavily regulated and so one of the post-war tasks is policy liberalization. The most reassuring action that such a government can do with respect to economic reform is to implement it. Since not all reforms can be implemented at once due to bottlenecks in the legislative and policy formulation processes, prospective reforms should be sequenced according to their impact upon investment. The most urgent reforms concern

those which impact directly upon the capital values of prospective investment. For example, civil wars leave a **legacy** of contested property rights, and it is important that these should be resolved rapidly.

Even with efficient sequencing of reforms, there is a high irreducible element of investor risk. Since private investment is likely to have substantial externalities whereas much of the risk which private investors consider should not be taken into account by society, there is a case for the government to subsidize the act of commitment. One policy instrument which can be used for subsidizing investment is the exchange rate. Typically in Africa the exchange rate has been overvalued, and this **has** subsidized the purchase of imported capital goods purchased with domestic currency. By contrast, in post-war conditions liquid assets are in foreign currency, while the least reversible, and hence most risky, investments are not imported capital goods (such as transport equipment) but non-tradable capital goods such as buildings. Such capital goods are location-specific and depreciate slowly, and so are more sensitive to uncertainty. An under-valued exchange rate subsidizes the transfer of foreign currency assets into non-tradable assets. Combining the two points, for the same reason that the exchange rate can subsidize the repatriation for investment decision, it directly affects the asset value of investment, and so it is an urgent reform.

Undervaluation is not the only policy instrument which can encourage repatriation into irreversible investment, but it has the advantage of being unsustainable. A manifestly temporary subsidy is more effective in bringing forward the act of commitment. Tax benefits may be harder to make credibly temporary and are administratively more cumbersome, but have the advantage that they can be confined to productive investment whereas undervaluation also subsidizes the purchase of residential property.

The high level of private liquidity also has implications for macroeconomic management: the demand for domestic currency might alter substantially, and the government has some scope for selling assets. In Ethiopia part of the excess liquidity is in domestic currency, whereas in Uganda it has been in foreign currency. Thus, in Ethiopia a recovery of confidence would induce a switch out of money into real assets. and so be inflationary,

whereas in Uganda a recovery of confidence would include a switch into domestic currency and so be counter-inflationary. Since changes in confidence are unpredictable, the high liquidity makes the demand for domestic currency unusually volatile so that monetary targeting would produce price volatility. In current formal models of the costs of inflation, inflation shocks have no cost and so the inflation tax becomes the ideal buffer policy. However, the transfers to which **such** shocks give rise can be disruptive, provoking bankruptcy, and will accentuate the already severe problem of low confidence. If these costs are sufficiently severe then the stability of the price level becomes a legitimate objective. Since monetary targeting will not achieve this objective, the **CPI** must itself be directly targeted, with some combination of the fiscal deficit and the reserves as control variables.

The liquidity of the private sector and its lack of confidence in the government also has implications for the government's scope for domestic funding of its deficit. Government liabilities, such as bonds and treasury bills, have the wrong risk properties, whereas the large stock of fairly safe real assets such as residential property held by the governments in Ethiopia, Uganda and Angola might be purchased by private agents without being so heavily discounted. In Uganda the government borrowed through three month Treasury Bills at a real interest rate in excess of 20%. In 1992 it attempted to sell longer, nine month maturities but could find no purchasers. In 1993 it was able to find takers, but only at real interest rates of around 40% which it was not prepared to pay. Clearly, the act of borrowing at such high interest rates would itself have signalled that the government had little confidence in its continued existence. In 1994, shortly **after** the elections for the Constituent Assembly, which were successful for the government in both their conduct and their result, real interest rates fell swiftly to single figures and longer term borrowing became a possibility. That the government faces a steep yield curve may be a common feature of the post-civil war legacy, and the gradual flattening of the curve is a way of conceptualizing the return to peacetime levels of confidence.

Finally, in a post-civil war environment the private sector is not only suspicious of the state, it is afraid of it. The power of the state has been used

in a partisan manner. This provides an argument for restoring the tax base only gradually. Due to the decay of the institutions and conventions of civil society the state has lost most of the mechanisms needed for compliance with tax-gathering systems. The private sector has learned how to evade the state, by corruption and a failure to keep records, and these practices can only be changed slowly. For example, in the absence of audited business records, the tax authorities essentially bargain with enterprises over lump sums rather than tax in proportion to activity. In this situation a rapid attempt to increase revenue requires the state to intensify just the arbitrary actions which have defined the decay of civil institutions and procedures. In Uganda government expenditure has recovered its pre-war share of GDP long before other components of GDP have recovered. It is arguable that at the margin, the discouragement to the return to the market-sector involved in fairly arbitrary taxation slows recovery by more than the extra government expenditure induces it. In rural Uganda the same survey that found road infrastructure had been most appreciated found a high **future** priority was the reform of the authority of local government, since the institutions did not have clearly defined and well-understood powers. In Ethiopia, one of the first post-war actions was the grass-roots dismantling of the institutions of government rural authority. A period of low government revenue might thus be an investment in the revival of private sector confidence.

## 6. Conclusion

To summarize, during a prolonged civil war the institutions and trust through which civil society assists the economy are eroded. The economy loses some of its 'social capital'. Like other types of capital, this takes time to restore: in the aftermath of a civil war private agents are fearful both of each other and of the government. This, perhaps even more than physical damage to **infrastructure**, is the obstacle to a private-led recovery as irreversible investment is delayed despite being **financible**. The peace dividend comes not from a swift resumption of activities directly disrupted by the war, such as an affect being modest, but rather from a gradual recovery of confidence which induces repatriation of financial and human capital. **Public**-led recovery financed through aggressive increases in taxation risks confirming the fears of the private sector. The policy environment can, however, be made conducive to private recovery. Confidence can be assisted through the early sequencing of investment-sensitive reforms and by the preservation of low inflation using direct CPI targeting. The lack of confidence can be compensated by temporary undervaluation of the exchange rate or temporary tax incentives for investment. Finally, aid can permit accelerated rehabilitation of infrastructure needed for the return to a market economy, most notably the transport network.



## Chapter 2

# War, Peace and Private Portfolios<sup>1</sup>

*Paul Collier and Jan Willem Gunning*

---

### Abstract

*During civil wars trading is profitable as markets fragment. Profits may be saved in liquid form, because investment is too risky. In a successful economic transition to peace these liquid assets are switched into investment. However, continuing fears of insecurity may keep portfolios liquid. We consider three policy consequences. The unpredictable return of confidence causes erratic changes in the demand for money, complicating monetary targeting. Government liabilities become unmarketable except at prohibitive interest rates, though the state may be able to sell real assets. The government can subsidize the act of investment commitment by temporarily undervaluing the exchange rate.*

---

### 1. Introduction

In parts of Africa prolonged civil wars have now ended (e.g. in Ethiopia and in Uganda) and there are prospects for peace in several of the current African conflicts. The analysis of the economic consequences of peace tends to focus on three issues: demobilization, the rebuilding of war-damaged infrastructure and the reallocation of resources previously allocated to war, the "peace dividend". In this paper we focus on a different issue which has received relatively little attention. This is how the end of war affects the portfolio choices of private agents and the implications of those choices for government policy.

Peace finds private agents with portfolios which reflect war circumstances and are therefore no longer appropriate. In particular, the legacy of war is likely to be reflected in private agents holding an unusually large part of their portfolio as liquid assets (either domestic or foreign). In addition the war-peace transition is typically characterized by considerable uncertainty, both as to the extent and the timing of the lifting of war-time economic controls and as to whether there

will be a resumption of warfare. The conjunction of uncertainty and liquidity can arise in other circumstances, but it is particularly poignant in the aftermath of civil war and has important policy implications. Since private agents are atypically liquid at the start of the transition, governments can benefit from private portfolio adjustment. At the same time the scope for government policy is limited as uncertainty makes private agents unwilling to commit themselves to irreversible investments and unwilling to hold government liabilities except at high real interest rates.

In this paper we argue that in these circumstances three policies are appropriate: a monetary policy targeted on the price level rather than on any monetary aggregate; the sale of government assets such as housing and land as a substitute for government borrowing; and a subsidy on fixed investment through a policy of undervaluing the exchange rate.

The structure of the paper is as follows. In the next section we consider the consequences of a war-peace transition for private portfolio choices.

We then consider three aspects of economic policy: in section 3 the implications for short run monetary management, in section 4 the medium run policy towards the government's own portfolio, and in section 5 the policy towards the promotion of private fixed investment.

## 2. Private Portfolio Responses to War

African civil wars, especially in the context of an attempt by the government to maintain an economic control regime, create remarkable opportunities for profit. The environment of war and illegality causes the disintegration of competitive markets and so creates haphazard but substantial rents for a whole new class of agent, the illegal trader. The circumstances which in Britain had by 1920 produced the 'men who had done well out of the war,' and which in America during the 1930s produced bootleg millionaires like the Kennedys, are combined. By their nature, these opportunities for high income are not easy to observe. Nor is profit monotonically increasing in market disruption: profits are zero both when the market is 'perfect' and when transactions costs are so high that trade is eliminated. It is the intermediate range in which markets are sufficiently fragmented by civil war to widen trading margins, but in which trade volumes are not massively curtailed, which is conducive to high profits. We give three examples from African civil war environments. Azam (1993) shows that in Ethiopia the onset of peace reduced geographic price dispersion in the grain market, which would imply reduced profit margins for trading. Little (1992) shows that in Mozambique between 1988 and 1991 peri-urban market trading became less profitable as it became less subject to predation: 'Most traders appreciate the ability to transact trade without fear of government reprisal or sanctions'. However, 'trade was more profitable in 1988...when there was not so much competition' (p. 7). Finally, a study of the Somali cattle trade (Little and Coloane (1993)) concluded that 'the Somali materials show that, even under the so-called 'crisis' conditions, certain traders and producers do quite well' (p. 118). 'Because of internal warfare and limited agricultural resources, few countries better typify the African 'crisis' than does Somalia. The analysis presented here shows

that rather than collapsing, as implied in the use of the term 'crisis', the economy of Southern Somalia has gone underground. and many herders and traders have benefited from the growth in unofficial exports' (p. 119).

The agents who benefit from high income opportunities during wartime are likely to have unusually high savings rates. First, they are unlikely to be established wealthy persons: the traditional occupations of economic elites are, likely to be adversely affected during African civil wars. In Ethiopia, Uganda and Angola ethnic minorities were disproportionately represented in the established economic elite and in each case there was a voluntary exodus'. Hence the agents who benefit from war circumstances will wish, like any other *nouveau* riches, to accumulate wealth. Secondly, they have an additional incentive in that the circumstances which provide their own opportunity to acquire rents are unlikely to persist. Hence, during wartime illegal traders have a powerful incentive to build up assets.

If traders have high savings rates they must make portfolio choices. Investment in fixed real assets is likely to be unattractive. First, as long as the duration of war is uncertain there is a premium on liquidity: activities which are profitable during war may cease to be profitable during peace. When investment is irreversible this creates option value (Dixit (1989)): rather than investing now the entrepreneur remains liquid until uncertainty is resolved. Secondly, real assets are vulnerable in wartime. They may be damaged but in addition war makes property rights insecure: thefts are more common and the legal system and other supporting conventions of ownership may break down. For example, in a household survey of post-war Uganda which included long recall questions on assets, Bigsten and Kayizzi-Mugwerwa (1992) found that peace brought a particularly marked increase in land transactions. They argue that this reflected the pent-up need for asset transactions which were infeasible during the period of social breakdown.

Hence, because war leads to a premium on liquidity and to asset vulnerability, illegal traders wanting to accumulate assets are likely to prefer financial assets. They must choose between domestic and foreign financial assets and between currency and interest-bearing instruments. The

safest and highest return financial asset is probably a foreign interest-bearing claim such as a bond or bank deposit. However, holding such an asset involves the inconvenience of access, both for deposits and withdrawals since all transactions must be conducted externally. By contrast, transactions can be conducted locally for the other three financial assets: foreign currency, domestic currency and domestic interest-bearing assets (such as bank deposits or bonds). Even foreign currency can be bought or sold in exchange for domestic currency on local illegal foreign exchange markets. This difference in transactions costs reduces the liquidity of foreign interest-bearing assets relative to the other financial assets. Foreign currency may offer a higher return than domestic financial assets and yet still not dominate the latter in portfolios. This is analyzed by Dowd and Greenaway (1993) who show that despite poor returns the transactions demand for domestic currency may persist because of the high costs of coordinated switching. Hence, portfolios are likely to include domestic currency as well as foreign assets unless the penalty from holding domestic financial assets is very high. In the context of African civil wars, domestic bank deposits were largely a claim on the government and so liable to default, while being highly visible to the authorities. The offsetting advantage, that they paid interest, was modest since interest rates were set low. Hence, they offered little advantage and particular costs compared to domestic currency. The use of the inflation tax in **wartorn** Africa has been highly variable. Uganda and Angola had bouts of hyper-inflation. By contrast, Ethiopia and Chad have had fairly stable price levels. In Ethiopia, over the entire period 1960-91, the depreciation of the parallel exchange rate against the dollar (which is the pertinent rate for the choice between the two currencies) was only 4% per annum. Since the acquisition of domestic financial assets is in aggregate observable<sup>3</sup>, unlike that of foreign assets, this affords a testable proposition: if the conjunction of civil war and a government economic control regime leads to the accumulation of significant financial assets, then in Ethiopia it should be visible as a continuous build-up of domestic currency relative to expenditure. Throughout the Ethiopian civil war this has been the case. Most spectacularly, during the intensive

phase of the war, 1986/87-1991/92, the ratio of currency outside banks to Gross Domestic Expenditure increased by 93% (Collier and Gunning (1992)).

By contrast, in Uganda during the highly disturbed times from the mid-1970s until 1986, there was a decline in domestic currency relative to expenditure. Given the history of high and variable inflation and outright currency default this is not surprising. Our hypothesis is that Ugandan trading profits were disproportionately held in foreign currencies. While this is intrinsically unobservable, during 1992 there was an unofficial private capital inflow of around \$ 200m, some of which is likely to have reflected previous capital outflows.

To summarize, at the onset of peace, a group of private agents, those engaged in illegal trading in wartime, is likely to be holding substantial liquidity in a range of foreign and domestic financial assets. We now turn to how portfolio choices change in the early stages of the return to peace. Civil war economies will have been starved of private investment even if there are high return opportunities as agents preserve their options by holding liquidity. Although it is not possible to get direct evidence on the rate of return on private investment in the aftermath of civil war, indirect evidence is provided by a study of public investment in Uganda (Collier and Pradhan, Chapter 9). During the early post-war years, the evaluation reports on the major category of public infrastructure, roads, showed an average real rate of return of 39%. Clearly, this is an exceptionally high rate of return for public investment and is at least suggestive that the return to private investment was also high. Thus, a distinctive feature of Africa's post-civil war economies may be that important groups of entrepreneurial private agents face high return opportunities without being constrained by lack of finance. We now consider whether they will use these opportunities.

The ending of a civil war does not necessarily reestablish economic security. We distinguish three types of insecurity which, though not unique to post-civil-war economies are present in a heightened form. First, micro-level insecurity will be a concern because civil warfare leaves a legacy of an armed population desensitized to violence. Somalia, Sudan, Uganda, Ethiopia, Rwanda, Burundi, Angola and Liberia all now have heavily

armed civilian populations. A high level of micro-insecurity discourages the acquisition of visible assets. For example, interview evidence suggests that in Ethiopia lack of personal security was the main obstacle to investment in commercial agriculture during the immediate post-war period 1992-1993.<sup>4</sup>

The second risk heightened in the aftermath of civil war is macro-insecurity. Whether the conflict has been resolved by military victory (Uganda, Ethiopia) or a **brokered** peace agreement (Angola, Mozambique, Rwanda and Burundi) there are considerable risks that the government will not survive. This risk may be exacerbated by demobilization since demobilized soldiers constitute a potential recruiting ground for subsequent rebellions. There is now clear econometric evidence that political instability directly discourages private investment (Alesina and Perotti (1993), Alesina et al. (1992)) and such a link is scarcely surprising. Interview evidence from commercial banks and private potential investors in Ethiopia during 1992 suggested that the primary explanation for the lack of investment was concern about the forthcoming **Eritrean** referendum, since this might conceivably lead to circumstances in which warfare would be resumed. In Uganda, where the government has made sustained efforts to reassure the Asian community, interviews conducted in 1993 revealed irreducible fears that the complexion of the government might change after elections.

A third type of risk arises because the transition to peace creates large fiscal shocks. Peace reduces some military expenditure (the public sector "peace dividend"), but increases other expenditures. It may permit the government to increase some components of revenue collection such as import duty (Uganda), but wartime methods of expropriation and coercion become unacceptable, reducing other components (agricultural taxation in Ethiopia). Each of these effects is large and unpredictable, the net effect being that the fiscal deficit is subject to extreme fluctuation (**Bevan** (1993, 1993a)). Since the government has little or no recourse to domestic debt instruments (as private agents fear that the government may default), these shocks must be monetized, resulting in large variations in inflation. In Uganda, the annualized inflation rate has

fluctuated in the range **+230%** to **-1%**, and in Ethiopia after years of low and stable inflation the rate jumped to 40% and then fell to zero. Such variable inflation discourages investment.

In a war-peace transition all three **forms** of uncertainty are likely to be temporarily high so that there is an incentive to avoid irreversible investment: the premium on liquidity which existed during war is maintained during peace. Hence, despite the onset of peace, potential investors may continue to hold their assets in liquid forms. Further, to the extent that consumption has been repressed during the war, there may be a switch out of liquidity into consumption rather than investment. In Ethiopia, where some liquid assets are visible because there is greater confidence in domestic financial assets, it is possible to observe the behavior of liquidity in the post-war environment. The banking system remained highly liquid, with banks reporting a shortage of investment projects and implying that any consumption spree was modest (Collier and Gunning (1992)).

An alternative to remaining liquid is to make investments which are relatively safe. The riskiness of a capital good is related to its degree of sector-specificity, duration, and country-specificity. Country-specific capital goods are clearly most prone to macro-insecurity since they cannot be removed from the area of jurisdiction. The least desirable type of investment is therefore one which cannot be removed from the country, cannot be redeployed between sectors, and depreciates only slowly. For example, an investment in worker housing for a tea plantation would have all these characteristics, whereas investment in a vehicle would have none of them. We would therefore predict that, to the extent that asset holders venture out of liquidity, they will favor investments such as vehicles over those such as tea estates, even if (abstracting from risk) the return on the latter is considerably higher. More generally, investment in agriculture tends to be less easily reversible than in other sectors.

This is indeed reflected in the pattern of post-war investment in Uganda and Ethiopia. In Uganda only 3% of private investment is being directed to **agriculture**.<sup>5</sup> Analysis of private investment in Ethiopia reveals a similarly extreme skew away from the agricultural sector<sup>6</sup>. Yet in both

economies, not only is agriculture by far the largest sector, but it is the dominant export activity and the sector favored by policy changes. The investment that does take place is largely in transport equipment and machinery for light manufacturing, both of which are highly mobile. Currently even Mozambique is able to attract textile investment into export processing zones, in spite of the high degree of country-specific uncertainty.' This reflects the relative ease with which such investment can be reversed: investors are able to take advantage of special tax incentives without having to take a view of the long term.

In summary, private portfolios at the onset of peace are highly liquid, agents have an incentive to maintain this liquidity, and to the extent that they do switch from liquid assets to fixed investment they have an incentive to avoid the type of investment which is most needed. We now turn to three public policy problems generated by this private behavior.

### 3. Implications For Short Term Monetary Policy

As discussed above, during the war-peace transition the fiscal deficit will be volatile. Further, the inflationary consequences of a given deficit become unpredictable because the demand for money is also liable to be subject to unpredictable shifts. First, to the extent that investor confidence returns, there will be a portfolio switch out of liquid assets into real assets. This will have different implications for the demand for domestic money depending upon which liquid assets are being reduced. In Uganda and Angola, since holdings of domestic money were so depleted, a switch into real assets must be financed from foreign assets. Such an increase in real expenditures would actually increase the demand for domestic money since some of the new transactions will require it. By contrast, in Ethiopia an increase in investor confidence is inflationary since the asset demand for domestic money would decline and this would be offset only partly by the increase in transactions demand associated with the rise in investment expenditure. Secondly, the demand for money is likely to be affected by switches back into (or out of) the monetized part of the economy. In Uganda, the war-torn economy

retreated into subsistence so that peace induces remonetization. In Ethiopia, more systematic coercion of the peasantry gave rise to involuntary peasant integration into the market, so that peace may even increase the size of the subsistence sector. Thirdly, the volatility of inflation will lead to switches into and out of domestic currency. In Angola, the stabilization of the price level induced a portfolio switch out of durable goods into money (Azam *et al.* (1994)). In Uganda, during the year of a falling price level (1992/1993) the demand for real money balances rose by 20%.

One implication of this volatility in money demand and supply is that monetary targeting is impractical. If donor conditions include monetary targets (as they do in Uganda) they are liable to be breached unless the government matches its expenditure to its revenue on a high-frequency basis. More importantly, monetary targeting is under these circumstances an inappropriate instrument for avoiding monetary shocks, since shocks originating on the demand side now need to be neutralized by changes in supply. Money demand shocks may potentially affect either the price level or real output since money demand is not stable. For example, when money demand falls (as would happen when investor confidence returns in Ethiopia) then monetary targeting would be counterproductive: keeping the money supply constant when demand falls would be inflationary. By contrast, in Uganda the recent rise in real money demand permitted a non-inflationary breach of a monetary target. Had money supply not accommodated this demand then either prices would have fallen or output contracted.

One alternative to monetary targeting is fiscal targeting, whether of expenditure or of the budget deficit. However, the government must then accept the resulting high degree of volatility in inflation. A corollary is that private agents will continually be wrong-footed in their inflation expectations and so domestic financial liberalization should be delayed. Otherwise, domestic financial intermediation will generate large transfers between agents orthogonal to economic efficiency. For example, during the extraordinarily rapid Ugandan disinflation of 1992, *ex post* real interest rates rose to around 70%, rewarding depositors and penalizing lenders. Fortunately, there was so little financial intermediation that these transfers were

not noticeably disruptive.

An alternative to fiscal targeting is to target the price level directly. Rather than setting a target for a monetary or a fiscal aggregate the government would set a target for the price level itself. Fiscal instruments would be used but only in response to a deviation of the price level from the target. Such a strategy would imply that shocks originating from the demand for money would be borne by fiscal responses rather than by the price level.<sup>8</sup> To implement such a strategy of direct targeting of the price level requires an accurate and prompt consumer price index. The Ugandan government gave this a high priority, undertaking a household expenditure survey in 1989, some two years after the establishment of peace, and two years before a census. The Ethiopian government is currently reversing these priorities, planning a census for 1994, two-and-a-half years post peace, with no firm plans for an expenditure survey. Its existing price index is too unreliable to be used as a guide to fiscal policy: the government might find itself tightening fiscal policy in response to a statistical artifact.

To summarize, the transition to peace is likely to cause large and difficult to predict changes in money demand so that monetary targeting will fail to keep the price level constant. In these circumstances fiscal rather than monetary policy should be used, with fiscal policy being tightened or relaxed in response to observed deviations of the price level from a target.

#### 4. Medium Term Portfolio Policy

During **wartime** African governments will obviously not find willing buyers for their financial instruments. Since such instruments offer the government the prospect of non-inflationary financing, it is natural that post-war governments should attempt to develop the market as soon as possible. The Ethiopian government indeed plans to start a market in Treasury Bills (TB) at the time of writing, some two years after the end of the war. The Ugandan government has been operating one for two years. However, the Ugandan market in **TBs** is still extremely thin. The only buyers are four banks which between them hold around \$ **30m.**<sup>9</sup> The sale of **TBs** poses two problems. First, these assets are very liquid, having a maturity of

only three months and being rediscountable at the Central Bank." They are therefore not as distinct from money as would be desirable for non-inflationary financing. Second, despite their short maturity, they remain domestic currency **liabilities** of the government and as such can be **viewed** as rather risky. The local Treasury **Department** of a multinational company in Uganda explained that it did not hold **TBs** in spite of an attractive yield: "were there to be a default corporate headquarters would penalize local executives for an event which would be regarded as predictable given prior history." By mid-1993 the real interest rate on Ugandan **TBs** was still around 23% despite the modest level of sales: the total outstanding stock of government domestic currency debt was only one percent of **GDP**. Attempts by the Central Bank to sell debt of longer maturity, nine months instead of three months, found no buyers in 1992, and in 1993 could only find buyers at a real interest rate of 40%. This extreme steepening of the yield curve is a symptom of the doubts about the viability of the state which persist after the restoration of peace. The scope for deficit financing from sales of government debt is therefore very limited: were the government to use it to any extent, the interest burden would seriously inflate future government expenditure. Even with modest sales, real interest rates at 23% should have been regarded as prohibitive for government borrowing.

While post-war governments are in an unusually weak position to borrow domestically, they own assets (public enterprises, commercial and residential property) which private agents may prefer over government debt. In Angola and Ethiopia the government owns all urban residential property and all urban land. In Uganda public ownership is less extensive, but still includes large quantities of housing. The government can sell such assets provided its ownership is uncontested.<sup>10</sup>

Whether the government can raise money more easily by selling such assets than by selling government debt depends on how private agents compare the associated risks. First, all such assets are less vulnerable to predation by the government than are government liabilities. While the government may confiscate them, and so they are not entirely secure, the acts of confiscation and default are not equally easy: omission is easier

than commission. Secondly, equity in privatized public enterprises is more risky than the ownership of real estate, since the future profits stream of an enterprise is more vulnerable to policy change than is the rental stream from residential (and to a lesser extent commercial) property. Real estate is therefore likely to be considered an attractive asset.

This is confirmed by the Ugandan phenomenon of 'dollar houses', luxury residences constructed in the immediate post-war years by private investors for rental to expatriates. Such investment is country-specific, slow depreciating and in the export sector. However, unlike investment in, for example, the rehabilitation of a tea estate which shares these characteristics, it is relatively invulnerable to policy change since not being a production process it is not input-dependent, payment for the services can be made by the expatriate from a foreign bank account into a foreign bank account without being controllable by the government, and its services can always be sold on the domestic market, so that the investment is mobile between the export and non-tradable sectors. Finally, because house rental is not a skill-intensive process, the asset is saleable on a much wider market than is a tea estate. The number of investors in Ugandan tea estates is so limited that, even if profitable, the investor must presume that it is unmarketable, whereas houses are marketable in all but catastrophic circumstances. If investment in "dollar houses" was sufficiently attractive in the immediate post-war years to induce new construction, at least part of the existing stock of public residential property is probably marketable.

In the earliest stages of peace private agents will probably not be willing to purchase either government liabilities or public real assets. However, as peace is sustained, they are likely to accept, because of the differences in risks, a substantially lower implicit rate of return on unconfiscated residential property and land than upon government liabilities. In effect, the risks of subsequent loss of property rights recede more rapidly than the risks of a government implicit or explicit default on liabilities. Further, since the housing market has a naturally broader base than that for government liabilities, there should be considerably more scope to expand this asset market without forcing up implicit interest rates than there is for sales of government liabilities.

Currently, in Africa's post-war economies, the government is often holding a substantial part of its portfolio in real estate, a low risk, low yielding asset, while attempting to fund its deficit through sales of liabilities at high real interest rates. To illustrate, the Ugandan government owns some 4,000 houses with a market value of perhaps \$ 100m.<sup>13</sup> The typical rental return on the Kampala housing stock is around 8%,<sup>14</sup> so that if the government rented this asset out at commercial rates it would receive an income of \$ 8m. By contrast, it has only around \$30m of domestic currency debt on which, as noted above, it pays 23% real interest, or \$7m. The government should substitute in its portfolio away from safe, low yielding assets which the private sector is willing to hold, and from liabilities which the private sector is unwilling to hold, towards development expenditures which the private sector will not undertake. A further advantage of selling government property is that because it is less liquid than TBs it sterilizes money more effectively. A dollar of real asset sales may therefore be more counter-inflationary than a dollar of TB sales.

Ethiopia currently has neither a market in government liabilities nor a market in public assets. The government owns a very substantial part of the urban housing stock and here there is the same scope for a profitable portfolio switch as in Uganda. In addition all land is government owned. Land sales therefore offer enormous scope for an improvement in the public portfolio. Until early 1993 the government effectively rented out land for free and administrative allocation systems rationed the resulting excess demand. An important rationing mechanism involves approval of an investment project by the Investment Office. While such approval does not guarantee access to land, it makes it considerably more likely: when a project is approved the Investment Office writes a letter to the regional government in support of the investor's application for land. Since access to land is highly profitable a substantial part of investment proposals are probably bogus. For example, there are numerous applications for the construction of hotels. Commercial bankers think that the most likely explanation for this is that such applications offer a good prospect of prime commercial sites which can then be retained by the partial, or if necessary complete, construction of a building the

use of which can remain flexible." In March 1993 the Addis Ababa regional government instituted a 'service charge' and thereby *de facto* started to sell urban land. It charged around Birr 20,000 (about \$ 4,000) per acre for prime sites. This was levied as a charge on the transaction which would be repeated if the land were to be resold. This approach to a land market has several weaknesses. First, it is a transactions tax rather than a sale and so discourages resale. Second, the price charged is far below the market-clearing price to the extent that it can be determined. The price at which prime sites informally change hands is reportedly around Birr 800,000 (around \$ 150,000) per acre. There was therefore a strong incentive to acquire land, even given the new service charge, but the charge then encouraged owners to retain the land even if they had no use for it. Third, the public beneficiary of urban land charges was the regional government of Addis, which is easily the richest of the regions. Hence, the policy in effect permitted the richest of the regional governments to dispose of national public assets at a small fraction of their worth.<sup>16</sup>

Hence in post-war circumstances placing government liabilities is an expensive form of government finance as government default is still considered a non-negligible risk so that private agents require high real interest rates. At the same time the government is likely to own asset. such as real estate and land which private agents consider more secure and are therefore willing to hold at lower rates of return than government liabilities.

## 5. Long Term Policy For Stimulating Exports

Civil war disproportionately damages the agricultural export sector of the economy: wartime governments over-tax it given their extraordinary need for revenue, and rural transportation of goods becomes vulnerable. Since the sector is the major source both of foreign exchange and government revenue, there is a social premium upon private investment in it.

Even if currently profitable, investment in the sector is highly risky because it happens to be atypically irreversible (since depreciation rates for such investment are very low) and process-dependent. Agricultural investments are largely

sector-specific and more particularly country-specific. Non-tradable capital goods must be constructed on-site and are *ex post* location-specific. By contrast, tradable capital goods are intrinsically *ex ante* not country-specific, and are often mobile *ex post* and therefore less subject to country-risk, but non-tradable capital inherently contains country-risk. Further, sector-risk is largely country-specific: the predominant reason why the return in a sector might decline in the African context is if government policy turns against the sector. Hence, capital goods which are country-mobile largely avoid sector-risk even if they are sector-specific. If the government of Uganda removes protection from the textile sector, there is some scope for relocating machinery in neighboring countries. Non-tradable capital goods are therefore not only inherently more prone to country-risk than tradable capital, they are also likely to be more prone to sector-risk. The neglect of the agricultural export sector during wartime implies that the non-tradable capital stock in which the sector is normally fairly intensive (trees, feeder roads, storage facilities) is in need of replacement. Yet the high degree of macro-insecurity and policy-risk in post-war economies discourages precisely this type of investment. This is confirmed by the experience of Uganda and Ethiopia noted above: in both countries investment in agriculture is extremely low.

To summarize the Uganda experience, the economy has been starved of private investment, especially in export agriculture. The post-war government introduces a legal environment suited to private investment with an Investment Authority to aid the process. What it gets is dollar houses and light manufacturing. This is not because these investments offer the highest return but because they are substantially less risky than the investments which are most needed.

Many of the factors which make non-tradable investment risky for private agents should be discounted by society because they are generated by the society. Ideally, the risks should be removed, but some of them are irreducible in the aftermath of civil war. A possible strategy is for the government itself to make the investment in non-tradable capital, leasing it to private entrepreneurs on short, but renewable, tenure. This would shift the risk involved in the irreversible



commitment associated with ownership from the private entrepreneur to the government. Even if the government is able to finance such investment, the more specific the non-tradable capital purchased by the government the more severely does the government encounter the problem of 'backing winners', namely that it lacks the knowledge on which to make good choices. Further, much of the problem is the fear of government on the part of private investors. Although leasing avoids an irreversible commitment in non-tradable capital by the private investor, it does so at the cost of increasing the direct relationship between the private agent and the government: the government becomes the landlord. This actually increases the scope for the government to be predatory and so may make the entrepreneur wary of other irreversible non-marketable investments such as reputation, without which activity can only remain limited.

If the government does not take on the investment itself then in effect, it needs some mechanism for subsidizing the act of commitment of private investors, because otherwise irreversible investment will be socially sub-optimal. What is needed is a simple mechanism for implementing such a subsidy.

However, strategies of subsidy can be problematic. The African record of 'backing winners' is so poor and the political pressures to misappropriate targeted subsidies are so acute that the subsidizing of particular investment projects is not likely to be desirable.

At present the Ugandan government is subsidizing investment by precommitting itself to five year tax holidays. This policy has several drawbacks. First, a tax holiday is not a credible act of commitment since the government has several explicit and implicit tax instruments in addition to corporation tax. Most notably, it could revert to an over-valued exchange rate, extracting any desired rate of taxation on investments while leaving the corporate tax rate at zero. Second, a tax holiday obviously provides no insurance against the collapse of profits due to a reversion to civil unrest. Third, it permits the government to impose high corporate tax rates once the tax holiday period is over. Knowing this, investors will favor projects which generate profits only in the short term, or install only *ex post* mobile capital goods so that the

investment can be removed once the tax holiday ends."

In the past most African governments implicitly subsidized investment through over-valued exchange rates. The over-valuation subsidized all imports purchased with domestic resources, but rationing gave priority to capital goods. This was, therefore, not a general subsidy on investment, but a subsidy on imported capital goods purchased with domestic resources. The subsidy needed in Africa's post-war economies is precisely the converse of this: there is a case for using the exchange rate to subsidize investment but now in the form of an under-valuation.

This will have two effects. First, it will induce substitution of non-tradable for tradable capital. Secondly, as noted, private agents hold large amounts of liquid assets and part of this is held abroad. For example, at present Ethiopian businessmen living abroad hold very large amounts of foreign assets which they may want to bring into the country to finance domestic investment. Such foreign capital inflows will be encouraged by a policy of undervaluation. An additional administrative advantage of working through the exchange rate is that a **firm** only receives the subsidy if it actually makes the desired expenditure.

During exchange rate under-valuation the government will be temporarily accumulating reserves. Under-valuation cannot be a long-term policy because it would imply ever-rising reserves. However, this is itself quite a desirable feature since smart private agents should therefore recognize that the subsidy is temporary. This recognition should both limit the tendency to misallocate irreversible factors to activities which are only profitable because of the under-valuation and further induce the purchase of non-tradable capital goods since delay is expected to reduce the subsidy.

Such a policy will certainly not be sufficient to attract investment commitments in the absence of complementary public investments in infrastructure. Nor should investment be the primary objective of exchange rate policy. However, to the extent that undervaluation indeed implicitly subsidizes commitment, which is itself socially desirable, there is a case for including it as a consideration in the setting of economic policies.

## 6. Conclusion

African economies in post-war environments, such as Ethiopia and Uganda, are likely to have some common characteristics. Some private agents, whether illegal traders or expatriated ethnic minority business communities, are financially liquid and so in a position to afford investment. The economy has been extremely short of private investment for many years and so the return is likely to be high. Yet private agents are resistant to non-tradable capital goods investments of the type that the export sector needs for recovery. We have proposed three policies as appropriate in these circumstances which are fairly distinctive to war-

peace transition situations. Since money demand is highly unstable the government should target the price level (changing its fiscal stance in response to deviations of the price level from some target) directly rather than attempting to control inflation through monetary or fiscal targeting. It should secure its medium term financing needs through the sale of property and land rather than through attempts to establish a domestic market in its liabilities since as long as default is considered likely debt financing will be unnecessarily costly. Finally, it should subsidize the act of commitment implied by investment in irreversible capital through temporarily undervaluing the exchange rate.

## Notes

1. The authors would like to thank two anonymous referees for extremely useful comments on an earlier version of this paper.
2. Obviously, in Uganda there was also an involuntary exodus.
3. The exception to this is the Franc Zone member countries such as Chad since there is no national' currency.
4. Interviews conducted by the authors during 1993.
5. Figures from the Uganda Investment Authority, covering all planned and implemented private investment (other than very small scale informal activities) since its inception in 1991 to mid-1993.
6. Source: Ethiopian Investment Authority, 1993.
7. Authors' interview with Zimbabwean textile entrepreneurs. June 1993.
8. An advantage of this policy is that it is conducive to the revenue-maximizing amount of seigniorage. Recent analyses of the demand for money in Africa (Adam (1992), Adam, Ndulu and Sowa (1993)) suggest that fairly low and stable inflation rates is revenue-maximizing.
9. TBs have been supplemented by Promissory Notes, issued to suppliers with whom the government has fallen into serious arrears in its payments. They carry a maturity of one year and pay interest at 15% and are not rediscountable at the central bank. They are therefore forced sales of government paper. However, since they can serve as collateral for credit they are in effect rediscountable at the commercial banks. The banks must then hold them to maturity but they are clearly close substitutes in the banks' portfolios for TBs.
10. In Zambia in a post-Kaunda transition not dissimilar from those considered here, the maturity of TBs has been shortened to only 28 days.
11. Authors' interview.
12. Government ownership is likely to be contested when it results from confiscation. In Uganda and Ethiopia part of public property is owned by the present government following confiscation from private owners by a previous government. Since the post-war government has come to power by overthrowing its predecessor, it is under no obligation to regard these actions as legitimate and so restitution is at least potentially on the political agenda. The Ugandan government committed itself to restitution, but with a time limit on claims. If the government is at some stage to raise revenue from asset disposals such a limitation is necessary because until that date the government cannot establish its ownership of properties for disposal. The Ethiopian government has resisted general restitution of property.
13. There is no current valuation of the publicly owned housing stock. However, there are believed to be 4,000 properties. Most of these are in very poor condition but some of them are on very valuable sites. The market price for newly constructed housing of similar size to the average of the public housing stock is \$ 50,000. The estimate in the text halves this to allow for poor condition and the depression in the market from the greatly increased volume of sales implied by disposal of the public housing stock. However, it is probably a conservative figure because some government properties are extremely valuable because of their locations.

14. Data on house prices and rentals were supplied by Mr. Kasekende, General Manager, National Housing and Construction Corporation.

15. There is also a hotel boom in Uganda, where again there is evidence in the **form** of uncompleted buildings which serve as security for loans, that investors favor hotels because of the high content of sector-unspecific fixed capital combined with an explicit activity which is attractive both to government and bankers.

16. The central government consequently declared the **Addis** user fee system to be illegal and established a study group to consider land policy. In August 1993 the study group participated in a televised debate with the business community, as the government edged towards making its major asset marketable.

17. The government of Botswana encouraged manufacturing investment through tax holidays, but has found that at the end of the holiday period the investment is footloose.

## Chapter 3

### Policy Uncertainty, Repatriation and Investment

*Paul Collier and Jan Willem Gunning'*

#### 1. Introduction

In 'War, Peace and Private Portfolios' we argued that in a post-civil-war economy private agents would hold considerable foreign financial assets. A second feature of war economies is that they are usually heavily regulated. We consider a post-war economy such as Ethiopia in which the government inherits a 'control regime' during which there has been considerable capital flight. As in our previous paper, the policy objective is to induce repatriation for purposes of private investment. However, while in that paper our focus was on compensating for irreducible risk, here we consider the sensitivity of repatriation to the control regime and its reform. The policy problem arises because policy reform is a slow process due to legislative and political obstacles so that it must be spread over several years. While it is common for governments in this position to pre-announce their agenda in broad terms as a statement of intent, a post-war government is at best an unknown quantity (more likely during the insurgency phase it will have created a frightening impression), and so some of the promised reforms will inevitably be less than fully credible. Doubts will arise both as to whether the government will stick to its timing, and more fundamentally whether some proposed reforms will happen at all or, even if implemented, be reversed. In the worst scenario the government may be so little trusted that potential repatriators will not repatriate until many years after all reforms have been made.

To date, the main focus of the literature which addresses this problem has been on how the government might increase the credibility of its promises to undertake or maintain reforms. The government may enhance its credibility by adopting signalling rules which distinguish it from

a government which intends to break its promises.' Alternatively, credibility may be achieved through institutional arrangements which make policy reversal extremely **costly**.<sup>3</sup> Here we take a different and indeed perhaps more obvious approach. The typical prospective reform package includes a wide range of policy intentions. These policy intentions vary both with respect to the credibility with which they are viewed and the impact they will have if implemented. We abstract **from** fears of policy reversal: the government can resolve the uncertainty surrounding a prospective reform by implementing it but because of administrative and political constraints, implementing one policy now has the opportunity cost that another must be deferred. The pace of reform is given, but the **government** has scope for choice in determining its sequence. We therefore investigate whether, given different credibility ratings of different policies, there are more and less efficient sequences of reform. We distinguish between two types of doubt: those which concern the timing of a promised reform and those which concern whether a promised reform will in fact completely drop of the agenda. We refer to these as *timing* doubts and *fundamental* doubts. Some **components** of the reform package are subject to each of these types of doubt and the government can **only** resolve them by implementation. We further distinguish policies by their impact if implemented. Some policies directly affect the price or worth of an asset, whereas others do so only indirectly through altering the return upon it.

Policy incredibility may have consequences for various aspects of private behavior. A particular focus of the literature has been the effect on private investment. It may reduce investment

because capital once installed is immobile. A broken policy promise may change the relative profitability of sectors (Rodrik, 1989), or reduce the return on domestic investment below other assets (van Wijnbergen, 1985; Rodrik, 1991). Additionally, policy uncertainty might reduce investment due to its effect upon savings (van Wijnbergen, 1992). Here our focus is specifically upon private investment financed by repatriation. There are two reasons for this narrower focus. First, arguably it is these funds which are most policy-sensitive. In the economies most in need of private investment due to a long history of its discouragement, such as Ethiopia and Uganda, private foreign assets are probably large relative to domestic assets. Second, since the government can attach a low weight to the non-domestic expenditure of unrepatriated funds, investment financed by repatriation has a lower social opportunity cost than domestic savings.

Recent policy debates in Ethiopia can serve to illustrate the distinctions we will be making. Our taxonomy of policy doubts and policy impact generates four possible cases: doubts can be timing or fundamental and the impact can affect either the return on capital or directly affect asset values. Four policy reforms which were under consideration by the Ethiopian government during 1992 fall into each of these categories, as depicted in Table 3.1. First consider property rights. As in other post-war and post-communist situations there was considerable uncertainty as to the ownership of property. Assets currently operated by the state could at some stage be subject to rival property claims from previous owners who had been expropriated. Hence, the purchase of non-tradable capital goods (like buildings) carried the risk that title might subsequently be contested. The acquisition of land for industrial or commercial use carried the same risk but in a more extreme form since all that was available was the acquisition of a right of usage rather than of ownership. The government was aware of the problem posed by the lack of clarity over property rights but faced a choice. It could, as in Uganda, recognize and invite claims from previous owners. Alternatively, it could declare such claims invalid *ab initio*, vesting ownership in itself. The former course implied a much longer period of uncertainty on the validity of title for a repatriator than the latter. Hence, a

reasonable expectation would be that land rights would definitely be settled but over an uncertain period depending upon policy choice. This was therefore a timing doubt and the policy impact was directly on the worth of the asset. The acquisition of good title to urban land would not of itself confer the right to sell it at the market-clearing price. Given the ideological background of the new government, it was uncertain whether it could permit the emergence of a competitive land market, as its program hinted, or whether it would continue to control prices. As with property rights the impact of policy was directly on the worth of an asset, but doubt was now fundamental. Inherited labor laws reduced the return on investment by conceding to workers many of the powers which would normally be reserved for management. This included restrictions upon dismissal which had led to substantial overmanning. These laws were naturally a sensitive issue for the new government because existing employees wished to preserve there entrenched rights. There was therefore again fundamental doubt as to whether policy reform in this area would be other than cosmetic, but the impact was on the return on capital. Finally, the rate of return was also reduced by corporate taxes which were virtually confiscatory in the Mengistu period. It was apparent that the new government would reduce corporate taxes as part of its promulgation of an investment code. However, it was unclear what priority the government would assign to the new code given that it had so many other commitments on its legislative capacity. Hence, doubt concerned timing and the impact was on the return on capital.

The first question we address is whether, *a priori*, there are grounds for the government to prioritize the urgency of making these reforms, given that the policy and legislative process is slow so that not all changes can be undertaken simultaneously. We consider only otherwise commensurate policies. By commensurate we mean policy stances which, if sustained with certainty, have the same effect upon permanent income. That is, we are not investigating whether uncertainty about labor laws is necessarily more or less costly than that about property rights, but rather the relative urgency of reform were the effect of permanent unreformed labor laws to depress the return on capital by the same extent as

a permanent failure to clarify property rights. Section 2 sets out the analysis of **prioritising** this topology of policies.

Our second question concerns exchange rate policy. In many developing countries the **overvaluation** of exchange rates was probably the single most serious policy failure of the early 1980s and it has consequently been the central focus of reform. On the argument of our previous paper, exchange rate reform is yet more important in transition to peace economies: the rate needs not only to be corrected from over-valuation, but switched to under-valuation in order to create an implicit subsidy on repatriation into **irreversible** domestic investment. Whereas it is straightforward to classify the four Ethiopian policies discussed above into those which affect the return on capital and those which directly affect its price, the classification of the exchange rate is more complex. In Section 3 we show that the exchange rate may have **very** different effects depending upon other aspects of the control regime, so that the urgency of reform differs accordingly.

## 2. Ranking the Consequences of Policy Uncertainty

Consider an investor who has to decide whether to repatriate assets held abroad. The domestic rate of return is  $r_u$  if policies are unchanged and  $r_r$  after reform. The return on foreign assets is  $r^*$ . All rates of return are finite and we assume  $r_r > r^* > r_u$ . The returns are measured in foreign **currency** and in the case of domestic investment profits are measured after being remitted **abroad**.<sup>4</sup>

The investor is risk-neutral; he maximizes the expected value of the return on his assets over an infinite horizon, discounting at a fixed rate  $r_d$ . Foreign assets are liquid, but domestic investment is irreversible. If reform is implemented it is sustained indefinitely. We consider, on the basis of the distinctions between fundamental and timing doubts and between rate of return and capital value impacts, three types of policy uncertainty.

In the first case there is timing doubt. Reform will take place either in period 1 or in period 2. Viewed from the start of period 1, the domestic rate of return will rise from  $r_u$  to  $r_r$ , with probability  $1-p$  in period 1 and with probability  $p$  in period 2. Hence, at the start of the first period, when the

agent has to decide whether or not to repatriate, he is **uncertain** as to which policy will prevail in that period. The decision problem is in this case extremely simple: since it is certain that the domestic rate of return will exceed the foreign one ( $r_r > r^*$ ) for all later periods, the investor will choose to remain liquid for at most one period. He will do so if the return over the infinite horizon is higher than if he repatriates immediately:

$$r^* + r_r/r_d > (1-p)r_r + pr_u + r_r/r_d \quad (1)$$

Clearly, only the first period returns need to be compared: the investor will repatriate if the expected value of the return on domestic investment in that period exceeds  $r^*$ . From (1) repatriation will be postponed if:

$$p/(1-p) > (r_r - r^*)/(r^* - r_u) \quad (2)$$

This defines a critical probability  $p_c$ . If delay of reform is sufficiently likely ( $p > p_c$ ) repatriation will be postponed.

In the second case there is fundamental doubt. The reform is either implemented in period 1 (with probability  $1-p$ ), or it is completely discounted. If the investor remains liquid in period 1, he will repatriate in the second period only if reform has then taken place. Hence he will decide to keep his assets abroad during period 1 (that is to remain liquid for the time being) if:

$$r^* + [(1-p)r_r + pr^*]/r_d > [(1-p)r_r + pr_u](1+1/r_d) \quad (3)$$

Note that after the first period he then has the option to repatriate, which he will exercise if reform has then taken place. In this case there is a premium on liquidity: even though the expected return on domestic investment in period 1 may be much higher than the foreign rate of return, it may still be advantageous (since  $r^* > r_u$ ) to hold assets abroad during the first period to avoid being locked in should reform not take place. This, of course, is the option value of waiting.

Condition (3) defines a critical probability  $p_c$ ; if reform is sufficiently unlikely ( $p > p_c$ ) then the repatriation decision will be postponed. From (2) and (3) the critical probabilities in the two cases satisfy:

$$p_2(r^* - r_u)/r_d = (p_1 - p_2)(r_r - r_u) \quad (4)$$

and since  $r_r > r^* > r$ , this implies  $p_1 > p_2$ . The critical probability is lower than in the first case because investment is irreversible: in the first case repatriation involves a risk of a return lower than on the foreign asset ( $r_r < r^*$ ), but only for the first period; in the second case the risk applies to all future income.

Finally, in our third case reform applies to the value of capital (unlike in the first case) and there is timing doubt (unlike the second case). The agent must decide whether to repatriate at the start of period 1, not knowing whether policy will be changed for period 1 or only for period 2. If policy is not reformed until period 2, a rival claimant for his newly purchased asset may come forward during period 1.

It is convenient to establish a baseline case. Suppose that should policy reform be delayed until period 2 the risk of asset loss during period 1 is  $r_u/r_r$ , and that allowing for this risk, the expected rate of return is  $r_u$ . Hence, in the event of the reform not being delayed, the return will be  $r_r$ . In this case the expected return on domestic investment is  $[(1-p)r_r + pr_u](1+1/r_d)$ , just as in case 2, in spite of the difference between fundamental and timing doubt. However, there is a distinction between the two cases. If the investor remains liquid in period 1 (earning  $r^*$ ), he will thereafter earn  $r_r$  indefinitely in case 3 (since reform is certain<sup>5</sup>) but only  $(1-p)r_r + pr^*$  in case 2 (because then there may be no reform). Hence postponing repatriation is even more attractive in this case than in case 2. The investor will choose liquidity in the first period if:

$$r^* + r_r/r_d > [(1-p)r_r + pr_u](1+1/r_d) \quad (5)$$

Comparing (3) and (5) the critical probabilities must satisfy:

$$p_2(r_r - r^*)/r_d = (p_2 - p_3)(r_r - r_u)(1 + 1/r_d) \quad (6)$$

which implies that  $p_2 > p_3$ , as expected.

Our results imply  $1 > p_1 > p_2 > p_3 > 0$ . Hence, as the probability,  $p$ , of delay or non-reform approaches unity ( $p > p_1$ ) then in all three cases the investor will prefer liquidity. Conversely, for

very low values of  $p$  ( $p < p_3$ ) the investor will repatriate in the first period in all three cases. In between these extremes, the combination of timing doubt and a policy impact directly on the asset value (the third case) is most damaging for repatriation (in the sense that the critical probability is lowest), fundamental doubt combined with a policy impact on either the asset value or its return is intermediate, and the combination of timing doubt and a policy impact upon the return on capital is least damaging to repatriation (in the sense that the critical probability,  $p_3$ , is relatively high).

The conclusion from this is that even at modest probabilities of postponement or non-reform, policy uncertainty can induce investment deferral if it relates to timing and the policy impact is on asset values so the government needs to resolve it by giving the needed legislation high priority. By contrast if uncertainty relates to timing but the impact is on the return on capital, reform can be postponed until later in the legislative program. Applying the results to the previous example of four policies in the prospective Ethiopian reform program, the implication is that the most urgent **reform** would be to establish unchallengeable ownership claims. The least urgent reform would be to amend profits taxation. The other two reforms, the resolution of whether urban land markets should be permitted, and whether the labor code should be substantially revised, are of an equal and **intermediate** urgency.

Our results differ in several ways from those of Rodrik (1991). In our formulation uncertainty is resolved after the first period. In the timing doubt case of condition (1), at the end of period 1 either reform has taken place or the agent knows with certainty that it will occur in period 2. Alternatively, in the fundamental doubt case, reform has either taken place in period 1 (and it will then be sustained) or it has not (and one then knows that it will not occur). In Rodrik's model the reform is introduced in period 1 and in each subsequent period there is a (constant) probability ( $p$ ) of policy reversal. Hence even though Rodrik considers policies which affect the return on capital rather directly impact upon capital values, and uncertainty relates to timing, his result is much closer to our second and third cases than to our first, apparently **equivalent**, case. Indeed, he



concludes that even low probabilities of policy reversal may deter investment. This simply reflects that in Rodrik's model policy reversal is possible in every period so that policy uncertainty affecting the return on capital is analytically identical to uncertainty affecting asset values. An option value cannot arise in his model. If the agent decides to remain liquid initially he will never have to reconsider that decision since matters cannot improve: if the reform is sustained for one more period the probability of a future reversal is unaffected. Hence when the agent reconsiders the profitability of investment after a period of waiting the problem is either still the same as before or the reform has collapsed in the mean time so that the investor will decide to remain liquid. In our case a reform may be adopted (rather than reversed) and hence the option value argument for staying liquid does apply (in case 2).

### 3. Exchange Rate Uncertainty and Repatriation

We now consider how uncertainty attached to the official exchange rate should be classified according to the above schema. The question arises because the official exchange rate may, depending upon details of economic structure, directly affect either or both of the price of capital and its rate of return viewed from the perspective of the repatriator.

The official exchange rate may directly affect the price of capital. Suppose that it is devalued from  $e$ , to  $e_1$ . If domestic prices of tradable capital goods rise in proportion, then, if all capital goods involved in the investment project are tradable, the price of capital to the repatriator is unaffected by the devaluation. This will be the case if tradable capital goods are imported at the official exchange rate both before and after the reform. Since capital goods imports tend to be highly visible (and therefore more difficult to smuggle) this assumption may not be unrealistic. However, prices of non-tradable capital goods are unlikely to rise proportionately. We consider the limiting case (which may be applicable in the short run) in which these prices are unaffected by devaluation.<sup>6</sup> In this case, if the asset purchased by the repatriator is non-tradable, the devaluation lowers the price of capital by the factor  $e_1/e$ .<sup>7</sup> Hence the

price effect depends on the composition of investment.

The official exchange rate may also affect the rate of return on capital. It can do so through two routes, the return in domestic currency and the mapping to remitted profits. Consider, first, the return in domestic currency. In the limiting case a change in the official exchange rate has no effect upon the rate of return. Again let the price of non-tradables be unaffected by the devaluation, so the limiting case holds if all inputs (other than capital) and outputs of the investment project are non-tradable. If the characteristics of the project are reversed, so that all non-factor inputs and outputs are tradable and their prices reflect the official exchange rate both before and after the devaluation, then the rate of return rises in proportion to it. This positive effect may be seen as the removal of an implicit tax, the overvaluation of the domestic currency.

Now consider the return as measured by remitted profits, taking the domestic currency return as given. Again there is a limiting case in which a change in the official exchange rate has no effect. Suppose, analogously to our assumption about non-tradable goods prices, that the devaluation of the official rate has no impact upon the parallel exchange rate, and that the devaluation is sufficient to achieve convergence at that rate. The limiting case now holds if, prior to reform, profits were remitted at the parallel rate. Note that this is not a curio. In the more extreme control regimes the remittance of profits was illegal. The usual private response was to remit profits by the device of over-invoicing of imports. Bevan et al. (1990) establish that the implicit exchange rate at which such remittances take place varies with the details of the control regime, but that in the most common case it is the parallel rate. While this is a limiting case, in less severe control regimes profits of foreign firms could be remitted at the official rate. In this case the devaluation reduces the profitability of domestic investment in proportion (i.e. by a factor  $e_1/e$ ). While the former effect on the return on capital can be interpreted as the removal of a tax, this effect amounts to the removal of a subsidy: before the reform foreign investors were implicitly subsidized through the overvaluation of the exchange rate.

The above effects generate the taxonomy shown in Table 3.2. The 'capital' column indicates whether the capital goods acquired by the investor are tradable (T) or non-tradable (N). The next column similarly classifies (non-capital) inputs and outputs. The third column classifies according to the pre-reform remittance regime, a P indicating remittance at the parallel rate and an O at the official rate. The 'effects' column summarizes which of the three effects (if any) a devaluation has: a change in the price of capital (I), in the rate of return in domestic currency (II) or in the exchange rate for remitted profits (III). These effects are aggregated and signed in the last column.

In the third case none of the three effects operates: all capital is tradable, so the quantity of investment is not affected, all other inputs and outputs are non-tradable so that the domestic rate of return does not change and the exchange rate relevant for sending profits abroad does not change since prior to the reform the parallel rate applied. In two other cases two effects operate and they offset each other precisely. In case 2 the rate of return rises in proportion to the devaluation, but this is exactly offset by the rise in the official exchange rate at which profits are remitted. Similarly, in the last case the price of capital falls, but this is precisely offset by the removal of the subsidy implicit in the exchange rate at which profits were remitted. In one case, 4, the net effect is negative. Here the removal of the subsidy is the only effect of the devaluation. These cases demonstrate that there can be no general presumption that devaluation increases the incentive to repatriate. *A fortiori*, in these cases the degree of uncertainty related to a prospective devaluation is irrelevant for repatriation. Since under certainty the effect is either zero or negative and since without reform the investor prefers to keep his assets abroad, an uncertain prospect of devaluation can neither induce nor deter repatriation. On the criterion of inducing repatriation it would therefore be prioritized later than other reforms.

However, in the remaining four cases, the net effect is positive. Since in these cases a devaluation induces repatriation, uncertainty with respect to the course of exchange rate policy is a deterrent. The magnitude of the deterrent now

follows from the analysis of Section 2. Recall that for fundamental doubt there is no distinction between the impact upon the price of capital and its return. The four cases are thus similarly affected by fundamental doubt. By contrast, for timing doubt, effects on the rate of return are less serious than those which operate directly on the price of capital. The four cases in which devaluation alters the incentive to repatriate span these routes, since effects II and III are on the rate of return whereas effect I is on the price of capital. Table 3.2 shows that in one of the four cases, 7, the only route by which devaluation induces repatriation is through a price of capital effect, implying that with this economic structure devaluation is urgent. In another, case 1, the only route is through a rate of return effect, implying a lower degree of urgency. The remaining cases, 5 and 6, are intermediate since both routes operate.

#### 4. Conclusion

We have considered a post-war economy in which the government has the typical inheritance of an economic control regime with private entrepreneurs holding substantial foreign assets. The policy objective is to induce repatriation for purposes of private investment, but policy reform is a slow process due to legislative and political obstacles so that it must be spread over several years. The government pre-announces its agenda, but some of the promised reforms are less than fully credible because the new government has no reputation. Doubts arise both as to whether the government will stick to its timing, and more fundamentally whether some proposed reforms will happen at all. The question then becomes whether, *a priori*, some aspects of uncertainty are a more severe deterrent to repatriation than others, and thus which reforms are most urgent and which can be postponed with relatively little damage. If it chooses the most appropriate sequence then repatriation for investment will begin prior to the completion of the reform program, whereas if it chooses the least appropriate repatriation will be delayed until after program completion.

We have shown that some types of policy uncertainty are more detrimental than others. Three types of uncertainty need to be distinguished, depending upon whether the price of

capital is affected directly, or only indirectly through the return on capital, and upon whether the reform itself is in doubt or merely its timing. Intuitively it might seem that it is more important to resolve doubts as to whether a reform will be implemented than doubts as to timing, so that the first round of reforms should be those which repatriators would otherwise doubt might be undertaken at all. This intuition is shown to be incorrect. Uncertainty about the timing of a reform is found to be more serious than doubts about whether a reform will be implemented if the impact of the reform is directly on the price of capital.

The implications for the order of structural adjustment measures were first illustrated with respect to four prospective Ethiopian policy reforms each of which could be classified into one or other of the categories distinguished. We then turned to the most important economic policy reform during the transition to peace, namely the exchange rate. Whereas some policies are readily classifiable, we showed that the implications of exchange rate uncertainty for repatriation depend upon details of economic structure. We identified those structures in which exchange rate uncertainty was irrelevant to repatriation, and those in which it would fit into each of our categories.

**Table 3.1. A Taxonomy of Policy Uncertainty**

Impact	Type of Doubt	
	Fundamental	Timing
Value of Capital	Land Prices	Property Rights
Return on Capital	Labor Laws	Profits Taxation

**Table 3.2. Effects of a Devaluation on the Incentive to Repatriate**

Case	Capital	Inputs/outputs	Initial rate for repatriation	Effects	Net effect
1	T	T	P	II	+
2	T	T	O	II, III	0
3	T	N	P	none	0
4	T	N	O	III	-
5	N	T	P	I, II	+
6	N	T	O	I, II, III	+
7	N	N	P	I	+
8	N	N	O	I, III	0

## Notes

1. The authors are grateful to Robert Bates and Mohsin Khan for comments on an earlier version of this paper.
2. A bizarre case involves a government imposing trade restrictions to convince private agents that it will eventually, once its credibility has been fully established, adopt free trade (Engel and Kletzer, 1991).
3. Elsewhere we have argued that the credibility of African trade reform could be enhanced were the EC and African customs unions to establish reciprocal free trade. Reversal of trade reform would then lead to loss of free access to the EC market (Collier and Gunning, 1993).
4. Hence the rise from  $r_r$  to  $r_u$  may reflect a change in the profitability (in domestic currency) but also a change in the rate at which profits remitted abroad are taxed or in the exchange rate applicable to remittances.
5. Hence in case 3 there is no option value. The investor may decide to wait but if he does so his decision at the end of period 1 is a foregone conclusion: he will repatriate, because by then the rate of return will have risen to  $r_r$ .
6. In some contexts this is a reasonable assumption. For example, the very large Ethiopian devaluation of 1992 had no impact upon either the parallel exchange rate or the domestic price level, and the similarly large Nigerian devaluation of 1986 had a negligible effect.
7. This can have a powerful effect on the incentive to repatriate. For example, in Ethiopia  $e_r/e_u$  was about 3.

## Chapter 4

# How to Pay for the Peace? A Theoretical Framework with References to African Countries

*Jean-Paul Azam*

---

### Abstract

*This chapter analyses a simple game-theoretic model to highlight the choice of the government between raising its defense expenditures or giving away some "gifts" to his opponents, as a means to defend his position in power. If the government is a Cournot-Nash player, then there is no gift in equilibrium, and any increase in the budget will lead to more inefficient defense expenditures. However, if the government is a Stackelberg-leader, then he will use the "gift" as a tool in his policy for staying in power.*

---

### 1. Introduction

The outbreak of a civil war is the worst failure of a peace-keeping policy, or the dreadful result of the lack of it. Most countries in the world are made of a heterogenous population, divided by ethnicity, religion, language, ideology, etc. It generally takes some conscious efforts by the government for a state of peace to be maintained, with some clear impact on public finances.

In many parts of the world, at various points in time, open war between countries, or within the boundaries of various countries, was the normal state of life. This was the case in Europe for most of its history, and it is now ravaging many parts of Africa, from Liberia to Somalia, from **Chad** to Angola, etc. A recurrent cause of conflict in African countries is ethnic diversity, and "tribalism" is often a cause of civil war. The perennial rivalry between the **Utus** and the **Tutsis** in Rwanda and Burundi are cases in point. Religion is often a cause of conflict as well. However, foreign intervention has often played a role in igniting violent conflicts in African

countries, especially during the Cold War. The Lybian leader **Khadafi** has often been held responsible for various rebellions, whereas the former two Super-powers, the USA and the USSR, played a part in supporting civil wars in various parts of the continent, including the **Horn** of Africa (Africa Watch, 1991, Doornbos *et al.*, 1992, Wubneh and Abate. 1988).

However, there are havens of peace in this violent continent. The examples of countries like **Cdte d'Ivoire** or **Sénégal** prove that it is possible to live in peace in Africa. **Cdte d'Ivoire** offers a striking example of political stability, as the late President Houphouet-Boigny was ruling the country even before independence in 1961, up to his death in December 1993. He was a Cabinet Minister in the French **Government** in the 1950s. Nevertheless, this is a clear example of a country with a population divided between different ethnic groups, whose territories extend largely over the neighboring countries (**Azam**, 1994). While the largest ethnic group, the **Akan**, is related to the

Ashanti from Ghana, the Krou group in the south west is part of the largest ethnic group in neighboring Liberia. The Senoufo in the north are more closely related, ethnically, to most people in Burkina-Faso, than to the southern Ivorians. Moreover, immigration has been going on during the recent decades, and it is estimated that 50% of the population in Abidjan, the capital-city, and 25% of the whole population, are of foreign origin. Many come from Burkina-Faso and Mali in the north. Therefore, this example shows that ethnical division can be reconciled with internal peace in Africa. Moreover, the north is predominantly Muslim, while the south is Christian or animist, showing that religious diversity can also be accommodated peacefully. But this country had only one political party, the PDCI, up to 1990. On the contrary, *Sénégal* was long regarded as the almost unique example of African democracy, with regular elections being held with competitive candidates, and limited violence. Therefore, multipartism can exist together with peace, and a single party is not necessary, as the case of *Côte d'Ivoire* might suggest, for avoiding conflict.

Although it is not possible to build a convincing counterfactual analysis showing whether this country would have experienced more political violence had it pursued a different set of policies, it is interesting to use the case of *Côte d'Ivoire* for illustrating two important ingredients of a peace-keeping policy. First, the late President had not spent much effort fighting his potential opponents, whose opposition he overturned by other means: with an extremely small number of exceptions, he had always managed to share some of the **spoils** of the state power with the rising politicians, even if they initially seemed to be confronting him (Azam, 1994). They have generally been attracted by the President's offers, and subsequently involved in the government and the ruling party, in prominent positions. Second, an important share of the government budget was used for redistributing between regions some of the fruit of the economic miracle of the two decades following independence. The coffee and cocoa growing farmers from the south, including the **Baoulé** farmers of the President's ethnic group,

have been heavily taxed for funding, among other things, a lot of public investment in the poorer north (Azam, 1994). Hence, there is a public finance aspect of a peace-keeping policy, as well as an "attitudinal" one (Brown, Hassan and Fole, 1992).

This example sheds some light on the contrast between the policies pursued in Uganda by Obote, after the fall of Idi Amin's dictatorship, and by Museveni, after the overthrow of Obote. Whereas the former tried to favor systematically his own ethnic group and its close allies, the latter tried on the contrary to open his government to representatives from all the groups (Mutibwa, 1992). Obote's attitude has triggered a violent opposition with a strong ethnical character, whereas the latter mainly got some fairly irrational opposition, with a definite religious or magical content, as was the case with Alice Lakwena (Behrend, 1991). As a result, Museveni's Uganda may be regarded as almost completely peaceful, whereas Obote's Uganda witnessed one of the worst slaughters ever, sometimes compared to that of the Pol Pot regime in Kampuchea (Mutibwa, 1992).

Similarly, one can interpret as a case of voluntary redistribution in favor of potential opponents some aspects of the demobilization policy pursued currently in Ethiopia. For example, whereas some of the veterans of the defeated **Mengistu** army have been maintained in the military, or, having been demobilized, have kept their ranks and their pension rights, a large number of the victorious soldiers have been simply asked to go back to their homeland with no particular personal advantage.'

The aim of the present chapter is to provide a theoretical framework for discussing these issues. In a simple game-theoretic setting, we discuss the appropriate relative weights to be given to **defense** expenditure and to redistribution of the state money within a peace-keeping policy. The model presented highlights the trade off that faces the government between spending budgetary resources for fighting the opponent on the one hand, and giving up some resources for reducing the opponent's willingness to seize power, by sharing

some of the benefits of being in power, on the other hand. This game may result in an inefficient equilibrium, where the two contenders are spending too much in military expenditures. This case is somewhat akin to the type of competitive rent-seeking discussed by Krueger (1974), where resources are wasted by agents competing for getting the benefit of a rent. But a less inefficient equilibrium is possible, where less resources are wasted in military expenditures, and more resources are used for redistribution.

The outcome is shown to depend heavily on the government strategy. By contrasting the case of the Cournot-Nash equilibrium to that where the government is a Stackelberg leader, this exercise gives a game-theoretic content to the "attitudinal" aspect of a peace-keeping policy. This attitude of the government is crucial for predicting how public expenditures will be shared between defense and redistribution. This is an important ingredient for deciding whether a given government should be given some aid (or some loans) or not. Deger and Sen (1992) have recently discussed the issue of the appropriate allocation of aid, or other financial support, to developing countries, when there is a risk of an increase in military expenditures. As emphasized by these authors, aid is fungible to some extent, and might thus indirectly be used for increasing military spending. We discuss here why some governments prefer redistributing some public money to increasing defense expenditures. as a means to defend their position in power.

## 2. The Model

Let  $A$  be in power, and  $B$  be the opponent. It simplifies the analysis to model this problem as a two-stage game. In the first stage, the government  $A$  spends  $D$  in defense expenditures, and the opponent  $B$  spends  $F$  with a view to take power. One can view these expenditures as being paid out of some initial endowments, which we do not model explicitly. In the following, we will sometimes refer to  $D$  and  $F$  as military expenditures, for short. In the real world, many non military expenditures are involved in the battle for power. We neglect these subtleties in the

following. Assume that this probability of  $A$  staying in power is an increasing function of the ratio  $D/F$ , given by:

$$0 \leq p = p(D/F) \leq 1, p' > 0, p'' < 0, \text{ and } p'(0) = -\infty. \quad (1)$$

We assume that this function is known with certainty by  $A$  and  $B$ .

In the second stage, the players enjoy the fruit of their action. If he stays in power,  $A$  has access to a given budget  $T$ , that must be allocated between two possible types of expenditures.  $S = T - G$  is the type of expenditures that gives some utility to  $A$ , while  $G$  gives utility to  $B$ . One can think of  $G$  as the "gift" that  $A$  gives away to  $B$ . We assume that  $A$  can make a credible commitment about  $G$ . This is again a convenient simplification, which could be endogenized in a repeated game setting. If he is overthrown,  $A$  does not get anything, and has just lost  $D$ , paid at the first stage.

Assume that  $A$  has a utility function which is strictly increasing, twice differentiable and concave with respect to  $S$ , denoted  $U(S)$ . Then, his problem is to maximize his expected utility under the constraint that  $G$  cannot be negative:

$$\max_{D, G} W = p(D/F) U(T-G) - D, \quad (2)$$

$$\text{s.t. } G \geq 0. \quad (3)$$

We will compare the outcomes of this game resulting from two alternative assumptions about the government's attitude about  $F$ . It can either have a Cournot-Nash attitude, taking as given the level  $F$  of the opponent's forces, or it can adopt the role of a Stackelberg leader. taking as given the reaction function governing  $F$ . We now analyze the determinants of the latter.

The opponent spends  $F$  in the first stage, which may be thought of as being paid out of some initial endowment, and enjoys  $G$  if he does not seize power, whereas he gets  $T$  if  $A$  is overthrown. Because of the assumption that  $A$  can make a credible commitment about  $G$ ,  $B$  behaves a *la* Cournot-Nash, taking  $D$  and  $G$  as given. Assuming

that he has a strictly increasing, concave, and twice differentiable utility function  $V(\cdot)$  ( $V' > 0$ ,  $V'' < 0$ ), then his program is to select  $F$  such that:

$$\max_F p(D/F) V(G) + (1-p(D/F)) V(T) - F. \quad (4)$$

The first-order condition for this problem can be written:

$$F = [V(T) - V(G)] p'(D/F) D/F. \quad (5)$$

Assume that a unique solution to (5) exists, and that  $T > G$ . Define  $\pi \equiv -p''D/Fp'$  and assume, for the moment, that  $\pi < 1$ . Then B's reaction function can be written:

$$F = F(T, G, D), F_T > 0, F_G < 0, F_D > 0. \quad (6)$$

Moreover, it can be shown that  $\partial \log F / \partial \log D = (1-\pi)/(2-\pi) < 1$ . This can be seen intuitively by examining (5). If  $D$  and  $F$  are increased proportionately, so that  $D/F$  does not change, then the right-hand side does not move, while the left-hand side increases. Therefore, in order for (5) to hold,  $D/F$  must increase when  $F$  increases.

If the condition  $\pi \equiv -p''D/Fp' < 1$  does not hold, with  $\pi \in [1, 2]$ , then  $p'(D/F) D/F$  becomes a decreasing function of  $D/F$ , and  $F/\partial D < 0$ . As a function of  $D/F$ ,  $\pi$  is first increasing, and then decreasing for large values of  $D/F$ , because of the assumed concavity and boundedness of the function  $p(\cdot) \in [0, 1]$ . It is thus reasonable to conclude that  $F$  is first increasing, and then decreasing in  $D$ , as  $D > \delta F$ , where  $\delta$  is such that  $\pi(\delta) = 1$ . We can safely neglect the case where  $\pi \geq 2$ , which is liable to give rise to a multiplicity of equilibria.

Hence, in this model,  $F$  is not a monotonic function of  $D$ . There is a very high level of defense expenditures by the government where the opponent is discouraged from increasing his forces as a response to the government increase in defense expenditures, and reduces them instead.

There is no ambiguity regarding the two other effects, provided  $2 \geq \pi$ . The positive impact of  $T$  is not surprising, and captures the effect of the

expected gain: the larger the latter, the higher the incentive to bid for power. Conversely, the negative impact of  $G$  results from the same type of mechanism. As an examination of (5) clearly shows, one of the main incentives for the opponent to build up his forces is the difference  $V(T) - V(G)$  between the utility levels reached in the two possible states of the world. This result shows the potential of a redistribution policy as a part of a peace-keeping policy.

Let us now analyze the Cournot-Nash equilibrium of this game.

### 3. The "No Gift" Equilibrium

It is intuitively obvious that a Cournot-Nash government will not give away anything as a "gift" to his opponent. As the level of  $G$  does not enter directly in the function  $p(\cdot)$ , and only acts indirectly as an incentive for  $B$  to reduce his forces  $F$ , it cannot affect  $A$ 's behavior under the Cournot-Nash assumption.

This can be shown formally by defining  $\lambda \geq 0$  as the Lagrange multiplier attached to constraint (3), with complementary slackness. Then, maximizing (2) under (3) yields the following first order conditions:

$$D = U(T-G) p'(D/F) D/F, \quad (7)$$

and

$$p(\cdot) U'(\cdot) = \lambda. \quad (8)$$

Notice the formal analogy between (7) and (5). Because of complementary slackness, we have  $\lambda G = 0$ . This cannot be consistent with (8) and  $G > 0$ , unless either

$$(i) T \rightarrow \infty \text{ and } \lim U'(T-G) = 0 \text{ as } T-G \rightarrow \infty, \text{ or}$$

$$(ii) F \rightarrow \infty \text{ and } D/F \rightarrow 0, \text{ and } p(0) = 0 \text{ and } p'(0) \rightarrow \infty.$$

Hence, under realistic assumptions, the government does not give any positive  $G$  to  $B$  in the Cournot-Nash equilibrium, as (8) implies that



$A > 0$ .

This "No Gift" equilibrium is not generally Pareto-efficient. In order to analyze its properties, let us draw the reaction functions of the two agents. We already know from the previous section the main properties of the function  $F(-)$  describing B's reactions. It is represented as the line  $FF$  in figure 4.1. The government behavior can be derived from (7), by putting  $G = 0$ . It thus reads:

$$D = U(T) p'(D/F) D/F, \quad (7')$$

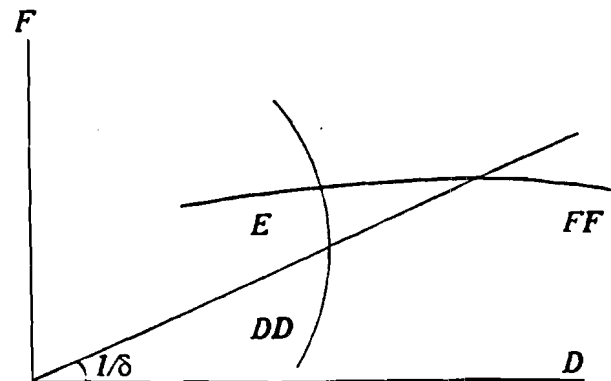
It is straightforward to find that the chosen  $D(-)$  is an increasing function of  $T$ . This is like an income effect: as the budget increases, the government will consume more, and spend more on defense. This may be checked by differentiating (7') to find  $\partial D/\partial T = U'(\cdot) p'(D/F) D/Fp' > 0$ .  $Asp'(-)$  is a decreasing function of  $D/F$ , we find easily that the chosen  $D(-)$  is an ambiguous function of  $F$ , with  $\partial \log D/\partial \log F < 1$ . For if  $D$  and  $F$  are increased proportionately, so that  $D/F$  does not change, then the right-hand side of (7') does not move while the left-hand side increases.  $Asp'(-)$  is a decreasing function of  $D/F$ ,  $D$  must grow in fact less than proportionately to the increase in  $F$ , or even decrease, in order for (7') to hold while  $F$  increases. Using the notation previously introduced, it can be shown that A's chosen function  $D(F, T)$  is such that  $\partial \log D/\partial \log F = (\pi - 1)/\pi < 1$ . Comparing this to the results found when discussing (6) above, we find that the slopes of the reaction functions of A and B must be of opposite signs when they intersect (for  $\pi < 2$ ). The function  $D(F, T)$  is represented in figure 4.1 as the  $DD$  line.

In figure 4.1, we restrict the analysis to the case where the equilibrium point lies above the  $F = (1/b) D$  locus, i.e. where the  $DD$  and  $FF$  intersect in the zone where  $x < 1$ . The other case can be analyzed analogously, with no special difficulty.

Now, if for some reason, like an increase in foreign aid or any other financial support,  $T$  is increased, then the  $DD$  curve shifts rightwards, while the  $FF$  curve shifts upwards. It follows that

the intersection between the two will necessarily move upwards. Hence, in this case, an increase in the government budget necessarily entails an increase in the opponent's forces. It will plausibly entail as well an increase in the government defense expenditures. But this is not necessarily the case, as the new equilibrium point can graphically be located to the north-west of point E. But this will only occur in the unlikely case where the marginal utility of  $S$  is very small for the government, at  $S = T$ , so that the  $DD$  curve shifts very little. It can be shown that the equilibrium response of  $D$  to an increase in  $T$  is positive provided  $x > \omega/(\omega + \epsilon)$ , where  $\omega$  is the elasticity of  $V(-)$  with respect to  $T$  or  $G$  (assumed constant), and  $\epsilon$  is the elasticity of  $U(-)$  with respect to  $S$ . Similarly, it can be shown that the equilibrium response of  $F$  to an increase in  $T$  is positive provided  $\pi < (\epsilon + \omega)/\omega$ , which is automatically satisfied in the case of figure 4.1.

Figure 4.1



Hence, in the most plausible case, the "no gift" equilibrium is such that an increase in the government budget, brought about for example by foreign aid, will in fact result in the build up of forces,  $F$  for the opponent, and  $D$  for the government. This equilibrium thus supports the view expressed by Deger and Sen (1992) that aid may well end up funding indirectly some increase in useless military expenditures.'

The Pareto-inefficiency of this Nash equilibrium can be seen graphically by drawing a

ray through the origin and E. Then, moving inwards along this ray, by reducing proportionately D and F, would leave the political equilibrium unchanged, with  $p(-)$  constant, while leaving more resources to be shared by the two players for consumption purposes. The following section shows that a government which adopts the role of a Stackelberg leader may improve on the "no gift" equilibrium, by pursuing a more peaceful policy, using the instrument of the gift to the opponent, in addition to the tool of defense expenditures, in order to try and remain in power.

As a step in this direction, let us look at the impact on the "no gift" equilibrium of an exogenous increase in G. We know from (6) that the FF curve shifts downwards. Regarding the DD curve, its impact is like that of a cut in the budget T. Hence, DD shifts to the left. Consequently, an exogenous increase in G leads normally to a cut in military spending by both the government and its opponent.<sup>3</sup> But it will in general entail a change in  $D/F$ , and hence in  $p(-)$ , so that we cannot conclude that it implies necessarily a Pareto-improvement.

#### 4. The Stackelberg-Leader Government

It is intuitively obvious that a Stackelberg-leader government is more likely than a Cournot-Nash (or Stackelberg-follower) government to use the "gift" as a tool in a peace-keeping policy. By taking into account the negative impact of a gift on the level of the opponent's forces, the government now realizes that it can increase the probability of remaining in power not only by increasing its defense expenditures, but by giving something to its challenger. It is thus in a position to trade off more gift for less defense expenditures. From a social point of view, it is clear that the former is preferable to the latter, as it is an argument in B's utility function, whereas D only affects the probability of staying in power, which can be regarded, roughly speaking, as a distributional issue. The aim of the present section is to give some precise analysis of this intuitive argument.'

First, one can check that the marginal contribution of G to the government welfare W is enhanced when the impact on F is taken into

account. In this case, using (2) and (6), one finds:

$$\frac{\partial W}{\partial G} = - p(-) U'(-) - [p'(-) \{DU(-)/F^2\} \frac{\partial F}{\partial G}]. \quad (9)$$

Therefore, a positive term has been added to  $-p(-) U'(-) < 0$ , which is only taken into account in the Cournot-Nash case. The term between square brackets is negative, and makes a positive contribution to  $\frac{\partial W}{\partial G}$  as it has a *minus* sign before it. Hence, the Stackelberg-leader government values more the "gift" than the Cournot-Nash one. Conversely, it discounts the marginal contribution of defense expenditures to its welfare by taking into account their positive impact on the opponent's forces. Using again (2) and (6) we thus find:

$$\frac{\partial W}{\partial D} = p'(-) U(-)/F - 1 - [p'(-) \{DU(-)/F^2\} \frac{\partial F}{\partial D}]. \quad (10)$$

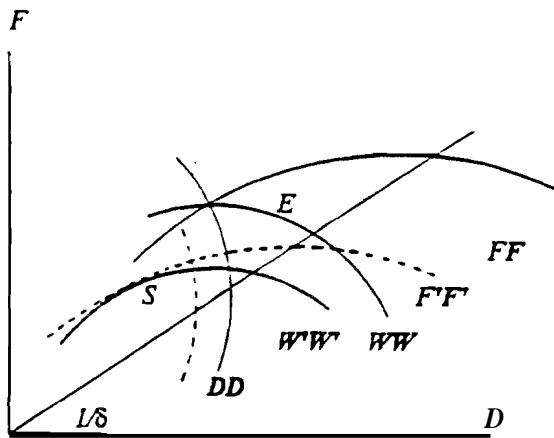
Now, the term in square brackets is normally positive, at least in the case of figure 4.1, and it is subtracted from the term  $p'(-) U(-)/F - 1$ , which is only taken into account in the Cournot-Nash case.

Therefore, the fact of taking account of the opponent's reactions to the government policy tools entails a reduction in the value attached by the latter to defense expenditures, and an increase in the value of the gift. However, although this fact opens the way to the existence of a Stackelberg equilibrium with a positive level of the gift, this does not necessarily lead to it. We need a new condition to be fulfilled, in order to guarantee that the change in weights given to D and G, as embodied in (9) and (10), results in an actual move away from the "no gift" equilibrium. For this to happen, there must exist a value of  $G > 0$  such that  $\frac{\partial W}{\partial G}$  as given in (9) is  $\geq 0$ . Intuitively, this requires that the negative impact on F must be strong enough, and with a strong enough impact on the probability of staying in power, to offset the utility loss of giving away G to the opponent instead of consuming it. Some tedious calculations show that this occurs if  $0 \geq \varepsilon(2 - \pi)$ , where  $\theta = p'(D/F) D/F p(-)$ , and  $\varepsilon = (T-G) U'(-)/U(-) > 0$ .

In other words, the existence of a "positive-gift" Stackelberg equilibrium is more likely, the more responsive to the gift is the opponent's level of forces, the more sensitive is the probability of remaining in power to a change in the balance of forces, and the less elastic is the government's utility function to a cut in consumption.

Figure 4.2 illustrates such an equilibrium. The  $DD$  and  $FF$  curves are drawn as in figure 4.1, and represent the Cournot-Nash reaction curves of the two players. The  $WW$  curve is an indifference curve of the government; it is horizontal when it cuts the  $DD$  curve, by definition of the latter. Then, as the  $FF$  curve has a positive slope at  $E$ , it follows that a Stackelberg government gets more welfare than it would get in the "no gift" equilibrium  $E$ . Then, provided the condition spelt out above for the existence of a "positive-gift" equilibrium is satisfied, then it should look like point  $S$  in figure 4.2.  $W'W'$  is a government indifference curve, corresponding to a higher welfare level than  $E$ , and it is tangent to the curve  $F'F'$ , a reaction function of  $B$ 's, corresponding to a higher level of  $G$  than  $FF$ . Provided that  $E$  and  $S$  are located above the  $F = (1/\delta)D$  locus (*i.e.*  $\pi < I$ ), this entails a lower level of  $D$ .

Figure 4.2



Now, if for some reason, like an increase in

aid,  $T$  is increased, we cannot be sure that this results in an increase in  $D$  and  $F$  like in the "no gift" equilibrium. Now, the  $FF$  curves shift upwards, and the  $WW$  curves shift upwards and to the right. The result on point  $S$  is thus ambiguous. Hence dealing with a Stackelberg-leader government rather than with a Cournot-Nash one is a necessary, but not a sufficient, condition for aid to be used in a peaceful way. The appendix gives a more precise discussion.

## 5. Conclusion

In this paper, we have analyzed a simple game-theoretic model to highlight the choice of the government between raising its defense expenditures or giving away some "gifts" to his opponents, as a means to defend his position in power. If the government is a Cournot-Nash player, then there is no gift in equilibrium. This "no gift" equilibrium is quite inefficient, as it is possible to reduce proportionately the military expenditures of the two players without changing the political balance, while leaving more resources to be shared between the players for consumption purposes. This equilibrium has as well the unpleasant property that any increase in the budget, brought about for example by an increase in aid, will lead to more inefficient defense expenditures by both players.

However, if the government is a Stackelberg-leader, then he will use the "gift" as a tool in his policy for staying in power. Hence this model illustrates how the use of redistribution as a tool in a peace-keeping policy can be related to some behavioral characteristics, or some attitudes, of the government. It is certainly the mark of a more sophisticated government than a fairly primitive Cournot-Nash one. As in Azam (1993), it is thus shown here that some expenditures without any apparent economic value, or some forgone consumption opportunities, can in fact play a positive part in a politico-economic equilibrium, and hence have a positive economic return after all. Therefore, it can reasonably be said that a government may invest in a redistribution policy, whose returns are made of some enhanced chances

of peace being maintained in the country. However, it is not claimed that redistributive policies are able to ensure peace in all cases. This is not so in the model presented, where the impact

of redistribution on military expenditures depends on various parameters, nor in the real world, where ideological or ethnical opposition are sometimes too strong to result in anything but the outbreak of violence.

## Appendix

We give here a more formal analysis of the Stackelberg equilibrium than in section 4. The government seeks to solve the following problem:

$$\text{Max}_{D, F, G} p(D/F) U(T-G) - D \quad (\text{A.1})$$

$$\text{s.t. } F = (V(T) - V(G)) p'(D/F) D/F \quad (\text{A.2})$$

From the first-order conditions we can write the following equations:

$$F = p'U - [(1-\pi)pU'/V'D/F], \quad (\text{A.3})$$

$$D = Up'D/F - [(1-\pi)pU'/V'], \quad (\text{A.4})$$

$$G = T - (D/F)^2 / ((1-\pi)(D/F) - F). \quad (\text{A.5})$$

Comparing the "pseudo-reduced-form" equations (A.3) and (A.4) to (7) or (7'), one can see that the former may be derived **from** the latter by subtracting the term in square brackets. The latter is positive provided  $\pi < 1$ . Therefore, except in pathological cases, we should get lower  $F$  and lower  $D$  in the Stackelberg equilibrium than in the "no-gift" equilibrium. But, from (A.2) and (A.5) we can see that  $G$  depends only on  $T$  and  $D/F$ , so that a cut in  $D$  and  $F$  does not entail **necessarily** an increase in  $G$ .

## Acknowledgements

Stimulating discussions with David **Bevan**, Paul Collier, and Jan **Willem** Gunning, as well as useful comments by an anonymous referee are also acknowledged, without implicating.

## Notes

1. I got this detail from a personal discussion with the Chief of Staff at the Ministry of Defense in **Addis Ababa**.
2. Notice that this effect would disappear if it was clear that aid would be cut if the government was overthrown. Then, in a sense, foreign aid is more likely to fuel the build up of forces the more "politically neutral" is the donor, in a "no gift" equilibrium. In this sense, ideologically-oriented bilateral aid might be more conducive to peace than neutral multilateral aid.
3. This raises the issue of political conditionality, analyzed by Palda (1993).
4. A more detailed mathematical analysis is provided in the appendix.

## Chapter 5

### Demobilization and Insecurity A Study in the Economics of the Transition from War to Peace

*Paul Collier*

#### 1. Introduction

Demobilization is an integral part of the transition from war to peace in Africa's civil wars. Ethiopia and Uganda have both recently undertaken large scale demobilizations. In Ethiopia some 400,000 soldiers of the former government were demobilized during late 1991 and early 1992 and the demobilization of part of the victorious army is currently being planned. In Uganda 20,000 soldiers were demobilized at the end of 1992, and there are plans to demobilize a further 30,000 shortly. This paper does not provide a general review of the demobilization process, but focuses upon one aspect, the relationship between demobilization and security.

The hypothesis to be investigated is that demobilization constitutes a potential threat to security. The motivation for the study is that insecurity is likely to have substantial economic consequences. Two types of insecurity are distinguished. Micro-insecurity is the fear that the individual will be the victim of crime. Macro-insecurity is the fear that the state will be overthrown by insurrection. Micro-insecurity, it is hypothesized, does not just constitute a set of involuntary transfer payments, but inhibits asset formation and disrupts transactions. Macro-insecurity may reduce the credibility of government commitments and the propensity to make irreversible investments. If demobilization reduces security, there is therefore a trade-off between the direct economic gains from reducing a component of government expenditure and the indirect economic costs. Potentially, demobilization affects both micro-insecurity and macro-insecurity and the paper considers them in turn.

#### 2, Demobilization and Micro-insecurity

There are two reasons to expect that demobilization might increase crime. Demobilized soldiers are not placed into employment and so start their civilian life as unemployed. It is likely that the lack of an income source increases the propensity to commit crimes. Additionally, soldiers tend to be unskilled except in the use of weapons and so might have a comparative advantage in criminal activities.

The skill composition of the Ugandan and Ethiopian demobilized armies was somewhat different, reflecting their different origins. Of the two, the composition of the Ethiopian army was better suited for demobilization. The Ugandan army was largely composed of those recruited as guerillas in rural areas during the war. Recruits were typically very young at the time of recruitment, and had little education. The Ethiopian army of 400,000 which was demobilized during 1992, was recruited by the former government, largely by conscription, and so was closer to being a cross-section of the male population. A survey of the characteristics of the Ugandan army just prior to demobilization (MSEC, 1993a) found that over a third had no education, while a majority had had no economic activity prior to recruitment, and so had no work experience either as wage earners or in self-employment. Nor had the army proved to be a training ground for non-military skills: only 3% had acquired such skills during their time as soldiers. In both countries most soldiers had been in the army for several years and so their connections with their original areas had weakened. This reduced their access to land and possibly also their interest in farming as a career. However, most

soldiers had acquired dependents, two thirds having families. Hence, the need for an income was that for a substantial household rather than just an individual. In both countries demobilized soldiers were not allowed to keep their weapons, but guns were widely available. A demobilized soldier who chose to become a criminal would have had little difficulty in gaining access to a weapon.

In assessing the link between demobilization and crime three approaches were used. First, interviews were conducted with senior police officials and private security services in both countries. Second, data was gathered on the district level pattern of crime as reported to police stations before and after demobilization, and matched with the district-level incidence of demobilization. Third, a follow-up survey of demobilized soldiers and community leaders was analyzed. The two latter approaches were only feasible for Uganda.

In Ethiopia the police considered that demobilization had initially caused an increase in crime, particularly rural banditry. However, by early 1993 the incidence of crime was quite modest in **almost** all areas, comparing favorably with Kenya according to the Police Commissioner. In Uganda the police perception was that crime had risen as a consequence of demobilization, and this was more emphatically the perception of the expatriate security services.

We now turn to the analysis of Ugandan statistics on crime and demobilization. Crime statistics in Uganda are not computerized and can only be collated with reliability back to the beginning of 1991. The CID kindly collated data on the total number of reported crimes for 1991, 1992 and 1993, the last distinguishing between the first quarter and the rest of the year, for each of the 38 districts of Uganda. The demobilization took place in late December 1992 and January 1993. The national data on reported crime show that the demobilization coincided with a decrease in the crime rate. During 1992 there were 20% more reported crimes than in 1991 (which may simply reflect a higher rate of reporting as the country grows more accustomed to civilian government). Yet during the first quarter of 1993, immediately following the demobilization, crime fell by 7% compared with the fourth quarter of 1992. While **this** is suggestive, the lack of adequate time series

on crime and the synchronized nature of the demobilization precluded time series econometric analysis. However, the spatial pattern of the demobilization provided the basis for a cross-section approach.

Soldiers were demobilized to their districts of origin and the Veterans Assistance Board kindly provided data on the numbers of demobilized sent to each district. We therefore compare the district crime rates before and after the event using demobilization as an explanatory variable. Normally, this would not be valid since demobilized soldiers might choose not to return to their districts, or subsequently migrate from the initial place of demobilization. However, the government of Uganda went to considerable efforts to get soldiers to return to and to stay in their original home areas. All demobilized soldiers were transported to their home areas and received there. Further, three installments of payments were made to bank accounts which soldiers were required to open in their home areas: payments could only be made into these accounts. Migration therefore incurred the need to return to the home area to claim these payments. Finally, we have evidence on the extent of subsequent migration from the follow-up **sample** survey of 300 demobilized soldiers conducted during April and May 1993 (MSEC, 1993b). This found that less than 2% of the demobilized had at that stage migrated from the district to which they had been transported.

Immediately prior to demobilization, a census was conducted of those to be demobilized, establishing their skills and prospects. As discussed above, skill levels outside the military sphere were very low. However, a potentially differentiating characteristic concerning prospects was access to land. Although most of those to be demobilized reported that they had access to land, some 12% claimed to be landless. Because this was a census rather than a sample, the data can reliably be used when disaggregated to the district level. Further, landlessness is concentrated: nine of the 38 districts account for virtually all of the landless demobilized, so that the district-level incidence of the demobilization of the landless is very different from that of **those** with land. Hence, we distinguish in the subsequent analysis between the landless demobilized and other demobilized.



Both crime and demobilization by district were expressed as rates relative to the district population as given in the 1991 population census.<sup>1</sup> There is substantial variation in both the crime rate and the demobilization rate. On average, during the first quarter of 1993 there were 0.56 reported crimes per thousand inhabitants, with a range between districts from 1.20 to 0.11 and a standard deviation of 0.31. The incidence of demobilization was on average 1.30 soldiers per thousand inhabitants, with a range between 3.59 and 0.05 and a standard deviation of 1.00 (reflecting the previous regional skew in recruitment). Hence, there is sufficient variation in both rates for a test of the relationship between demobilization and crime by means of cross-section data to have some credence. If one tenth of the soldiers were involved in crime then its incidence would rise by around a quarter on average, more than doubling in the district with the highest incidence of demobilization and barely changing in the region with the lowest incidence.

We distinguish between the impact effect of demobilization and its longer-term effect. The impact effect is that in the first quarter of 1993, immediately after the demobilization. During this period the demobilized were in receipt of modest lump sum pay-offs. The longer term effect is gauged by the remaining three quarters of 1993 (the most recent data point). During this period pay-offs had ceased, but the demobilized had by then had greater opportunity to generate incomes from agricultural self-employment or from finding other non-criminal sources.

The dependent variables were therefore the crime rates during the first quarter of 1993 and the remaining three quarters of 1993. These were regressed on the crime rates for 1991 and 1992, thereby controlling for fixed effects and trends, and the incidence of demobilization, distinguishing between the landless and others. The results are reported in Table 5.1.

**Table 5.1. Regression Results for Crime and Demobilization**

	Dependent variables					
	Crime93(1)			Crime93(2,3,4)		
	coeff.	se	t	coeff.	se	t
constant	.22	.06	3.45	.44	.16	2.72
Crime91	.03	.07	0.50	-.01	.16	-0.05
Crime92	.17	.07	2.52	.63	.17	3.76
Landless	.06	.03	1.94	-.0008	.08	-0.01
Others	-.06	.03	-1.93	.0002	.08	0.003
$r^2$	0.82			0.88		
F	37.80			58.90		
n	38.00			38.00		

- Crime91 = number of crimes in district during 1991/**population** of district in 1991; sources: CID and 1991 Population Census.
- Crime92 = number of crimes in district during 1992/**population** of district in 1991; sources as above.
- Crime93(1) = number of crimes in district during the first quarter of 1993/**population** in 1991; sources as above.
- Crime93(2,3,4) = number of crimes in district during the second, third and fourth quarters of 1993/**population** of district in 1991; sources as above.
- Landless = number of those demobilized into the district in December 1992 who reported no access to **land/population** of the district in 1991; sources: MSEC (1993b) Table 12, and population census.
- Others = number of those demobilized into the district in December 1992 who reported access to **land/population** of the district in 1991; sources: MSEC (1993b) Table 12, and population census.

The results reveal that in the short term there is a significant relationship between demobilization and the crime rate. The demobilization of the landless significantly increases crime. Applying the coefficient in the Table, the 2,346 landless demobilized accounted for 140 crimes, an incidence of criminality of 6%. This incidence is one hundred times higher than that for the Ugandan population as a whole during the period. However, the short term effect of the Ugandan demobilization was not to increase crime but to reduce it. This

was because the demobilization of those with access to land, who were the large majority, significantly reduced crime. Our discussion of the sample survey of community leaders, below, will shed some light on why this might be the case. Applying the **coefficient** reported in the Table, the 17,668 demobilized with access to land reduced the number of crimes by 1,060. Hence, the net effect of demobilization is predicted to have been a short run reduction in crime of 920. Between 1991 and 1993 (the only period for which there are

data) there was an increase in reported crime averaging 2.8% per quarter, implying an expected increase between the fourth quarter of 1992 and the first quarter of 1993 of 303 crimes. Instead, there was a reduction in crime of 757. The shortfall of actual crime on expected crime of 1060 is remarkably close to the predicted reduction due to demobilization of 920. Hence, the coefficients derived from cross-section data on district-level variations in crime cohere well with the observed coincidence of demobilization a sharp drop in the aggregate crime rate.

During the first quarter of 1993, the consensus in the expatriate security community was that demobilization had already increased crime and that this would get much worse once the demobilized had exhausted their pay-offs.' However, according to our data, both of the above effects of demobilization proved to be ephemeral. The crime rate for the remainder of 1993 was unrelated to either type of demobilization, both the coefficients and the t-statistics being negligible. Hence, what appears to have happened is that the landless, after some initial desperation, settled into their communities, while the landed majority rapidly lost the military attributes which had provided a deterrence to crime in their localities. Both groups soon became normal civilians.

We now turn from the regression analysis to a third data source, a sample survey of demobilized soldiers and community leaders conducted in May 1993 by a consultancy company (MSEC, 1993b). Through interviews with a sample of 300 demobilized soldiers this survey investigated the initial economic activities of the demobilized. Additionally, through interviews with community leaders, the survey established the number of cases of crimes in which demobilized soldiers had been convicted and the perceptions of the community leaders as to the impact of demobilization on security. The survey found that the rate of crime identified with convictions of demobilized soldiers was very low, only 0.2% of soldiers being involved. Further, this was the perception of community leaders. Community leaders reported either that demobilization had not affected the security situation or that it had been beneficial as a result of the presence of those with military experience acting as a deterrent, this being consistent with our

regression results. The low involvement in crime was corroborated by the evidence of the survey on the economic reintegration of the demobilized. A substantial majority had been taken up peasant agriculture, with a further 20% engaged in small non-agricultural enterprises. Virtually none had entered the labor market, reflecting both the small size of that market in Uganda, and the very low skill and education levels of most of the demobilized. Because the survey was conducted only some four months after demobilization, it bears most directly upon the regression results for the first quarter of 1993. Interestingly, the consultants concluded from their experience that whereas overall the demobilization had progressed successfully, assistance should have been targeted upon the landless. This is consistent with our short-run results which suggest that a minority of the landless faced unusual pressures which through crime inflicted social costs upon the local population. However, these negative effects appear to have been temporary so that the impact upon criminality would not justify major public expenditure. The costs of crime in Uganda are not known. However, to give an illustrative calculation, were crime to cost 5% of GDP then a reduction of one reported crime would be worth around \$6,000. Hence, were it possible to prevent the excess criminality of the demobilized landless, the reduction of 140 crimes would be worth \$840,000, justifying per capita expenditure targeted on the landless of around \$360.

The conclusion from the above evidence is that the Ugandan demobilization has not to date given rise to significant micro-insecurity. The Ugandan demobilization was still in its early stages, but the absence of any relationship between demobilization and the crime rate in the subsequent 4-12 months is certainly encouraging. By early in this period the modest pay-offs would have been exhausted, and if the demobilized were at even this stage sufficiently established to maintain themselves without atypical resort to criminality, it would seem unlikely that there would be a later deterioration. Recall that in Ethiopia, where there is a longer post-demobilization experience, the police perception was that although the security situation initially deteriorated it then improved.

### 3. Demobilization and Macro-insecurity

The consequences of demobilization for **macro-insecurity** are more difficult to observe. The possibility that the state will be overthrown through insurrection is a genuine concern in both countries. The fear is not fanciful because in both such an event has recently happened, indeed, in Uganda it has happened repeatedly. Rather like the *Peso effect*, this type of fear is unobserved and it is hard to find evidence for it, let alone quantify it. An example which demonstrates the pervasive presence of a sense of macro-insecurity is therefore appropriate. Recently, a Ugandan District Commissioner was observed to be leaving his home in a hasty manner. The response among observers was panic and flight, because they interpreted the behavior as indicating the approach of rebels. In fact, the Commissioner had just heard that the President was paying a surprise *visit*.<sup>3</sup> If private agents attach non-negligible probabilities to the overthrow of the state then this is likely to reduce the propensity to make irreversible investments, and the credibility of **government** commitments. It is therefore not a phenomenon to be dismissed.

Demobilization might affect macro-insecurity through two routes. First, demobilized soldiers poorly integrated into the economy and therefore disaffected, constitute a pool of potential recruits for a subsequent military challenge to the state. In both countries there is evidence for a link between demobilization and insurrection. In Ethiopia, the demobilization is believed by the authorities to have contributed to the insurrection by the Oromo Liberation Front during mid-1992, which at one point involved a substantial pitched battle. In Uganda, insurrections **from** the North are known to involve former soldiers of **Amin's** army. The second route by which demobilization may weaken macro-security is that beyond a point, the smaller is the army the more prone is the state to be challenged. Although there is clearly some size below which the army cannot be reduced without encountering this danger, the size of army needed for the victorious insurrections which both achieved is evidently considerably larger than that needed for deterrence, hence, this should not be a significant consideration in the planned demobilizations.

To conclude, the concern about demobilization weakening the security of the state must be taken seriously. The relationship between disaffection of the demobilized and the scope for insurrection points to the importance of successful reintegration into the economy. Policy should therefore be designed so as to achieve a cost-effective reduction in disaffection. In Uganda this was part of the rationale for the establishment of the Veterans Assistance Board. We now turn to the design of a policy with this objective.

To date, in both countries **policies** designed to assist the demobilized have combined thinly spread financial and material assistance to all the demobilized with small job creation schemes from which a few have benefited substantially. Experience with the latter in both Uganda and Ethiopia has been very poor. Generally, the jobs created have been at high cost, newly established enterprises have not been viable without continued subsidy, and only a trivial number of jobs have been generated. A hypothesis of the study was that the activity with the most scope for employing the demobilized was construction. However, interviews with construction firms and with experts on labor-intensive public works established that this was not the case. In urban areas, construction was fairly skill-intensive. **Firms** wished to recruit either those with experience or those with some education. Although rural construction could be made highly labor-intensive, it **was** not well-suited to the employment of the demobilized. The technique of rural infrastructure building using labor intensive methods involved the deployment of a small core of skilled, well-paid labor, which travelled with the project (for example, a road) and otherwise relied upon the recruitment of unskilled labor from the locality. The advantage of this was that the unskilled labor had its own accommodation and sources of food. The use of demobilized labor would have necessitated travelling labor gangs which would have considerably increased the expense.

Not only are employment-creation projects high cost, they are unnecessary. As noted above, the follow-up survey in Uganda found that the majority had successfully integrated into peasant agriculture or non-farm self-employment. The modest generalized assistance in the form of seeds, agricultural implements and roofing sheets for

housing, was appreciated. although since delivery mechanisms had frequently proved inadequate it was a source of friction. Presumably because of the successful integration, the survey also found a largely positive attitude on the part of those demobilized to the demobilization experience. The two main exceptions were landlessness and the treatment of the disabled. Because of its localized nature, landlessness is predictable and amenable to policy intervention. For example, the government could have a lower rate of demobilization for soldiers from land-scarce districts, or land might be purchased for them. The problem of disability is substantial in the armies of Uganda and Ethiopia. No special provisions were made in the Ugandan demobilization for the disabled and this has caused intense resentment, not just among the disabled, through the perception that the government has discarded onto communities incapable of handling the problem those who made the greatest sacrifices in its cause. The government in Ethiopia faced with the same problem, is planning special facilities for this group. To conclude, the design of a policy to minimize disaffection has some rationale in macro-security over-and-above its direct benefits to the recipients. Generalized assistance seems to be needed only on a modest scale, and promises beyond the competence of the government to

deliver are liable to be counter-productive. While employment-creation schemes are costly and ineffective, it is appropriate to target additional support to the landless in land scarce areas, and to arrange long term support for the severely disabled which is likely to mean retaining them in army-run facilities.

#### **4. Conclusion**

Contrary to the prior hypothesis of the study, we have found that demobilization, at least as conducted in Uganda, does not lead to a significant upsurge in insecurity. Indeed, we have found that in the short term demobilization significantly reduces crime unless the demobilized lack access to land. The demobilized, if returned to their home areas and given some assistance, are with identifiable exceptions able to find income-earning opportunities. As this perception is transmitted from the first wave of demobilized, subsequent demobilization becomes easier as more soldiers volunteer (as is currently the case in Uganda). Conversely, the attempt to link demobilization to special employment schemes appears to be ill-advised. While there may be a good case for expanding the construction sector, this should be delinked from the demobilization exercise.

#### **Notes**

1. Source: Government of Uganda (1993), Table 18.
2. I am indebted to the UNDP for an opportunity to attend a regular meeting of the heads of expatriate security services and for their cooperation in answering my questions.
3. The incident was reported in the *New Vision*, for June 21, 1993.



## Chapter 6

# Food Markets, Liberalization and Peace in Ethiopia: an econometric analysis

*Stefan Dercon<sup>1</sup>*

### 1. Introduction

During the 1980s Ethiopia has gone through turbulent times. Politically, the government of President Mengistu faced persistent armed secessionist activity, especially in the Northern regions of Eritrea and Tigray. It culminated in May 1991 in the take-over by a Tigrayan-led coalition of guerrilla movements which form the present Transitional Government, and the secession of Eritrea. Economically, stringent controls on trade and production repressed both rural and urban areas, forcing the government to start a reform program in 1990, which was continued after the accession to power of the rebels. In 1992, an IMF-sponsored structural adjustment program was started.

Food production and marketing has been at the foreground of both the crisis and the reforms'. Land reform after the 1974 revolution provided for many rural households for the first time a hopeful break with centuries old feudal system. Around the same time, initially with World Bank support, a new agency was set up in 1976 to participate in grain trading and sufficiently strong to influence grain price formation. the Agricultural Marketing Corporation (AMC). Traders had to obtain licenses and price controls were established. Pan-territorial pricing was used from 1980 onwards. From that marketing year onwards. farmers were required to deliver between 50 to 100 percent of their production as a **quota** to the AMC at fixed prices. well below the market prices. In a tragic irony, peasants only recently freed from a demanding feudal system of fixed grain deliveries to landlords were subjected to a new exploitative system of forced deliveries, executed by the state.

Before these reforms, up to 25,000 grain merchants had been active in rural areas and up to

8,000 in towns (Holmberg (1977)). Regional markets may well have been reasonably integrated during that period, with food prices even during the 1973-74 famine period not rising by more than 20 percent (Holmberg (1977))<sup>3</sup>. With price controls and licensing of trade came also the rule that traders would have to supply a percentage of their grain turnover (usually 50 percent) to the AMC at the quota price plus a margin of 4 to 5 birr - leaving the traders' profits considerably lower than for grain sold as part of arbitrage between districts and regions. Enforcement turned quickly brutal: in 1976 traders were executed for allegedly hoarding and evading price controls. Since then and throughout the 1980s, numerous cases of forced requisition of produce, and execution and torture of traders have been documented. especially in the war zones (Africa Watch (1991)). Licenses were randomly taken away, and all trade of any scale was banned from 1982 onwards in Gojjam and from the beginning of the harvest in 1985 in Arssi. Movement of grain up 100 kg was usually allowed in principle, but grain could always be requisitioned if a specific trading purpose was suspected. In 1988 it was announced that as long as 50 percent of the grain would be delivered to the AMC, traders would be issued with licenses in all areas. but the implementation of this ruling was reportedly quite different across regions (Franzel et al., 1989).

No estimates of the number of traders which remained active are available, but their number is likely to have diminished considerably in the 1980s. At the same time, beyond the measures specifically aimed against traders, the war resulted in a substantial destruction of infrastructure, especially in the North. The intensification of the

fighting from around 1988 limited further the ability to move grain, whether legitimately or smuggled. The controlled distribution system could however increasingly less supply sufficient grain to consumers at the controlled prices, partly due to a large diversion of grain to the military operations, and urban areas became more dependent on the free market supplies. With the increased political and military pressures placed on the government to salvage the regime after the gradual demise of its main sponsors, the Soviet Union, a liberalization of grain markets was commenced in March 1990, which established the freedom to move grain, and quota's were abolished. With the demise of the Mengistu regime in May 1991, the main remaining monopoly sources of grain for the AMC, the producer co-operatives and state farms, began to be dismantled. The AMC is now supposed to compete with private traders in the free market.

This paper deals with the consequences for food markets and prices of the changes from a controlled system to free trade, from war to peace. In particular, we want to establish, first, what were the consequences for the **level of consumer and producer prices** and for the **marketing margin** between surplus and deficit prices and secondly, can we conclude anything about the **functioning** of food markets, ie. has there been any change in the extent of market integration before and after the changes?

Methodologically, the first question will be addressed using a theoretical arbitrage model (section 2), after which data on the main staple, teff, will be used to infer whether the predictions of the model can be observed (section 3). These results will be further checked using an econometric approach which will also be used to address the issue of the functioning of markets (section 5). Before that, in section 4, a specific econometric methodology is developed to analyze market liberalization, using cointegration and error correction mechanisms. This methodology tries to improve upon the classic Ravallion (1986) model for market integration.

## 2. The effects of the quota system, trade controls and the war on grain prices

First, the effect on grain producers of the forced

delivery of a fixed quota will be discussed. Since it has been dealt with by others (e.g. Lemma Merid (1986), Alemayehu Lirensen (1987), Franzel et al. (1989), Legesse Dadi et al. (1992), Azam (1992)), we can be brief about this. Azam has shown that if the household consumes both manufacturing goods and an own-produced cereal, then under general conditions a forced delivery of cereals at a price, lower than the market price, can be viewed as a lump-sum tax equal to the margin between market and quota prices times the quota, so that the impact of the quota system on the net sale by the farmer works only through an income effect. Consequently, the net supply of grain is an increasing function of the level of the quota and a decreasing function of the quota price. Liberalization should then have reduced the net supply of grain to the market, since on-farm consumption will have increased, provided both cereals and other goods are normal.

Azam (1992)'s analysis deals only with the total net supply by the farmer, irrespective of whether it went to the open market or the AMC. To derive the supply to the open grain markets, we should focus on the supply, net of the quota. Let  $H$  be the quantity of grain harvested and  $S$ , the net sale of grain, is equal to  $H$  minus  $C$ , with  $C$  the on-farm consumption. The quota  $Q$  has to be delivered at a price  $P_Q$ , which is below the market price  $P$ . With other goods consumed denoted by  $M$ , we can write the budget constraint faced as

$$M + P.C \leq P.H - (P - P_Q).Q \quad (1)$$

in which the right hand side is total income  $Y$  and  $(P-P_Q).Q = T(P,P_Q,Q)$ , the lump-sum tax  $T$ . The net sale to the open market,  $F$ , equals  $S$  minus  $Q$ . The effect of a marginal increase in  $Q$  on  $F$  is positive if

$$\frac{\delta F}{\delta Q} = \frac{\delta S}{\delta Q} - 1 > 0 \quad (2)$$

Using (1), this will be the case if

$$\frac{\delta S}{\delta Q} = -\frac{\delta C}{\delta Y} \cdot (P - P_Q) > 1 \quad (3)$$

or if

$$\epsilon_Y \cdot b_g > \frac{P}{P - P_Q} \quad (4)$$

in which  $\epsilon_Y$  and  $b_g$  is the income elasticity of grain



and the budget share of grain in total expenditure. Since  $b_g$  is smaller than one and since the right hand side of the inequality is larger than one, the income elasticity of grain has to be 'sufficiently' larger than one for an increase in the quota to result in an increase the supply to the free market. In other words, under usual circumstances, the quota system will have repressed the supply of grain to the open market. Liberalization should have resulted in larger supplies reaching the open market, despite the reduction in total marketed production.

The second issue has to do with urban consumer demand. During the 1980s the AMC sold substantial amounts of cereals in Addis Ababa at low, controlled prices via Kebele shops, even though most people had to supplement the quantities obtained with purchases in the open market. After liberalization, the quantities sold by the AMC in this way barely reached 10 percent of the previous quantities. In a simplified way, the effect of the change in this 'ration' can be seen in figure 1. Suppose the household consumes cereals, denoted C, and other goods, denoted NC. A ration R, of cereals is supplied at a lower price than the market cereals price, so that the budget curve is kinked. If this ration is not sufficient, then some extra cereals will be purchased to reach the optimum at A, where total cereal consumption is C, and other consumption is NC,. A reduction of the ration to R<sub>2</sub> will result in an inward movement of the budget curve. This is a pure income effect, so that as long as the other goods, NC, are a composite normal good, consumption of both cereals and other goods will decline, to C<sub>2</sub> and NC<sub>2</sub>, at the optimum B. The important point is that the reduction in cereal consumption is smaller than the reduction in the ration, in other words, the reduction in the ration will have increased the demand for cereals in the open market. The net effect from the liberalization on market prices is consequently not very clear: increased open market supply, but increased demand as well. This conclusion ignores however the effects on trade of the liberalization and the spatial distribution of these effects. The basic spatial arbitrage model as in Takayama and Judge (1974) can be used to discuss this further.

Let us consider two regions *i* and *j* with differing demand and supply and assume that in

regional autarky the market price *p*, is **smaller** than *p<sub>j</sub>*, in other words there is a larger demand relative to supply in *j* than in *i*. For simplicity, let us call *i* a 'surplus' region and *j* a 'deficit' area, even though this may misleadingly and wrongly suggest the presence of rationing. If the transport cost to move one unit from *i* to *j* is *t<sub>ij</sub>* and constant, then arbitrage with competitive markets suggests that the margin between *p*, and *p<sub>j</sub>* will be reduced to *t<sub>ij</sub>* via exports from *i* to *j*. As discussed before, under quite acceptable circumstances, the quota system will have reduced the net supply to the free market moving both *p*, and *p<sub>j</sub>* up while the supply of rations in the main consumer markets will have reduced prices both in *i* and *j*. Because of the possibility of arbitrage, this effect is independent of whether rations were distributed in all regions or only in particular areas such as Addis Ababa, although this would have affected **the** actual levels of prices relative to the free market situation.

The introduction of restrictions on traders will affect the margins between *i* and *j*. Suppose a trader can only obtain a license if a fraction *q* of all purchases are delivered to the AMC at a price *p<sub>qt</sub>* which is considerably less than the price in *j*. If the transport costs related to the delivery to the AMC are *t<sub>iq</sub>* then arbitrage between *i* and *j* will take place as long as

$$(1 - q) \cdot p_j + q \cdot p_{qt} - p_i - (1 - q) \cdot t_{ij} - q \cdot t_{iq} \geq 0 \quad (5)$$

Reworking this expression, we find that the margin between prices in *i* and *j* will reduce after arbitrage to

$$p_j - p_i = t_{ij} + q \cdot ((p_j - p_{qt}) - (t_{ij} - t_{iq})) \quad (6)$$

It implies that, under the obvious circumstance that the difference between the price in *j* and the price paid by the AMC to traders is larger than the difference in transport costs related to delivery in *j* and to the AMC, the margin **between** prices in the region *i* and *j* will have increased after the traders' restrictions. Prices in 'surplus' regions will have experienced a downward pressure and prices in 'deficit' areas are likely to have become higher as a consequence. Trade will be discouraged and margins will not be brought down to transport costs.

Liberalization could have a further effect on marketing margins if licensing limited **the** number of traders participating in moving grain before the

reforms. Costs of licenses were reportedly high before the reforms. Some routes may have been controlled by very few traders, who could pay the licensing costs **and/or** the necessary bribes. To the extent that new traders enter food trading after liberalization, the rents to these traders in the form of supernormal profits could be eroded through increased competition. The result would be that marketing margins move close to the actual marketing costs. **Observing** reduced marketing margins could therefore both be related to the removal of trade taxes via quota's and to increased competition after liberalization.

Finally, it is possible to discuss the effects of war and insecurity on cereal markets. Besides the physical losses of cereal production in war zones, the inability to move grain because the breakdown of infrastructure and security risks will affect prices considerably. Introducing these constraints on movement we can rewrite the arbitrage model under trader quota's as the maximization by traders of all profits  $\pi$  on moving quantities  $x$  from  $i$  to  $j$  subject to a movement constraint, or

$$\begin{aligned} \Pi &= \sum_{i=1}^n \sum_{j=1}^n [(1 - q) \cdot p_j - q \cdot p_{qt} \\ &- p_i - (1 - q) \cdot t_{ij} - q \cdot t_{iq}] \cdot x_{ij} \\ \text{s.t. } x_{ij} &= f(T_{ij}) \\ T_{ij} &\leq T_{ij}^* \end{aligned} \quad (7)$$

in which  $n$  is total number of markets and  $T$  is the transport available and  $T^*$  denotes the constraint on moving grain because of the insecurity and the breakdown of infrastructure. Traded quantities  $x_{ij}$  have to be a function  $f$  of the available transport. Denoting  $\lambda_{ij}$  as the shadow price of the transport infrastructure we can find that traders will move grain between  $i$  and  $j$  until

$$p_j - p_i = t_{ij} + q \cdot ((p_j - p_{qt}) - (t_{ij} - t_{iq})) + \lambda_{ij} \quad (8)$$

If the transport constraint is binding, this implies that the margin after arbitrage trading will be larger than simply transport costs corrected for the government restrictions on traders. If insecurity is a strong element then this shadow price can be very large. War has therefore a negative effect on

prices in 'surplus' areas and results in an upward **movement** of **prices** in the main demand **areas**. If the return to peace also means that both security and the basic transport infrastructure is restored then peace can have further beneficial effects on producers in the main surplus areas as well as on consumer prices in urban areas.

### 3. Teff Prices and Margins in Ethiopia

In this section a discussion is presented of the evolution of price and marketing margins since the 1980s. The analysis focuses on teff, the main staple in the Ethiopian highlands. This valuable and relatively drought resistant but very labor intensive cereal crop forms the basis for most meals in rural and urban Ethiopia. Monthly data on open market prices in urban areas have been collected systematically by the Agricultural Marketing Corporation for a few dozen markets starting in the mid-1980s. The Relief and Rehabilitation Commission (RRC) has also collected data in up to 80 towns as part of its famine early warning system since the early 1980s. Both data sources are used in this section. The Central Statistical Authority (CSA) has published data on rural and urban prices, but important gaps exist in the published data, so this source was not used in the analysis. Some discrepancies existed between the RRC and the AMC data, but since the AMC data contained systematically fewer gaps, the latter source was more relied upon. All the data were deflated by a non-food Consumer Price Index (CPI) obtained by reweighing the **Addis Ababa** CPI excluding all food using CSA data. By no means is this a correct deflator for all the different towns, at least it will give us some indication of the evolution of food prices relative to other commodities. Unless otherwise stated, prices are in real January 1988 prices per quintal, and data were available for some of the main markets until September 1993.

First, figure 2 shows the evolution of prices for white teff in **Addis Ababa** in real terms since August 1979. No clear trend can be observed for the entire period. The most striking relative price change occurred during the famine period **1984-85**. Starting in February 1984 after the **Meher** harvest, peaking in the middle of 1985, after which prices only slowly declined to reach pre-1984 prices after

the Belg harvest of 1986. The effects of the famine in Wollo and Tigray must clearly have been felt in Addis Ababa as well. Low prices were then observed during 1987 to 1989, with the post-Meher harvest prices in 1989/90 close to the lowest in the entire period. Liberalization occurred in March 1990, but no clear effect can be observed, except for an apparent seasonal effect. The last few months of the war showed a rapid increase of prices in the beginning of 1991, despite a post-harvest period. Insecurity must have affected the distribution of the 1990/91 Meher harvest considerably. Since then, prices have declined gradually, even though prices were around the beginning of the 1992/93 Meher harvest still higher than during the period 1987-90, but not higher than in the pre-1984 period. During 1993 prices declined however further, to levels lower than at any point in the last 14 years, after a successful Belg harvest. Even the official data are not yet available, prices are said to have marginally declined further, but are at present (February 1994) increasing again, after a poor Meher harvest and expectations of a poor Belg with rains being too late. From these data, it is not possible to find therefore a clear result from the liberalization. In any case, some time after the EPRDF take-over, prices have declined to historically low levels. Open market supply increases seem to have been able to more than compensate the demand increases in the open market in Addis Ababa. Filtering the effects of a (delayed) response to liberalization, a genuine response to peace and security or the effect of very good Meher and Belg harvest, is quite impossible. The fact that a good harvest can flood the Addis Ababa market and does not get wasted in the feeding of several large armies is likely to be another factor.

Consistent data for most other towns in Ethiopia are not available for the first part of the 1980s. Figure 3 and 4 show data since September 1987, which allow us to build up a more complete picture of the consequences of liberalization and peace. First, it can be seen that the price in Addis Ababa has consistently remained higher than in most of the other towns before and after liberalization: Addis Ababa clearly exercises a considerable demand-pull to grain supplies from virtually all directions. Only in Dire Dawa are prices higher, a town which is quite far removed from any supplying regions. In fact, from the middle of 1993, prices in some towns East and Southeast of Addis Ababa (Debre Zeit, Nazreth, Shashemene) became (probably temporarily) higher than in Addis Ababa, suggesting even a teff flow, away from Addis Ababa towards Dire Dawa. In general however, margins between Addis Ababa and the rest of these important urban centers are positive. Secondly, a clear effect of the liberalization can be seen: margins between the most important demand center, Addis Ababa and all the other towns decreased after liberalization, as was predicted by the model. A clear increase in the grain flows as part of arbitrage must have taken place. By the end of the period, prices in some towns were higher than before liberalization: e.g. Debre Markos, Ambo, Hosaenna, Shashemene - in fact these are close to surplus teff producing areas; in others, such as Addis Ababa and Dire Dawa - important deficit and demand centers, prices were lower. These results are consistent with the predictions of increased arbitrage after liberalization in the previous section: more grain will be shipped from surplus regions to deficit regions after liberalization, since incentives for arbitrage have increased.

**Table 6.1: Margins between Addis Ababa Real Teff Prices and specific markets<sup>1</sup>**

	mid-86/end-89	mid-90/Sep.93	mid-91/Sep.93	result post-liberalization
<i>Shoa</i>				
Nazreth	18	10	10	down
Debre Zeit	12	3	2	down
Wolliso	31	28	27	equal
Ambo	34	19	18	down
Hosaenna	51	30	29	down
Ziway	28	6	5	down
Shashemene	31	12	10	down
<i>Kefa</i>				
Jimma	32	31	28	equal
<i>Gojjam</i>				
Bahar Dar*	45	32	30	down
Debre Markos	59	26	26	down
<i>Arssi</i>				
Assela*	37	17	17	down
<i>Dessie</i>				
Kombolcha	28	7	7	down
Dessie*	-0	9	11	up
<i>Gonder</i>				
Gonder*	22	26	28	up
<i>Hararghe</i>				
Harar	-33	-26	-28	down?
Dire Dawa	-26	-22	-21	down?
<i>Ilubabor</i>				
Mettu*	35	36	39	equal?
<i>Wellega</i>				
Nekempte*	42	32	32	down

Source: calculated from AMC data.

<sup>1</sup>towns are ordered according to regions as they were in use until the end of the 1980s.

\*data up to the December 1992 only.

To interpret these results better, the margins were calculated and filtered for temporary erratic movements using six-months averages. These averages were used to obtain an average margin before and after liberalization, and after the EPRDF take-over. Some of the results were sensitive to which data source was used, but overall the picture was consistent. Table 1 gives the difference between real teff prices in **Addis Ababa** and in some of the main urban centers in Ethiopia for which data were available. Margins declined in Shoa in six out of seven markets by 30 percent or more. In other regions, margins declined in 7 out of 11 markets mentioned, and increased only in Dessie and Gonder. The decline is especially notable in Arssi and in Gojjam, the two big producing areas which faced banned private trade before liberalization. The result for Dessie is mainly the consequence of the (erratic) effects of food aid distribution in that area during the period since the famine, depressing prices considerably in some periods. For the interpretation of these results one also ought to keep in mind the flows of teff within the country as depicted in figure 16, which means that some of the markets for which differences with **Addis Ababa** prices are given are only very indirectly linked with **Addis Ababa**. Still, the result is striking: liberalization clearly reduced price differentials in the country, moving all prices closer to **Addis Ababa** levels. This result is confirmed by using data on 44 more peripheral markets for which the RRC collected data, with 38 showing declines after liberalization. No effect can however be observed from the cessation of the war: in table 1 is no significant difference between the post-take-over period and the rest of the liberalization period. Relative security in the country has failed to deliver its dividend in the form reduced price differentials in the country.

Table 6.2 gives data on the price differentials between some towns which may potentially trade with each other due to proximity. Of the 21 presented, the price differential went down in 10 of the comparisons and remained roughly the same in 6 others before and after liberalization. In 5 cases did the differential go up. A comparable result was

obtained using the (longer) RRC data on 51 market relations. Liberalization has had somewhat more mixed effects within the regions, even though mainly reducing the differentials. The take-over did not affect the patterns set by liberalization.

To summarize the main effects of the liberalization, it was shown that the level of prices after liberalization in main 'deficit' areas - big urban centers such as **Addis Ababa** and Dire Dawa - was, if anything, lower than before. Producers (or at least traders) in the main surplus areas are likely to have benefited considerably, since generally price differentials between trading areas were brought down by arbitrage to lower levels than before in a majority of instances. Increased reliance on open market supplies by urban consumers has been more than compensated by increased open market supplies, and especially by better incentives to trade. We cannot find clear evidence on the existence of a peace dividend: lately, prices have declined in the major consumer areas, but only after a strong price increase around the ascent of the new government. No evidence can be found of increased arbitrage in food markets: increased security should have meant that the constraints on moving commodities should have been reduced, and margins to have come further down due to the reduction of the shadow premium on transporting. One should however note that most data presented in the tables are from southern or central regions: data from the most affected war-zones, such as **Tigray**, Northern Gonder and Eritrea, are not available for the obvious reason that a war was going on.

#### **4. Analyzing market integration and the effects of liberalization and peace**

Thus far we have analyzed the effects of liberalization and peace on the levels of prices, but one of the implicit aims of liberalization has to do with the **improved functioning** of markets. In some respects, without sliding into a semantic discussion, the analysis of the changes in margins across towns has to do with increased arbitrage.

Table 6.2. Price differential among regional towns in Ethiopia

	mid-86/end- 89	mid-90/end- 92	mid- 91lend-92	result post- liberalization
Shashemene - Hoseanna	19	19	19	equal
Arba Minch - Hosaenna	18	12	9	down
Nazret - Asela	18	5	5	down
Dire Dawa - Nazret	44	34	34	down
Nazret - Harar	-51	-38	-41	down
<b>Debre Zeit - Nazret</b>	5	7	8	equal
<b>Debre Zeit - Ziway</b>	16	3	4	down
<b>Debre Markos - Dangila</b>	11	26	20	<b>up</b>
<b>Addis Zemen - Gonder</b>	24	15	15	down
Gonder - Kola Diba	20	21	22	equal
<b>Addis Zemen - Nefas Mechwa</b>	3	-5	-5	equal
Bahar Dar - Mekane Selam	5	25	25	<b>up</b>
Kombolcha - Dessie	7	-1	-0	down
Dessie - Haik	1	6	6	<b>up</b>
Dessie - Woldiya	15	4	4	down
Dessie - Korem	22	9	9	down
Harar - Dire Dawa	8	4	7	equal
Bahar Dar - Gonder	-23	-6	-2	down
Bahar Dar - <b>Debre Markos</b>	14	-4	-2	down
Assela - Robe	8	18	26	<b>up</b>
Gimbi - <b>Metu</b>	-4	-4	3	equal

However, the effect was predicted from a static model of removal of implicit taxation on traders, and not from any effect of the increased competitive forces within the market or a faster transmission of information and response to trading opportunities. It is unlikely that competitiveness of a market can be analyzed with anything but detailed microeconomic information of traders and their cost structure and constraints<sup>4</sup>.

Standard market integration analysis such as in **Ravallion (1986)**, using only information on prices, cannot conclude anything about competitiveness. Indeed, as **Faminow and Benson (1991)** have shown, **Ravallion-type** of market

integration can just as well be interpreted as evidence for a competitive model as for an oligopolistic model with base-point pricing. Market integration analysis provides however an interesting indication of the extent to which and the speed with which price signals in one market are transmitted to another market. If market liberalizing measures result in an improvement of this transmission and therefore increasing market integration, then a positive effect on the functioning of markets from liberalization has been detected. Somewhat surprisingly, the methodology of market integration has thus far (as far as I know) not been applied to liberalization even though its

applicability would seem obvious.

In this section we will first explain the methodology for such analysis. Given the progress in econometric methodology since Ravallion's classic (1986) paper, we will first restate the central elements of his approach in the context of the more recent theory of cointegration and error-correction<sup>5</sup>. Some parts of this approach have appeared in the literature, notably by Goodwin and Schroeder (1991) and by Palaskas and Harriss (1993)<sup>6</sup>. As will be seen, the present paper can be seen as an extension of their approach. First, the methodology is explained as if there is no structural change (such as liberalization) to be considered.

If two markets are integrated one states in fact that some long run relationship exists, in that changes in one market will transpire in the prices of the other markets in due course. Short run market integration implies then that this long run relationship is very quickly obtained - virtually immediately. Commodity prices are often non-stationary, and if so, standard inference is not valid. Cointegration analysis allows researchers to make from this failure a strength. Simple tests exist to establish whether there is a stable long run relationship between different non-stationary series, and the Granger representation theorem allows the dynamics of cointegrated series to be specified as an error-correction mechanism (Engle and Granger (1987)). The existence of a cointegrating relationship between prices from regionally different markets can then be seen as evidence of long-run market integration (as in Goodwin and Schroeder (1991)), while the dynamic specification can be used to establish the extent of short-run integration (as in Ravallion (1986), Palaskas and Harriss (1993)).

This analysis needs to be distinguished from the 'efficient market hypothesis' literature, with its emphasis of informationally efficient markets (Malkiel (1987)). The latter will state that two markets are informationally efficient if past prices from one market do not help to predict present prices from the other market, beyond information contained in past prices from the latter market. In fact, statistically this means the absence of Granger-causality in any direction (Granger and Escibano (1987)). But this implies that the price series will **not** be cointegrated, since cointegration

implies Granger-causality in at least one direction.

This result has to be put in context properly. One could think of market relationships developing as some continuum. Markets which are not at all related - no trading takes place for example - will show no cointegration at all. When market functioning improves, a point will come when markets will reflect all shocks which occur to the other: markets are integrated in the long-run and showing statistical cointegration. Market operations are observed as part of a process of capturing profits from arbitrage. At some point, markets are processing information so fast that all information is immediately absorbed into the prices, and become 'informationally efficient', showing no cointegration at all. Clearly, common sense and economic observation has to guide what interpretation should be given to the absence of cointegration. Since many markets in developed countries, including stock markets, are found to be informationally inefficient (e.g Taylor and Tonks (1989)), finding non-cointegration is unlikely to be a reflection of informational efficiency.

The various steps of the analysis are described below and expanded upon only in case they have not been dealt with in the literature on market integration. The *first* step is to establish the order of integration of the different price series, using unit root tests. If the series are  $I(0)$  then the standard Ravallion approach can be followed. If not, as is often the case, then one should proceed, as the *second* step, with the estimation of the cointegrating regression. For two non-stationary prices  $R$  and  $P$  for the same commodity in different locations, the long-run relationship to be tested can be represented as:

$$P_t = \delta + \alpha R_t \quad (9)$$

Following the spatial equilibrium literature (Takayama and Judge, (1971)), equation (9) assumes the existence of a marketing margin, specified as a linear function of the price  $R$ , in particular:

$$R_t - P_t = -\delta + (1 - \alpha)R_t \quad (10)$$

This specification nests more common specifications, such as constant or proportional marketing margins (ie.  $\alpha = 0$  and  $\delta = 0$ , respectively), while contrary to e.g. Ravallion (1986)  $\alpha$  is not required to be equal to 1<sup>7</sup>. Testing

can be done using the Cointegrating Durbin Watson (CRDW), the Dickey-Fuller test, the adjusted Dickey-Fuller test. Engle and Granger (1987) proposed several more potential tests, while the Johansen maximum-likelihood procedure allows the testing of multiple cointegrating vectors (Johansen, 1988). Evidence of cointegration provides evidence of long-run market integration, and the estimated values of  $\alpha$  and  $\beta$  would provide an indication of the nature of the marketing margins. *Providing there exists additional information on the nature of marginal marketing costs*, it is possible to interpret the estimated values in the light of efficiency or competitiveness of the market. Otherwise, no welfare economic interpretation can be attached to these results.

The interpretation of the cointegrating regression is complicated because of the small sample properties of the estimators involved. While the OLS estimators of the parameters of a cointegrating relationship are superconsistent, they are biased in small samples, and this bias may be quite large (Stock (1987)), it is a biased estimate. In small samples, this bias may be quite large (Banerjee, et al. (1986)). Inference within the cointegrating regression is also not possible with the usual tables (Banerjee, et al.(1986), Stock (1987). In applied work, a procedure can be proposed which in practice could establish whether one should suspect the bias to be very large. The procedure to use is to estimate besides the cointegrating vector also an Autoregressive Distributed Lag model (i.e. regress P, on lagged P and on present and past R). As the *third* step in the analysis, one ought to calculate the long-run solution of the coefficient on R in the ADL and check whether this value is significantly different from the estimate of the coefficient on  $R_t$  in the cointegrating regression (see Doornik and Hendry (1993) and Adam (1993)). This is not a formal test procedure, but it is very useful to warn the researcher against wrong conclusions on the existence of a particular long-run relationship between prices.

The existence of a cointegrating relationship between two variables has been shown to imply that Granger-causality exist in at least one direction (Engle and Granger (1987)). Knowledge about Granger-causality allows the determination of the direction of the flows of price information,

and therefore helps with the dynamic specification. It is therefore included as the *fourth* step in the procedure. The test implemented here will use the *dynamic* specification, and therefore the test will be for dynamic Granger-causality, and not simply in the long-run relationship. Misspecification can however bias Granger-causality tests, so it is appropriate to use a dynamic error-correction formulation to implement this test. The point is that the Granger-representation theorem allows every cointegrating relationship to be represented as a vector-autoregression with an error-correction term. The dynamic error correction model (ECM) related to equation (9) for the testing of Granger-causality can be specified as

$$\begin{aligned} \Delta P_t = & \theta_{11} \Delta P_{t-1} + \dots + \theta_{1n} \Delta P_{t-n} \\ & + \theta_{21} \Delta R_{t-1} + \dots + \theta_{2n} \Delta R_{t-n} \\ & - \gamma (P_{t-1} - \alpha R_{t-1} - \beta) + \epsilon_t \end{aligned} \quad (11)$$

The error correction term ( $P_{t-1} - \alpha R_{t-1} - \beta$ ) is equal to the lagged error term from the cointegrating relationship and the estimated residual of the cointegrating regression can be used to estimate (11) according to the 'two-step' procedure (Engle and Granger (1987)). An appropriate alternative ECM specification with  $\Delta R_t$  as the dependent variable can be derived in the same way. The number of lags, n, has to be chosen to make sure that the residuals behave according to the usual conditions for correct inference. If P and R are I(1) but cointegrated then *all* terms in equation (11) are stationary. As a consequence, inference using standard t and F-tables is possible. A Granger-causality test for market integration to establish the relevant direction of the flow of price information can then be considered. Granger-causality from R to P can be implied from the rejection of the joint hypothesis:

$$\theta_{21} = \dots = \theta_{2n} = \gamma = 0 \quad (12)$$

and a similar test can be derived for Granger-causality from P to R. Failure to establish any Granger-causality should alert the researcher that there may be problems with the cointegrating relationship even if the tests under the second step suggested cointegration. Granger-causality can be interpreted as providing evidence on the main



direction of flows of information between markets. Equation (11) is in the market integration literature referred to as the (dynamic) reduced form equation of the structural model in which the present difference of reference market prices,  $\Delta R_t$ , at the right hand side of the equation has been solved for. To do tests of short-run market integration one ought to be able to estimate a 'structural' version of the model, with  $\Delta R_t$  at the right hand side. In particular, one would like to estimate the model:

$$\begin{aligned} \Delta P_t = & \mu_{11} \Delta P_{t-1} + \dots + \mu_{1n} \Delta P_{t-n} \\ & + \mu_{20} \Delta R_t + \mu_{21} \Delta R_{t-1} + \dots \\ & + \mu_{2n} \Delta R_{t-n} - \lambda (P_{t-1} - \alpha R_{t-1} - \delta) + e_t \end{aligned} \quad (13)$$

To use OLS, this requires however weak-exogeneity of AR, relative to inference on its coefficient in the model, which may not be true in interdependent markets. Under the absence of exogeneity, alternative estimation methods such as instrumental variables estimation ought to be used instead. These methods involve however a loss of efficiency if the bias caused by using OLS in the presence of endogeneity is relatively limited (Nakamura et al., 1981). The Wu-test based on Hausman (1978), as discussed in Nakamura et al. (1981), tests whether the explanatory variables are statistically independent of the errors of the model. For example, to test whether in (13) this independence is violated through the inclusion of  $\Delta R_t$ , one would estimate an auxiliary regression of the process generating AR, and enter the fitted values of this regression in (13). The OLS estimator on this fitted value in (13) would under the null of independence tend to zero in probability and standard t-tables can be used. If the null is rejected, OLS is not appropriate. It should be stressed that this not a direct test of weak-exogeneity, but rather of the bias involved if OLS would be used despite the absence of weak-exogeneity (Maddala (1993)). Following Urbain (1992), we introduce the error-correction terms into the auxiliary regression, since their significance suggests that exogeneity is unlikely to hold<sup>8</sup>.

The *fifth* step in the analysis is to implement this test. The auxiliary regression for the explanatory variable ( $\Delta R_t$ ) needs to be specified

using weakly exogenous variables. In practice, lagged values of  $\Delta R$  and lagged values from all markets which can be thought of to influence  $\Delta R$  can be used. If the null of independence is rejected, instrumental variables or equivalent estimation techniques ought to be used: otherwise OLS would seem appropriate to estimate the dynamic structural model.

The sixth step involves the estimation of this dynamic structural ECM model. The estimates can be used for further testing and interpretation. First, it is possible to test the hypothesis of short run market integration, which means that a price increase in the reference market will be immediately passed on to the dependent market. The null of short-run integration implies testing of the joint hypothesis:

$$\begin{aligned} \mu_{11} = \dots = \mu_{1n} = \mu_{21} = \dots = \mu_{2n} = 0; \\ \lambda = 1 ; \mu_{20} = \alpha \end{aligned} \quad (14)$$

In particular, under the null, none of the lagged variables are significant while any change in R is transmitted according to the long-run relationship, and any deviation in the last period is immediately corrected. In fact, under this null, the correct short-run model is simply a stochastic re-specification of the cointegrating relationship in (9). All the variables in equation (13) are stationary if P and R are cointegrated, so the standard F-tables can be used for the test in (14).

A problem exists with this test. The null-hypothesis under (14) includes testing whether  $\mu_{20}$  is equal to  $\alpha$ , in which  $\alpha$  is the coefficient on R, in the cointegrating relationship. As was mentioned before, this coefficient is biased in small samples. If we have good (economic) reasons to believe that the 'true'  $\alpha$  is a particular value, then we could use it, both in the error correction term in (9) as in the test under (10). For example, Palaskas and Harriss (1993), who propose a short-run market integration test not dissimilar to the present approach, suggest a model that only deals with constant marketing margins, so that  $\alpha$  equals one. Alternatively, and consistent with the two-step procedure, one could use - at least in a large enough sample - the estimated value for  $\alpha$ , and proceed with the test. Some loss of power of the test will be involved, but no clear alternative exists.

Additional tests of long-run integration are possible as well at this stage. The non-significance of the coefficient of the error correction term,  $\gamma$ , should make the researcher wary of the correctness of the specification **and/or** the presence of a long-run relationship, since the error-correction formulation is following the Granger Representation theorem a correct representation of the cointegrating relationship. A more formal test of long-run market integration involves testing the presence of the same long-run relationship in the short-run specification. If the markets are cointegrated then the following restriction should not be rejected in equation (13)

$$\alpha \sum_{i=1}^n \mu_{1i} + \sum_{i=0}^n \mu_{2i} = \alpha \quad (15)$$

since the long-run solution to (13) is

$$\Delta P = \frac{\sum_{i=0}^n \mu_{2i}}{1 - \sum_{i=1}^n \mu_{1i}} \cdot \Delta R \quad (16)$$

so that the test under (15) simply an alternative form is of testing whether the coefficient on AR is in the long-run equal to the estimated value of  $\alpha$  in the cointegrating regression - which it ought to be if the earlier tests were passed.

These tests are equivalent to the tests proposed by Ravallion (1986) on market segmentation (the significance of  $\gamma$ ), short-run and long-run market integration (see (14) and (15)). Similarly, the index of market connection (IMC) proposed by Timmer (1987) can also be calculated in this equation. Without loss of generality these tests are now proposed to be implemented in a dynamic (differences) model, while the long-run relationship is tested in this analysis in levels in a statistically more acceptable way using cointegration. Also, the tests above are more general than those proposed by Ravallion since they allow for market integration under a more general structure of the marketing margins, as described in (5) and does not require for  $\alpha$  to be equal to one.

The *seventh* step is model evaluation - equally important to estimation of the dynamic relationship, but easily ignored in applied work. Besides evaluating diagnostics on the residuals - to

check for autocorrelation, heteroscedasticity, non-normality, misspecification, etc., it is crucially important to evaluate the stability of the **estimates** over the sample. In particular, the type of market integration models considered here assume a **constant** degree of market integration over the entire sample period. In particular, they ignore the consequences of structural changes in the economy, such as new infrastructure, changes in market intervention, liberalization, relative marketing cost changes, etc. Parameter stability tests (**e.g.** using different Chow tests or recursive least squares) are required to check whether there is any evidence of such structural changes, and if there is evidence of instability, the model and its conclusion on market integration are invalidated.

This last step provides a way to adapt this approach for the study of the effects for example improved security or liberalization. One way to go about it would be to check whether over the entire period and check for structural breaks, and if they are absent it could be concluded that the policy or other changes did not significantly affect the long-run relationship nor the dynamic adjustment path. The alternative is to implement the above analysis for the relevant sub-samples and compare the estimated results before and after the change. The latter approach will be taken here, even though, given data availability, some problems with small sub-samples arise, reducing the power of the tests implemented. In particular, emphasis will be on the period before liberalization (pre-March 1990), the period since liberalization until the take-over (May 1991) and the aftermath of the take-over. First, we will focus on the cointegrating regressions, which give an indication of changes in the marketing margins.

As was described in section 2, liberalization and peace are likely to have affected the long-run relationship between prices through **an** increase in arbitrage. This implies that equation (9) will give different estimated values in the period before and after these occurrences. In particular, if there are three states during the period under consideration, and assuming that any change in the marketing margin is proportional to the prices in the reference market, then the long-run relationship to be tested can be written as<sup>9</sup>:

$$P_t = \delta + \sum_{i=1}^3 \alpha_i \text{dummy}_i R_t \quad (17)$$

with  $\text{dummy}_1$  is 1 in the period before liberalization and 0 afterwards,  $\text{dummy}_2$  is 1 throughout and  $\text{dummy}_3$  is 0 until 'peace' was achieved and 1 afterwards<sup>10</sup>. This specification implies that the 'long-run' coefficient on the reference market price before liberalization equals  $(\alpha_1 + \alpha_2)$ , between liberalization and peace  $\alpha_2$ , and after peace  $(\alpha_2 + \alpha_3)$ .

Equation (17) reflects differences in the marketing margins **between** different periods, and results consistent with the 'static' theoretical results from section 2 can be expected. Given the results in section 3, it is likely that for most markets the estimated **coefficients** will result in larger margins before than after liberalization, but little difference after the take-over. Direct inference on these values is however not possible, so we will have to employ both our judgement and the other tests on long-run integration mentioned above to check the validity of any conclusions, including by estimating the **ADL** for the model.

The dynamic analysis will form the basis of testing for any change in the functioning of the markets. The relevant equation for the **Granger-causality** tests becomes

$$\begin{aligned} \Delta P_t &= \sum_{i=1}^n \theta_{1i} \Delta P_{t-i} + \sum_{j=1}^3 \\ &\sum_{i=1}^n \theta_{2ij} \text{dummy}_j \Delta R_{t-i} - \\ &\sum_{j=1}^3 \gamma_j \text{dummy}_j (EC_{t-1}) + \epsilon_t \end{aligned} \quad (18)$$

in which  $EC_{t-1}$  are the lagged residuals from the estimated long-run relationship in (17)<sup>11</sup>. A test for Granger-causality over the entire period involves the rejection of the joint hypothesis (see (12)):

$$\begin{aligned} \theta_{211} &= \dots = \theta_{2n1} = \theta_{212} \\ &= \dots = \theta_{2n2} = \theta_{213} = \dots \\ &= \theta_{2n3} = \gamma_1 = \gamma_2 = \gamma_3 = 0 \end{aligned} \quad (19)$$

If appropriate, testing over sub-periods separately is possible as well. The structural equation, to be used for the testing short-run integration, can be written as:

$$\begin{aligned} \Delta P_t &= \sum_{i=1}^n \mu_{1i} \Delta P_{t-i} + \sum_{j=1}^3 \\ &\sum_{i=0}^n \mu_{2ij} \text{dummy}_j \Delta R_{t-i} \\ &- \sum_{j=1}^3 \lambda_j \text{dummy}_j (EC_{t-1}) + e_t \end{aligned} \quad (20)$$

which includes the present difference in prices in the reference market, appropriately interacted with the different dummies. To establish the bias involved in using **OLS**, it is again appropriate to run a Wu-test as described before with respect to the present difference in the reference market prices.

After estimating equation (20), it will be possible to implement tests to establish any change in short-run integration. For each sub-period, it can be tested whether short-run integration holds. In particular, adjusting (14), this test becomes for the first sub-period:

$$\begin{aligned} \mu_{11} &= \dots = \mu_{1n} = \mu_{211} + \mu_{212} = \dots \\ &= \mu_{2n1} + \mu_{2n2} = 0; \lambda_1 + \lambda_2 = 1; \end{aligned} \quad (21)$$

$$\mu_{201} + \mu_{202} = \alpha_1 + \alpha_2$$

while for the next two periods this becomes:

$$\begin{aligned} \mu_{11} &= \dots = \mu_{1n} = \mu_{212} = \dots \\ &= \mu_{2n2} = 0; \lambda_2 = 1; \mu_{202} = \alpha_2 \end{aligned} \quad (22)$$

and

$$\begin{aligned} \mu_{11} &= \dots = \mu_{1n} = \mu_{212} + \mu_{213} = \dots \\ &= \mu_{2n2} + \mu_{2n3} = 0; \lambda_2 + \lambda_3 = 1; \end{aligned} \quad (23)$$

$$\mu_{202} + \mu_{203} = \alpha_2 + \alpha_3$$

If stronger or new evidence can be found for **short-run** integration, this can be interpreted as statistical evidence for improved functioning of the markets, since the information will be transmitted faster. A further indicator of changed functioning of markets will be to look at any change in adjustment speed to errors, as reflected in the parameters on the

relevant error-correction terms. The closer to one, the faster errors relative to the long-run solution will be corrected, suggesting an improvement in arbitrage relative to periods of slower adjustment. Finally, it is possible to test in this short-run dynamic equation whether the long-run solutions implied by the cointegrating relationship are at all consistent with the evidence from the short-run equation. The relevant restrictions to be tested for each sub-period are

$$(\alpha_1 + \alpha_2) \sum_{i=1}^n \mu_{1i} + \sum_{j=1}^2 \dots \quad (24)$$

$$\sum_{i=0}^n \mu_{2ij} = (\alpha_1 + \alpha_2)$$

$$\alpha_2 \sum_{i=1}^n \mu_{1i} + \sum_{i=0}^n \mu_{2i2} = \alpha_2 \quad (25)$$

$$(\alpha_2 + \alpha_3) \sum_{i=1}^n \mu_{1i} + \sum_{j=2}^3 \dots \quad (26)$$

$$\sum_{i=0}^n \mu_{2ij} = (\alpha_2 + \alpha_3)$$

## 5. Results

The methodology described above was applied to some of the most important grain routes in the country. The most important markets, in some way connected with the main consumer deficit area, **Addis Ababa**, have been considered. In all possible directions, some of the main towns along the roads going to **Addis Ababa** have been considered, corresponding directly to the radial structure of the market as is often considered in the literature. Given the size of the **Addis Ababa** market, it would seem fully appropriate to use it as the reference market. In particular, the ten towns considered are **Debre Markos (Gojjam)**, **Kombolcha (Wollo)**, **Nazret**, **Ambo**, **Wolliso**, **Hosaenna**, **Shashemene** and **Debre Zeit (Shoa)**, **Jimma (Keffa)** and **Dire Dawa (Hararghe)**. **Debre Zeit**, **Debre Markos**, **Shashemene** and **Hosaenna** are in main surplus areas, **Nazret** is along the road from **Arssi**, another main surplus area.

In the appendix all the econometric results are given. First, the order of integration of each series (data between July 1987 until September 1993<sup>12</sup>). All level series are I(1) so that their differences are stationary (appendix table 1). This allows us to proceed to the second step, the estimation and testing of cointegration between markets. Since we want to be able to distinguish changes both in long-run and short-run relationships in the period up to liberalization, compared to the **aftermath** and also the period after the take-over, a (general) cointegrating regression was estimated as described in equation (17), with the pre-liberalization period defined as between July 1987 and February 1990, and the post-'peace' period as starting in June 1991. Consequently, the parameters  $\alpha$  and  $\beta$ , give the additional proportion of the **Addis Ababa** price being reflected in the particular market price.

Table 6.3 shows the results. Most market prices are clearly cointegrated with **Addis Ababa** prices, rejecting the absence of cointegration at, at least, 5 percent. Three markets are problematic. For **Kombolcha**, the absence of cointegration cannot be rejected at 5 percent using an Adjusted Dickey-Fuller test with four lags. Closer inspection of the result suggested that one lag was sufficient to avoid autocorrelation in the test-regression. An ADF-test with one lag implied that the absence of cointegration could be rejected at 5 percent. **Kombolcha** was therefore retained for further analysis<sup>13</sup>. Cointegration is more clearly rejected for **Debre Markos**, despite its location in a big surplus region, **Gojjam**. Recall however that in this region traders' activity until the liberalization period. This does not mean that long-run integration was restored after liberalization: cointegration tests on the sub-period starting from the date of liberalization did still not reject the absence of cointegration at 5 percent. **Debre Markos** was therefore excluded from the rest of the analysis. Even in the long-run, **Debre Markos** is not integrated with the **Addis Ababa market**<sup>14</sup>. The **Jimma** results suggest also no integration at all, and was further excluded.

**Table 6.3. Cointegrating Relationships**

$$\text{Price}_t = \text{CONSTANT} + \alpha_1 \cdot \text{dummy}_1 \cdot R_t + \alpha_2 \cdot \text{dummy}_2 \cdot R_t + \alpha_3 \cdot \text{dummy}_3 \cdot R_t + e_t$$

with  $R_t$  = price in reference market (Addis Ababa)

dummy<sub>1</sub> = 1 from 7/87 until 2/90, then 0

dummy<sub>2</sub> = 1 from 7/87 until 9/93

dummy<sub>3</sub> = 1 from 6/91 until 9/93, before 0

.....ADDIS ABABA..... cointegration test-statistics

	CONSTANT	ADDIS ABABA			Cointegration test-statistics		
		$\alpha_1$	$\alpha_2$	$\alpha_3$	DW	DF	ADF
					(4 lags)		
WOLLISO	7.54 (0.76)	0.01 (0.33)	0.68 (8.09)	0.05 (1.98)	1.11**	-5.12**	-3.50*
DEBRE ZEIT	26.14 (3.43)	-0.03 (-1.80)	0.7 (11.31)	0.05 (2.63)	1.50**	-6.34**	-3.54*
NAZRET	37.52 (4.68)	-0.05 (-2.97)	0.62 (9.09)	-0.001 (-0.06)	1.14**	- 5.09**	-3.65*
JIMMA	69.31 (5.39)	0.03 (0.91)	0.12 (1.07)	0.11 (3.60)	0.44	-3.01	-2.27
AMBO	19.67 (1.82)	-0.07 (-2.89)	0.65 (7.02)	0.05 (2.07)	1.12**	-5.17**	-3.21*
DEBRE MARKOS	40.16 (3.68)	-0.21 (-8.46)	0.40 (4.31)	0.07 (2.63)	0.45	-3.08	3.44*
DIRE DAWA	27.49 (2.16)	0.02 (0.55)	0.97 (8.91)	-0.01 (-0.34)	1.13**	-5.18**	-3.65*
KOMBOLCHA	17.58 (1.92)	-0.14 (-6.72)	0.78 (10.07)	0.02 (0.84)	0.80*	-3.91*	-2.86
HOSEANNA	33.85 (3.58)	-0.12 (-5.45)	0.43 (5.39)	0.07 (3.18)	1.60**	-5.42**	-5.83**
SHASHEMENE	45.44 (4.64)	-0.10 (-4.65)	0.48 (5.77)	0.08 (3.46)	1.21**	-5.34**	-5.00**
ZIWAY	24.09 (2.49)	-0.13 (-5.91)	0.72 (8.77)	0.05 (2.13)	1.35**	-5.90**	-3.45*

t-value in brackets

\*\* = absence of cointegration rejected at 1 % (DF and ADF only)

Source for critical values cointegration tests: Engle and Yoo (1987)

Even though no correct inference can be made in the cointegrating regression, a further interpretation of the results can still be attempted. The estimates for  $\alpha_1$  and  $\alpha_2$  have large t-values, lending some support to the constant-cum-proportional marketing margin specification. The estimates for  $\alpha_1$  and  $\alpha_2$  are broadly consistent with expectations<sup>15</sup>. Before liberalization, prices in 8 out of the 11 towns were a smaller proportion of the Addis Ababa price, implying in each case higher marketing margins. For some, such as Debre Markos, Kombolcha, Ziway, Hosaenna and Shashemene,  $\alpha_1$  is -0.10 or more. Liberalization allowed prices in, for example, Debre Markos and Hosaenna to increase by 37 percent and 17 percent respectively. After the EPRDF take-over, the proportion of Addis Ababa prices passed on to each market price was roughly the same or less than 5 percent higher in 8 out of 11 cases, suggesting no or little effect from the peace<sup>16</sup>. In four cases, however, (Jimma, Shashemene, Hosaenna, and Debre Markos), we can observe a clear decline in the estimated margin, with  $\alpha_1$  equal to 0.07 to 0.11. Since Debre Markos, Shashemene and Hosaenna are close to surplus areas, peace may have had a positive effect on prices in certain surplus regions through a reduced marketing margin: prices in Debre Markos and Hosaenna for example went up by about 13 percent. Since it is likely that at least some part of this increase was passed on to producers, it is probable that they have been important gainers from the liberalization and the peace<sup>17</sup>.

An autoregressive-distributed lag (ADL) model with four lags was estimated to check whether we should suspect a bias in the estimates in the cointegrating regression. The results are in table 2 in the appendix. In general, the long-run solutions obtained are consistent with the results of the cointegrating regressions. In some cases both the constant and the estimate for  $\alpha_2$  seem to be somewhat different (e.g. Debre Markos and Debre Zeit), but without affecting the conclusions reached thus far<sup>18</sup>.

In preparation for the dynamic analysis, equation (18) was estimated. The estimates were used for testing Granger-causality from Addis Ababa prices to the other prices. The results are reported in appendix table 3. As expected, the

absence of Granger-causality could be rejected in virtually all cases. In two cases, Wolliso and Kombolcha, the rejection is only possible at 12 and 19 percent respectively. These markets are, however, relatively peripheral, so this weak evidence seemed not sufficient to drop these markets from the rest of the analysis. In general, a flow of information from Addis Ababa to all the different markets seems acceptable, and therefore a specification with Addis Ababa as the reference market will be maintained.

Next, the Wu-(Hausman)-test for endogeneity was implemented using a fitted value for the difference in Addis Ababa prices, explained by two lags of the dependent variable and by two lags of the differences in prices for all the markets used in the analysis and including the error-correction terms for each market<sup>19</sup>. The auxiliary regression and the Wu-test statistics are reported in appendix tables 4 and 5. The error-correction terms were not significant in the auxiliary regression. Further, it turned out that the null of independence could not be rejected at 5 percent in any of the equations, suggesting that OLS would not result in an important bias in the estimations of the structural equations.

Consequently, OLS was used to estimate the structural equations for each market, using equation (20). Differences in prices in each market were regressed on two lags of the dependent variable, present and up to two lags of changes in Addis Ababa prices, including different terms for the period up to liberalization and the period from the change of regime in 1991 to measure any differences in the dynamic effects of price changes. Finally, error-correction terms, the residuals of the cointegrating regression, are included, again with additional terms for the two sub-periods as above. Two lags were found to be sufficient to exclude diagnostic problems with the residuals. The specification is very general, and not surprisingly, many terms are not significant. The estimated equations are shown in the appendix in tables 7 (a,b, and c).

One indicator for changes in the functioning of the markets would be changes in the adjustment speed to errors relative to the long-run relationship, given by the coefficient on the error correction term. In two markets, Hosaenna and Dire Dawa,

this coefficient is significantly different for each of the sub-periods. In the case of Hosaenna, the findings do not imply a change in the adjustment speed, since in each sub-period the coefficient is as close to minus one as in the others (even though at different sides of minus one, so that the adjustment path is different but not necessarily the speed). The Dire Dawa results suggest a *lower* adjustment speed in the post-take-over period. For all other markets, adjustment to errors in long-run equilibrium has not changed at all.

Next, short-run market integration was tested in this equation for each sub-period, as was described in (24), (25) and (26). Important short-run integration changes were found (table 6.4). First, only Shashemene and Debre Zeit have consistently remained integrated in the short run with the Addis Ababa market. Short-run integration in this case means that changes in the monthly average price in one market are reflected in the average price of the same month in the other market. Debre Zeit is the closest market to Addis Ababa, while Shashemene is the most important

and vibrant market town in the South. From all the other towns, only Nazret, close to Debre Zeit, was also integrated in the short run with Addis Ababa. Of the remaining towns, in five towns (Wolliso, Ambo, Dire Dawa, Kombolcha, Ziway) short-run integration was obtained after liberalization: it could not be rejected at 5 percent, even though in Kombolcha and Ziway it could be rejected at 10 percent. In Hosaenna, the return to peace was instrumental to obtain short-run integration with Addis Ababa, while in Ziway short-run integration was now not rejected, even at 10 percent. In two markets, Nazret and Dire Dawa, short-run integration was reversed after the EPRDF take-over.

In appendix table 8, long-run integration tests are reported. They test the consistency of the cointegrating regressions with the long-run results implied in the short-run dynamics. In all but three cases the long-run relationships implied are not rejected in the short-run equation. The exceptions are Dire Dawa before and after liberalization, and

**Table 6.4. Short-run integration (F(6,58))**

	7/87-2/90	3/90-5/91	5/91-7/93
Addis Ababa to:			
Wolliso	3.07*	1.04	.34
Debre Zeit	1.84	1.61	0.90
Nazret	1.85	1.35	3.14*
Ambo	2.76*	1.33	1.06
Dire Dawa	2.78*	0.94	2.75*
Kombolcha	2.98*	1.89	2.22-
Hosaenna	2.72*	3.32**	1.43
Shashemene	1.64	1.21	0.41
Ziway	2.92*	1.88-	1.70

-=rejected at 10 percent

\*=rejected at 5 percent

\*\*=rejected at 1 percent

Hosaenna after liberalization. Some of the short-

run and long-run results are surprising, and some

tests were done on the robustness of the results. Tests on the residuals of the dynamic equations revealed no problems with the specification. The short- and long-run tests were also repeated in a model with up to 4 lags (instead of 2). None of the short-run results were changed, but the inconsistency in the Hosaenna dynamic specification did not show up in the long-run integration tests, while for Dire Dawa long-run integration was only rejected at 10 percent. This suggests that the long-run test results may not be cause for too much concern.

The short-run test results show that liberalization clearly improved the functioning of markets: an increasing number of markets became in the short-run linked to the price movements in **Addis Ababa**. For some markets, such as Hosaenna, short-run integration was only achieved after the EPRDF take-over, suggesting a positive influence from the return to peace and security.

Finally, both Dire Dawa and Nazret (on the main road linking **Addis Ababa** and Dire Dawa) showed a decline in short-run integration with **Addis Ababa** after the take-over. The former may be reflection of the temporary insecurities along that route, following the EPRDF take-over and the problems with another movement, the OLF, and more general bandit activity, which was reported there. The **Nazret** result is more striking: giving its location, a clear integration with **Addis Ababa** would be expected. A close inspection of figure 1 shows, however, that the Nazret prices became during 1993 higher than the **Addis Ababa** prices, which suggests a reversal of flows relative to **Addis Ababa**. A possible explanation may be that given the relative low prices in **Addis Ababa**, traders activity has switched during 1993 more towards Dire Dawa. The model is not designed to allow for this possibility and this may result in an apparent failure of short run integration tests<sup>20</sup>.

## 6. Conclusion

This paper presented means of analyzing the consequences of liberalization and peace. Standard analysis focuses on static results of liberalization - levels of prices and margins before and after reform. In this paper we extended and adjusted market integration analysis to allow conclusions about the functioning of markets as well. The

analysis was applied to teff markets in Ethiopia.

The quota-system and repression of private trade have had important consequences on both the level of prices and the functioning of markets. Liberalization has been successful in correcting the taxation effects through increasing prices, especially in the main producing areas, without raising prices in the main consuming areas. Liberalization also has had a positive effect on the functioning of markets: five markets became integrated with **Addis Ababa** in the period after the policy change.

The fall of the Mengistu regime has had relatively little effect on the level of prices, except for a temporary effect. The return to security may well have been important in some specific peripheral markets or in war-zones, in most of the country the effect on prices has not been very large. There were some exceptions: in at least three markets prices moved closer to the **Addis Ababa** prices after the take-over, and in one, Hosaenna, it allowed a further increase in the integration of markets with the center, **Addis Ababa**.

This does not mean that after reform and the end of civil war, all markets are well integrated. In particular, **Debre Markos** - the capital of **Gojjam**, a main cereals growing area - was not integrated in the long-run with **Addis Ababa**. Using only the more recent data, no evidence could be found for integration with **Addis Ababa** either, even though prices in **Debre Markos** were able to rise considerably following liberalization and peace. The lack of integration is despite increased security, a direct road connection (about 12 hours by truck maximum) and proper communications. Recall, however, that in **Gojjam** grain trade was banned for considerable time. The repression of trade for more than a decade can seemingly not be resolved in a few years. The re-emergence of an effective number of grain traders seems a slow process; traders need capital and skills while experienced traders may well have switched to other profitable activities during the repression. Furthermore, the short-run market integration found for several markets is based on monthly data, meaning that the gains from arbitrage are eroded within one month, which is far longer than needed to pass on information on prices and to move grain. More refined data, on a weekly or daily basis may well show the failure of short-run



integration across these markets.

The analysis is able to pick up changes in and problems with the relationships between markets. However, it can only notice these changes or problems with trade routes. Why long-run or short-

run arbitrage fails to be perfect is not addressed.

To reach strong policy conclusions, it is necessary to supplement this analysis with microeconomic studies of market structure and traders behavior.

## Notes

1. This paper was started while I was a Visiting Lecturer at the Economics Department, Addis Ababa University. I am grateful to the staff at the department for facilitating the research.
2. For an analysis of the evolution of grain marketing in Ethiopia, see Alemayehu Lirens (1987)
3. This famine has been identified by Sen (1981) as resulting from a dramatic entitlement failure by peasants and pastoralists, even though this view is not without controversy (see e.g. Devereux (1988)).
4. Examples of such studies are Bryceson (1992) or Santorum et al. (1992) on Tanzania.
5. It should be stressed that Ravallion's approach is still a valid way of approaching the problem if prices are stationary. If not, it could not yet use the body of literature on testing long-run relationship in non-stationary series (cointegration), while if the model was estimated in levels non-stationarity could invalidate the inference.
6. Some aspects of the modelling methodology have appeared in Alexander and Wyeth (1994), but in their attempt to 'simplify' the approach, several fundamental econometric mistakes (see for a discussion, Dercon (1993)).
7. Alternatively, the relationship could be specified in logarithms if this seems a more appropriate way of considering transport costs.
8. Pesaran and Smith [1990] discuss this type of orthogonality tests. Urbain [1992] questions however the power of these tests in error-correction models. In particular, the outcome seems very sensitive to the specification of the auxiliary model. He takes up Engle and Granger's [1987] suggestion to introduce the error-correction term from the model of interest (ie. with  $\Delta P_t$  as dependent variable) into the auxiliary regression for  $\Delta R_t$ . The significance of this term would suggest some feedback from  $P$  to  $R$ , and is likely to suggest a failure of weak-exogeneity of  $R$  relative to  $P$ . This may be the justification for the test suggested by Alexander and Wyeth [1994], even though it is not a standard nor formal way of testing exogeneity. The appropriate route would then seem to be to introduce the error-correction term into the auxiliary regression and to combine a check of its significance with the standard Wu-test as suggested above. Note however that the tests remains indirect, since no direct and formal tests for exogeneity exist [Banerjee, et al., 1993].
9. The latter assumption is in fact not necessary in general: differences could also be found in the constant  $\delta$  between periods, and this extension is easily dealt with. In the actual empirical analysis, it was however found that these extra dummy-variables did not become significant in the long-run relationship, so the present specification is used in this section, simplifying the exposition. Some of the main anomalies in the results were re-checked using the more general specification, but it turned out that none of the conclusions reached were affected.
10. This equation allows tests whether over the entire period a cointegrating relationship exists between the different price series, but with different values of  $\alpha$  and  $\delta$  in the different sub-periods. If cointegration is rejected, then it would be appropriate to check whether there has been a change, for example after liberalization compared to before: cointegration may only have started afterwards. This tests cannot be nested in an estimated equation over the entire period, but will require to take the sub-periods separately.

11. Note the absence of interaction terms on lagged values of  $\Delta P$ . There is no reason to expect a change in which lagged prices *within* the same market location affect present prices after liberalization of the flows *between* markets.

12. The analysis is in real prices defined as before. In this way we avoid apparent **cointegration** between series because of a common inflationary trend without any direct interdependence between **the** markets.

13. The limited significance of the tests for Kombolcha may be related to its location, just South of some of the most famine-vulnerable areas in the countries. Throughout the **1980s**, and even later, large amounts of food aid were distributed in Wollo. Kombolcha was one of the main storage points for NGO food aid. It is very likely that the food aid would have found its way through to the open markets, at least partially. This may well have resulted in distortions in the market for teff for considerable periods of time, affecting its market relations with Addis Ababa. The problems were not obviously caused by the specification. All the tests were repeated with dummies for each sub-period to allow for changes in the constant in (16). The absence of cointegration was again **only** rejected at 5 percent using the different tests, and the short-run integration tests gave similar results as the results described below.

14. Cointegration tests using the **Debre Markos** prices were also implemented allowing for changes in the constant in (16), and for sub-periods of the sample. Even for the period since the end of civil war, the absence of cointegration could not satisfactorily be rejected. Even though the sample period becomes very short for cointegration testing (25 observations), long-run integration can still not be observed in the more recent periods, justifying the exclusion of **Debre Markos** for the short-run integration tests.

15. The interpretation of the coefficients in the cointegrating regressions needs some care. Recall that the marketing margin is defined as in equation (6):  $R_t - P_t = -\delta + (1-a) \cdot a$ . For **all** but one market (Dire Dawa), the margins with Addis Ababa are positive, so that a higher margin corresponds to a **lower** value for  $a$ . Margins are also a function of  $R_t$ . The higher  $R_t$ , the higher  $a$  needs to be to keep the **level** of the margin the same. The latter may confuse the conclusions somewhat. In particular, the mean Addis Ababa price before liberalization was about 126 birr per quintal; after liberalization but before 'peace' 119 birr per quintal and afterwards 124 birr. Consequently, the same **level** of the margin before or after liberalization (or peace) would actually require  $a$ , (or  $a$ ), given the estimated values for  $\alpha_2$  to be (up to) +0.05 (or +0.04 for  $a$ ). In other words, to conclude safely that a lower long-run margin **persisted** before liberalization (or after peace), would require the estimated values of  $a$ , ( $a$ ) to reach **values** well above 5 percent (or 4 percent for  $a$ ).

16. See the previous note.

17. Given the failure of cointegration tests, the interpretation of the results for **Debre Markos** can only be suggestive.

18. Also, little difference could be found between the residuals from the long-run solution to the **ADL**-model and those of the cointegrating regression. The dynamic analysis was later repeated with the estimated residuals from the **ADL**-model as the error-correction term, but, as expected, this did not affect any of the conclusions.

19. Implicitly we therefore allowed that all markets are endogenous, but that all interaction between different markets will be happening through the Addis Ababa market.

20. This is not to say that the Nazret market has **fully** adjusted towards price movements in Dire Dawa. First, multivariate cointegration tests showed that adding Dire Dawa prices to cointegrating regression with Nazret prices explained by Addis Ababa prices, gave insignificant results for the Dire Dawa price

terms. Also, a bivariate dynamic model was estimated with the change in **Nazret** prices explained by the appropriate terms of Dire Dawa prices and an error correction **term** from a cointegrating regression of Nazret on Dire Dawa prices. This dynamic model had substantial explanatory power, but short run integration was rejected in all three sub-periods. If there has been a reversal of flows in which teff is moved from Nazret to Dire Dawa instead of to **Addis** Ababa, this does not (yet) imply that Nazret and Dire Dawa are integrated in the short **run**. Finally, the breakdown of short run integration between **Addis** Ababa and Nazret after the EPRDF take-over was also found to pre-date the reversal in the relative level of prices: short-run integration was also rejected in the period between the 'peace' and the end of May 1993, before Nazret prices became higher than **Addis** Ababa prices. The conclusion is that some adjustment in flows is likely to be happening, but short-run arbitrage seems not to have been fully restored. For a systematic treatment of the spatial relationship between two markets with potentially reversing trade flows, see **Dahlgran** and Blank [1992].

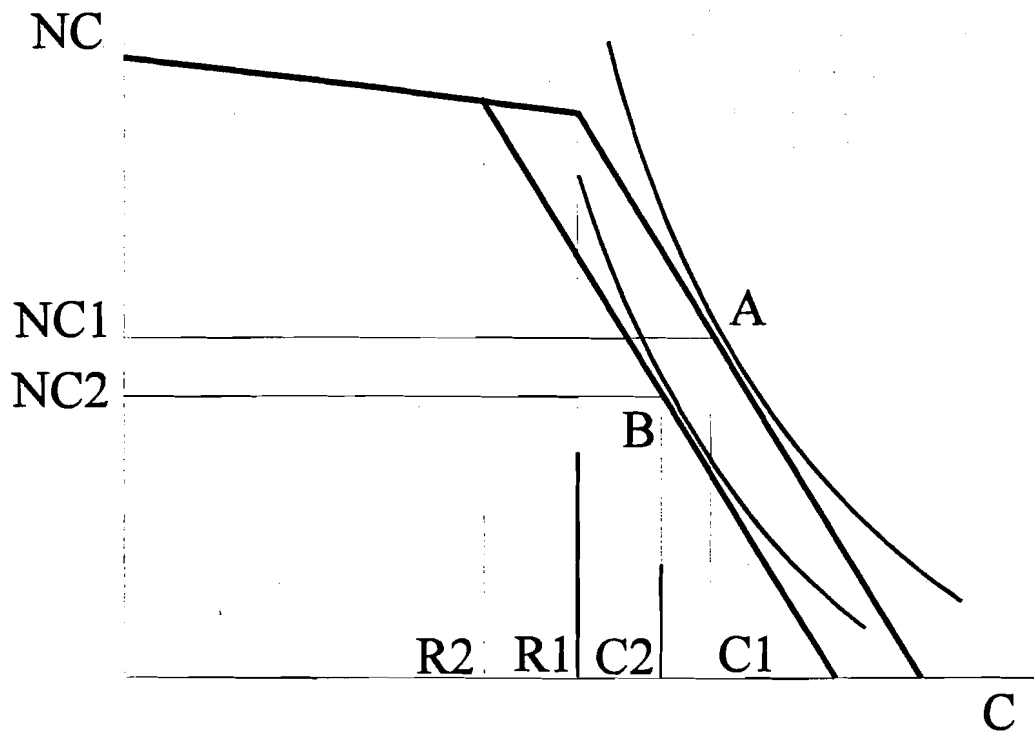
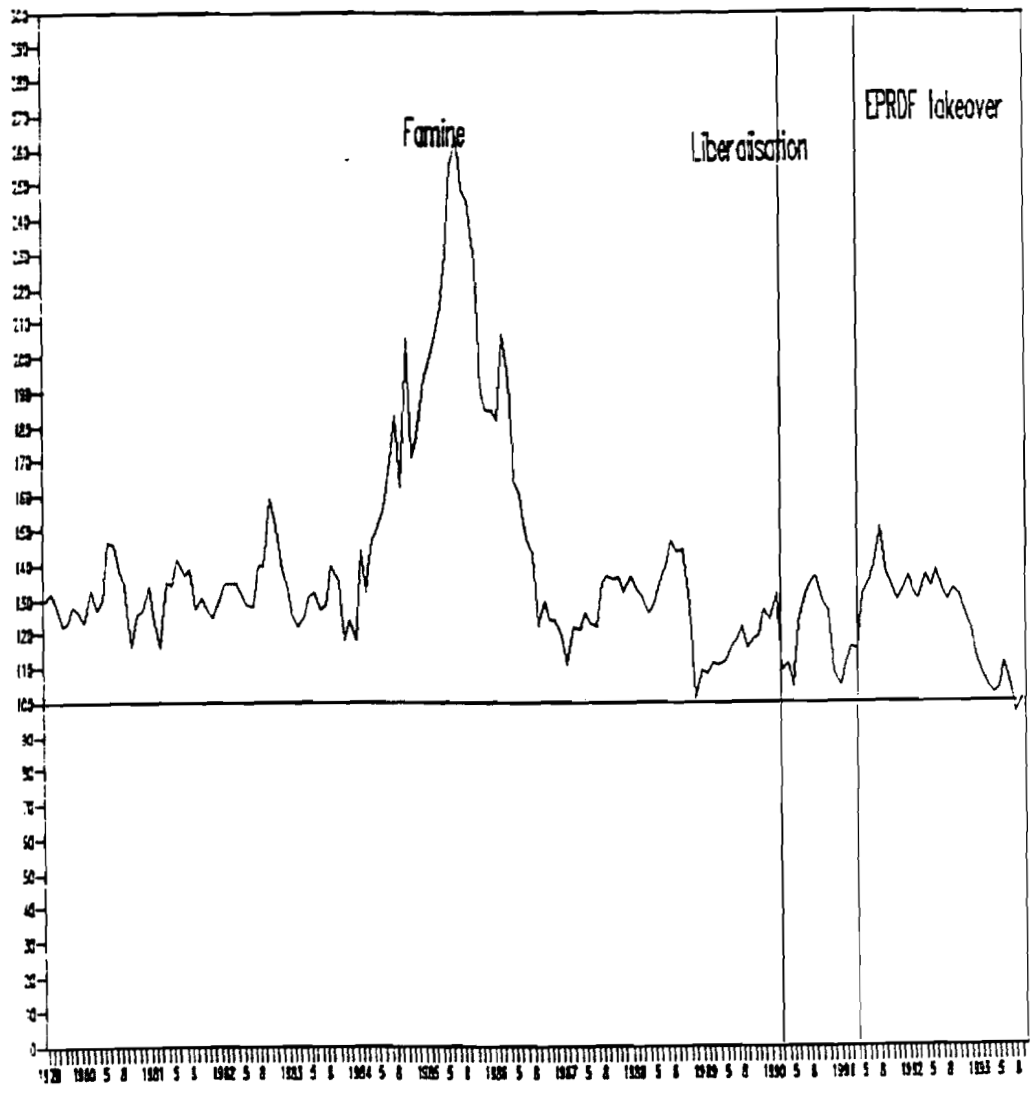


Figure 1

# Retail price White Teff Addis Ababa in 1988/1 real birr per quintal



addis ababa

Figure 2

# REAL 1988/1 TEFF PRICES SELECTED MARKETS

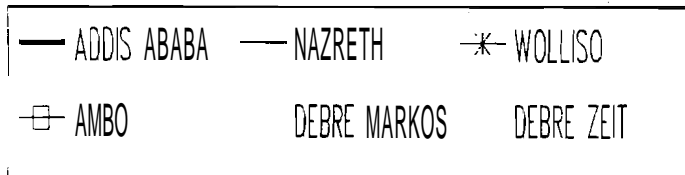
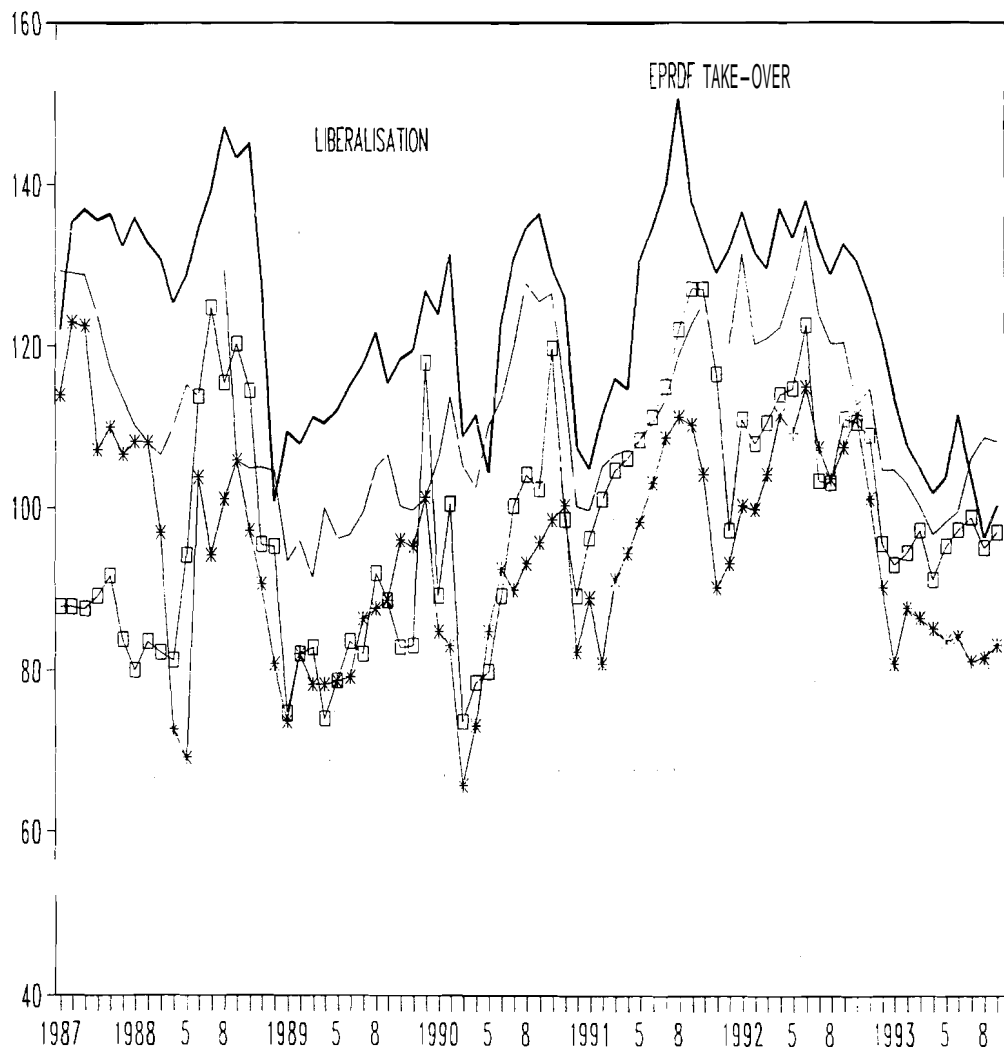


Figure 3

# REAL 1988/1 TEFF PRICES SELECTED MARKETS (2)

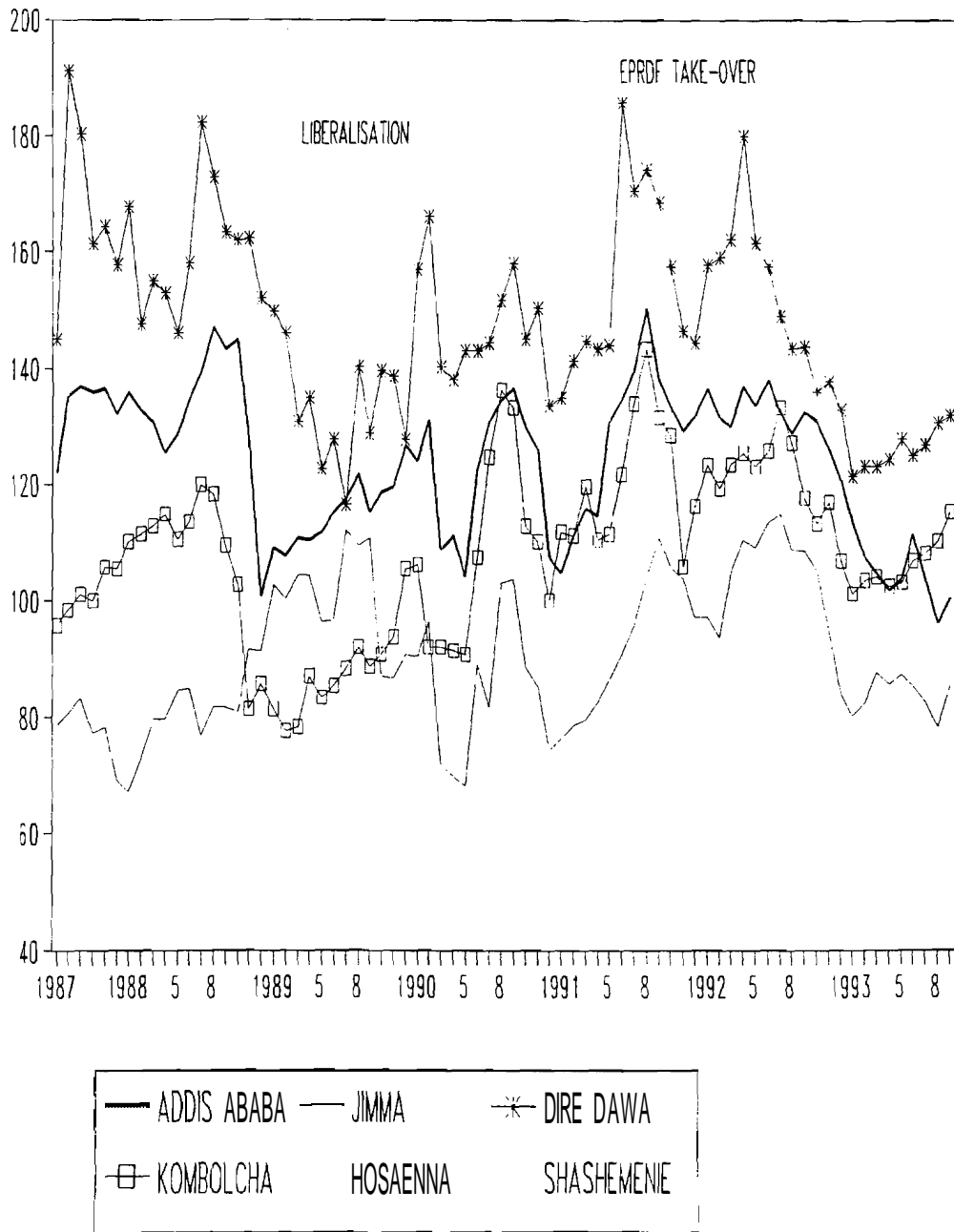


Figure 4



## Appendix

**Table 1. Unit Root Tests for All Variables**

<b>1. Levels (I(1) vs. I(0))</b>	DW	DF	ADF (4 lags)
Addis Ababa	0.3	-1	-0.7821
Nazret	0.4	-0	-0.4338
Wolliso	0.5	-1	-0.8559
Ambo	0.5	-0	-0.193
Dire Dawa	0	-1	-0.698
Debre Markos	0.1	-0	-0.132
Kombolcha	0.3	-0	-0.0474
Debre Zeit	0.5	-1	-0.4976
Hoseanna	0.3	-0	-0.3158
Shashemene	0.3	-0	-0.0014
Ziway	0.2	-0	-0.2101
<b>2. Differences (I(2) vs. I(1))</b>	DW	DF	ADF (4 lags)
$\Delta$ Addis Ababa	1.9	-7.895**	-4.959**
$\Delta$ Nazret	2.1	-8.511**	-3.984**
$\Delta$ Wolliso	2.1	-8.621**	-4.650**
$\Delta$ Ambo	2.5	-10.450**	-4.717**
$\Delta$ Dire Dawa	2.5	-10.560**	-4.404**
$\Delta$ Debre Markos	1.7	-7.270**	-3.970**
$\Delta$ Kombolcha	1.7	-7.141**	-4.817**
$\Delta$ Debre Zeit	2.3	-9.727**	-4.711**
$\Delta$ Hoseanna	2.4	-10.690**	-5.210**
$\Delta$ Shashemene	2.3	-9.873**	-5.625**
$\Delta$ Ziway	1.9	-8.417**	-4.662**

\*\* = rejecting H at 1 percent (in case of DF and ADF).

Table 2. Long-run Solution to Autoregressive Distributed Lag Model  
(4 lags for dependent and independent variables)

$$\text{Price} = \text{Constant} + \alpha_1 \cdot \text{dummy}_1 \cdot R + \alpha_2 \cdot \text{dummy}_2 \cdot R + \alpha_3 \cdot \text{dummy}_3 \cdot R$$

with R = price in reference market (Addis Ababa)

dummy<sub>1</sub> = 1 from 7/87 until 2/90, then 0

dummy<sub>2</sub> = 1 from 7/87 until 9/93

dummy<sub>3</sub> = 1 from 6/91 until 9/93, before 0

	<u>Addis Ababa</u>			
	Constant	$\alpha_1$	$\alpha_2$	$\alpha_3$
Wolliso	11.14	-0.04	0.67	0.03
	-0.55	(-0.90)	(3.91)	(0.65)
Debre Zeit	51.19	-0.03	0.52	0.06
	-2.95	(-1.21)	(3.57)	(1.91)
Nazret	34.03	-0.07	0.64	0.02
	-2.56	(-2.92)	(5.65)	(0.64)
Ambo	34.31	-0.10	0.58	0.00
	-1.14	(-1.75)	(2.29)	(0.01)
Debre Markos	8.42	-0.27	0.72	-0.00
	-0.27	(-5.01)	(2.69)	(-0.05)
Dire Dawa	24.87	0.02	0.98	-0.03
	-0.95	(0.32)	(4.44)	(-0.55)
Kombolcha	48.87	-0.16	0.55	-0.00
	-1.38	(-3.08)	(1.91)	(-0.05)
Hoseanna	52.6	-0.12	0.28	0.08
	-5.21	(-6.62)	(3.32)	(4.07)
Shashemene	54.18	-0.13	0.42	0.07
	-5.58	(-7.19)	(5.17)	(3.44)
Ziway	39.18	-0.15	0.60	0.04
	-3.05	(-6.70)	(5.55)	(1.88)

**Table 3. Granger-causality Test: Do Addis Ababa Prices Granger-cause Others?**  
Wald test for linear restrictions (4 lags for dependent and independent variables)

---

1. $\Delta$ WOLLISO:	F( 9, 61) = 1.66 [0.12]
2. $\Delta$ DEBRE ZEIT:	F( 9, 61) = 3.43 [0.00] **
3. $\Delta$ NAZRET:	F( 9, 61) = 2.15 [0.04] *
4. OAMBO:	F( 9, 61) = 2.16 [0.04] *
5. $\Delta$ DIRE DAWA:	F( 9, 61) = 2.23 [0.03] *
6. OKOMBOLCHA:	F( 9, 61) = 1.45 [0.19]
7. QHOSAENNA:	F( 9, 61) = 4.34 [0.00] **
8. OSHASHEMENE:	F( 9, 61) = 3.26 [0.00] **
9. $\Delta$ ZIWAY:	F( 9, 61) = 3.00 [0.01] **

---

- = significant at 10 %  
\* = significant at 5 %  
\*\* = significant at 1 %

**Table 4. Auxiliary Regression (for Wu-test of Endogeneity)  
Modelling  $\Delta$ AA by OLS (1987 (10) to 1993 (9))**

<b>Variable</b>	<b>Coefficient</b>	<b>Std.Error</b>	<b>t-value</b>	<b>PartR<sup>2</sup></b>
$\Delta$ AA_1	0.11078	0.48468	0.229	0.0103
$\Delta$ AA_2	0.35685	0.40207	0.888	0.1361
$\Delta$ NAZ_1	-0.87204	3.5853	-0.243	0.0117
$\Delta$ NAZ_2	1.5679	2.2734	0.69	0.0869
$\Delta$ WOL_1	1.1535	1.5131	0.762	0.1041
$\Delta$ WOL_2	-0.25902	0.55631	-0.466	0.0416
$\Delta$ AM_1	0.38068	2.1035	0.181	0.0065
$\Delta$ AM_2	-0.77168	0.91268	-0.846	0.1251
$\Delta$ DM_1	-1.4954	3.317	-0.451	0.0391
$\Delta$ DM_2	-0.61084	2.0487	-0.298	0.0175
$\Delta$ DD_1	-1.1164	1.0089	-1.107	0.1967
$\Delta$ DD_2	-1.3831	1.7882	-0.773	0.1069
$\Delta$ KO_1	1.4215	2.2318	0.637	0.075
$\Delta$ KO_2	0.99958	1.8094	0.552	0.0575
$\Delta$ DZ_1	0.13805	0.56194	0.246	0.0119
$\Delta$ DZ_2	2.1226	1.6789	1.264	0.2422
$\Delta$ HO_1	-0.28197	1.092	-0.258	0.0132
$\Delta$ HO_2	-0.013718	0.6934	-0.02	0.0001
$\Delta$ SH_1	0.253	0.91368	0.277	0.0151
$\Delta$ SH_2	1.1118	2.4204	0.459	0.0405
$\Delta$ ZI_1	0.058734	0.49066	0.12	0.0029
$\Delta$ ZI_2	-3.0302	2.8032	-1.081	0.1894
$\Delta$ NAZpea_1	0.63743	3.4852	0.183	0.0066
$\Delta$ NAZpea_2	-0.74323	2.5902	-0.287	0.0162
$\Delta$ NAZpre_1	0.58404	3.187	0.183	0.0067
$\Delta$ NAZpre_2	-1.6632	2.3506	-0.708	0.091
$\Delta$ WOLpre_1	-2.099	1.6903	-1.242	0.2357

Variable	Coefficient	Std.Error	t-value	PartR <sup>2</sup>
$\Delta$ WOLpre_2	0.053545	0.70508	0.076	0.0012
$\Delta$ WOLpea_1	-0.80309	1.5302	-0.525	0.0522
$\Delta$ AMpre_1	0.0097928	2.2014	0.004	0
$\Delta$ AMpre_2	0.94215	1.0934	0.862	0.1293
$\Delta$ AMpea_1	-0.78551	1.9531	-0.402	0.0313
$\Delta$ DMpre_1	-0.38997	3.5519	-0.11	0.0024
$\Delta$ DMpre_2	0.4411	2.1466	0.205	0.0084
$\Delta$ DMpea_1	1.8653	3.4949	0.534	0.0539
$\Delta$ DMpea_2	-0.28849	2.3214	-0.124	0.0031
$\Delta$ DDpre_1	0.94921	1.0536	0.901	0.1397
$\Delta$ DDpre_2	0.63855	1.8161	0.352	0.0241
$\Delta$ DDpea_1	0.88635	1.3109	0.676	0.0838
$\Delta$ DDpea_2	2.0253	1.9127	1.059	0.1832
$\Delta$ KOpre_1	-1.9779	2.2794	-0.868	0.1309
$\Delta$ KOpre_2	-1.2255	1.7671	-0.694	0.0878
$\Delta$ KOpea_1	-1.5538	2.2833	-0.68	0.0848
$\Delta$ KOpea_2	-1.3529	1.7675	-0.765	0.1049
$\Delta$ DZpre_2	-1.6734	1.8696	-0.895	0.1381
$\Delta$ DZpea_1	-0.065583	0.52825	-0.124	0.0031
$\Delta$ DZpea_2	-2.8377	1.733	-1.637	0.3491
$\Delta$ HOpea_1	0.54278	1.0454	0.519	0.0512
$\Delta$ HOpea_2	0.47647	1.016	0.469	0.0421
$\Delta$ SHpre_1	-0.82544	1.1311	-0.73	0.0963
$\Delta$ SHpre_2	-1.2325	2.3644	-0.521	0.0515
$\Delta$ SHpea_2	-1.1388	2.5974	-0.438	0.037
$\Delta$ ZIpre_1	1.2083	0.55185	2.19	0.4895
$\Delta$ ZIpre_2	3.9616	2.9605	1.338	0.2637
$\Delta$ HOpre_1	0.57869	1.0973	0.527	0.0527
$\Delta$ HOpre_2	0.84953	0.85292	0.996	0.1656

Variable	Coefficient	Std.Error	t-value	PartR <sup>2</sup>
$\Delta ZI_{pea\_2}$	2.8876	2.9236	0.988	0.1633
Reswolg_1	0.49245	0.64771	0.76	0.1036
ResDZ_1	0.35494	0.62427	0.569	0.0607
ResNAZ_1	0.056971	0.81155	0.07	0.001
ResAM_1	0.13726	0.41598	0.33	0.0213
ResKOM_1	0.27002	0.49633	0.544	0.0559
ResDM_1	0.089051	0.33447	0.266	0.014
ResDD_1	0.1309	0.37197	0.352	0.0242
ResHO_1	-0.49598	0.54948	-0.903	0.1401
ResSH_1	0.03566	0.39232	0.091	0.0016
ResZI_1	-0.29416	0.62423	-0.471	0.0425

**R<sup>2</sup> = 0.962858 a = 5.56255 DW = 1.90**

\* Some variables had to be excluded since singularity of matrix for inversion during estimation.

**Table 5. Endogeneity Tests**  
(two lags for dependent and independent variables)

First test: add fitted value for  $\Delta AA$  from auxiliary regression, as well as  $\Delta AA$  interacted with the dummy, (pre-liberalisation) and dummy, (post-peace). Test is joint significance of three terms.

Second test: add fitted value for  $\Delta AA$  from auxiliary regression. Test is significance of this term.  
(All tests are Wald-tests for linear restrictions.)

1. $\Delta WOL$ :	(1) LinRes	F(3, 55) =	2.30 [0.09]-
	(2) LinRes	F(1, 57) =	2.54 [0.12]
2. $\Delta DZ$ :	(1) LinRes	F(3, 55) =	1.21 [0.31]
	(2) LinRes	F(1, 57) =	2.50 [0.11]
3. $\Delta NAZ$ :	(1) LinRes	F(3, 55) =	0.79 [0.51]
	(2) LinRes	F(1, 57) =	0.51 [0.48]
4. $\Delta AM$ :	(1) LinRes	F(3, 55) =	1.36 [0.27]
	(2) LinRes	F(1, 57) =	0.44 [0.51]
5. $\Delta DD$ :	(1) LinRes	F(3, 55) =	0.51 [0.68]
	(2) LinRes	F(1, 57) =	0.98 [0.33]
6. $\Delta KO$ :	(1) LinRes	F(3, 55) =	0.98 [0.41]
	(2) LinRes	F(1, 57) =	0.11 [0.74]
7. $\Delta HO$ :	(1) LinRes	F(3, 55) =	0.30 [0.83]
	(2) LinRes	F(1, 57) =	0.11 [0.75]
8. $\Delta SH$ :	(1) LinRes	F(3, 55) =	0.47 [0.70]
	(2) LinRes	F(1, 57) =	0.51 [0.48]
9. $\Delta ZI$ :	(1) LinRes	F(3, 55) =	0.55 [0.65]
	(2) LinRes	F(1, 57) =	1.12 [0.29]

- = rejected at 10 %

**Table 6. Variable Names**

---

AA	=	Addis Ababa
WOL	=	Wolliso
DZ	=	Debre Zeit
NAZ	=	Nazret
AM	=	Ambo
DM	=	Debre Markos
DD	=	Dire Dawa
KO	=	Kombolcha
HO	=	Hosaenna
SH	=	Shashemene
ZI	=	Ziway

---

...pea = variable multiplied by dummy,, implying variable zero except for period 6/91 until 9/93.

...pre = variable multiplied by dummy,, implying variable zero except for period 7/87 until 2/91.

Res = residual from cointegrating relationship.



Table 7. Short Run Dynamic Equations (1)-(3)

EQ(1) Modelling $\Delta$ WOL by OLS			
The present sample is: 1987 (10) to 1993 (9)			
Variable	Coefficient	Std.Error	t-value
$\Delta$ WOL_1	0.066159	0.1284	0.515
$\Delta$ WOL_2	-0.072477	0.12379	-0.585
AAA	0.70938	0.17783	3.989
$\Delta$ AA_1	-0.08615	0.17972	-0.479
A AA-2	-0.035273	0.1774	-0.199
$\Delta$ AAprelib	-0.21755	0.24833	-0.876
$\Delta$ AApreli_1	0.29015	0.24808	1.17
$\Delta$ AApreli_2	-0.13357	0.24324	-0.549
$\Delta$ AApeace	-0.069002	0.2898	-0.238
$\Delta$ AApeace_1	0.12815	0.28628	0.448
A AA peace-2	0.24973	0.29711	0.841
ResWOL_1	-0.75505	0.26808	-2.816
ResWOLPre_1	0.28122	0.29169	0.964
ResWOLPea_1	0.30637	0.367	0.835
$R^2 = 0.477365$ $a = 6.84989$ $DW = 1.95$			
EQ(2) Modelling ADZ by OLS			
The present sample is: 1987 (10) to 1993 (9)			
Variable	Coefficient	Std.Error	t-value
$\Delta$ DZ_1	-0.21067	0.14732	-1.43
$\Delta$ DZ_2	-0.034486	0.12545	-0.275
AAA	0.8781	0.1408	6.237
AAA_II	0.4924	0.18432	2.671
$\Delta$ AA_2	-0.068449	0.18427	-0.371
$\Delta$ AAprelib	-0.3572	0.20607	-1.733
$\Delta$ AApreli_1	-0.55269	0.20891	-2.646
$\Delta$ AApreli_2	0.33714	0.21477	1.57
AApeace	-0.11203	0.22638	-0.495
$\Delta$ AApeace_1	-0.0025416	0.23346	-0.011
$\Delta$ AApeace_2	0.13751	0.24722	0.556
ResDZ_1	-0.7843	0.36294	-2.161
ResDZpre_1	0.18375	0.37326	0.492
ResDZpea_1	0.44729	0.39359	1.136
$R^2 = 0.701977$ $\sigma = 5.41444$ $DW = 1.90$			

EQ(3) Modelling ANAZ by OLS

The present sample is: 1987 (10) to 1993 (9)

Variable	Coefficient	Std.Error	t-value
$\Delta$ NAZ_1	0.11342	0.13345	0.85
$\Delta$ NAZ_2	0.047006	0.12357	0.38
AAA	0.38354	0.13232	2.899
$\Delta$ AA_1	0.11096	0.15103	0.735
$\Delta$ AA_2	-0.13062	0.14968	-0.873
$\Delta$ AAprelib	-0.13838	0.20192	-0.685
$\Delta$ AApreli_1	-0.042221	0.20074	-0.21
$\Delta$ AApreli_2	0.14507	0.19487	0.744
AAapeace	-0.013274	0.22175	-0.06
$\Delta$ AAapeace_1	-0.18412	0.22928	-0.803
$\Delta$ AAapeace_2	0.37549	0.23078	1.627
ResNAZ_1	-0.37753	0.33017	-1.143
ResNAZpr_1	-0.23386	0.35659	-0.656
ResNAZpe_1	-0.043357	0.37055	-0.117

$R^2 = 0.408536$   $a = 5.24222$   $DW = 2.05$

EQ(4) Modelling AAM by OLS

The present sample is: 1987 (10) to 1993 (9)

Variable	Coefficient	Std.Error	t-value
$\Delta$ AM_1	-0.22743	0.15845	-1.435
$\Delta$ AM_2	-0.053785	0.14048	-0.383
AAA	0.69478	0.22055	3.15
$\Delta$ AA_1	0.27333	0.23327	1.172
$\Delta$ AA_2	-0.043805	0.22539	-0.194
$\Delta$ AAprelib	-0.12858	0.3048	-0.422
$\Delta$ AApreli-1	0.045551	0.3054	0.149
$\Delta$ AApreli_2	0.28075	0.29721	0.945
AAapeace	-0.22802	0.36716	-0.621
$\Delta$ AAapeace-1	-0.14216	0.36176	-0.393
$\Delta$ AAapeace-2	0.45804	0.36466	1.256
ResAM_1	-0.38183	0.24618	-1.551
ResAMpre_1	-0.033189	0.27531	-0.121
ResAMpea-1	-0.068001	0.37507	-0.181

$R^2 = 0.457627$   $a = 8.47496$   $DW = 1.98$

## EQ(5) Modelling ADD by OLS

The present sample is: 1987 (10) to 1993 (9)

Variable	Coefficient	Std.Error	t-value
ADD-1	-0.011755	0.1371	-0.086
ADD-2	-0.027053	0.11621	-0.233
AAA	0.83479	0.26394	3.163
$\Delta$ AA_1	-0.0010809	0.29107	-0.004
$\Delta$ AA_2	-0.47285	0.27607	-1.713
$\Delta$ AAprelib	-0.39964	0.35857	-1.115
$\Delta$ AApreli_1	-0.24116	0.37289	-0.647
$\Delta$ AApreli_2	0.25563	0.33462	0.764
$\Delta$ AApeace	0.14771	0.44284	0.334
$\Delta$ AApeace_1	0.057207	0.40933	0.14
$\Delta$ AApeace_2	0.72371	0.41038	1.764
ResDD_1	-1.2867	0.48336	-2.662
ResDDpre_1	0.61206	0.49873	1.227
ResDDpea_1	0.93496	0.5201	1.798
$R^2 = 0.498357$ $a = 8.97905$ $DW = 1.97$			

## EQ(6) Modelling AKO by OLS

The present sample is: 1987 (10) to 1993 (9)

Variable	Coefficient	Std.Error	t-value
AKO-1	0.1895	0.14651	1.293
$\Delta$ KO-2	0.0691	0.14839	0.466
AAA	0.48395	0.17975	2.692
$\Delta$ AA_1	0.078851	0.18998	0.415
$\Delta$ AA_2	0.069392	0.18323	0.379
$\Delta$ AAprelib	-0.19535	0.25304	-0.772
$\Delta$ AApreli_1	-0.058647	0.24866	-0.236
$\Delta$ AApreli_2	-0.087047	0.24461	-0.356
$\Delta$ AApeace	0.2482	0.29476	0.842
$\Delta$ AApeace_1	-0.23279	0.28945	-0.804
$\Delta$ AApeace_2	0.25593	0.30262	0.846
ResKOM_1	-0.61393	0.23224	-2.644
ResKOMpr_1	0.24363	0.28033	0.869
ResKOMpe_1	0.054779	0.30704	0.178
$R^2 = 0.388707$ $a = 6.81589$ $DW = 1.95$			

EQ(7) Modelling  $\Delta$ HO by OLS

The present sample is: 1987 (10) to 1993 (9)

Variable	Coefficient	Std.Error	t-value
$\Delta$ HO_1	0.26488	0.13511	1.961
$\Delta$ HO_2	0.29204	0.13061	2.236
AAA	0.30788	0.20145	1.528
$\Delta$ AA_1	0.56078	0.19522	2.873
$\Delta$ AA_2	0.18785	0.19785	0.949
$\Delta$ AAprelib	-0.026253	0.26621	-0.099
$\Delta$ AApreli_1	-0.55556	0.27408	-2.027
$\Delta$ AApreli_2	-0.19419	0.26842	-0.723
AAapeace	-0.019429	0.3097	-0.063
$\Delta$ AAapeace_1	-0.62404	0.31489	-1.982
$\Delta$ AAapeace_2	-0.25	0.32463	-0.77
ResHO_1	-1.2707	0.24861	-5.111
ResHOpre_1	0.50364	0.26491	1.901
ResHOpea_1	0.55605	0.39811	1.397
$R^2 = 0.478324$ $\sigma = 6.97157$ DW = 2.05			

## EQ(8) Modelling ASH by OLS

The present sample is: 1987 (10) to 1993 (9)

Variable	Coefficient	Std.Error	t-value
ASH-1	0.12985	0.12537	1.036
ASH-2	0.048348	0.10656	0.454
AAA	0.29797	0.16828	1.771
$\Delta$ AA_1	0.15081	0.16648	0.906
$\Delta$ AA_2	0.023748	0.16917	0.14
$\Delta$ AAprelib	-0.10176	0.25053	-0.406
$\Delta$ AApreli_1	-0.029844	0.23973	-0.124
$\Delta$ AApreli_2	-0.12894	0.23599	-0.546
AAapeace	0.15894	0.28071	0.566
$\Delta$ AAapeace_1	-0.32524	0.27441	-1.185
$\Delta$ AAapeace_2	-0.039798	0.28495	-0.14
ResSH_1	-0.59254	0.27481	-2.156
ResSHpre_1	-0.032271	0.32102	-0.101
ResSHpea_1	-0.3181	0.41141	-0.773
$R^2 = 0.424093$ $\sigma = 6.54087$ DW = 2.11			

**EQ(9) Modelling  $\Delta ZI$  by OLS**

The present sample is: 1987 (10) to 1993 (9)

<b>Variable</b>	<b>Coefficient</b>	<b>Std.Error</b>	<b>t-value</b>
$\Delta ZI\_1$	0.25585	0.1247	2.052
$\Delta ZI\_2$	0.032221	0.10348	0.311
AAA	0.43942	0.15388	2.856
$\Delta AA\_1$	0.17184	0.16909	1.016
$\Delta AA\_2$	-0.20013	0.17533	-1.141
$\Delta AAprelib$	0.0066098	0.25312	0.026
$\Delta AApreli\_1$	0.019519	0.23233	0.084
$\Delta AApreli\_2$	0.071682	0.24509	0.292
AApeace	0.073824	0.27289	0.271
$\Delta AApeace\_1$	-0.2823	0.26116	-1.081
$\Delta AApeace\_2$	-0.20389	0.27202	-0.75
ResZI_1	-1.0257	0.6378	-1.608
ResZIpre_1	0.38372	0.68212	0.563
ResZIpea_1	0.10483	0.66992	0.156
$R^2 = 0.503614 \quad \sigma = 6.1266 \quad DW = 1.92$			

**Table 8. Long-run Integration (F(1,58))**  
(in model with hvo lags for dependent and independent variables)

Addis Ababa to:	7/87-2/90	3/90-5/91	6/91-7/93
Wolliso	0.34	0.13	0.17
Debre Zeit	0.42	2.58	1.18
Nazret	0.43	0.58	0
Ambo	1.19	0.08	0.05
Dire Dawa	7.52**	2.92-	0.23
Kom bolcha	0.4	0.03	0.58
Hosaenna	0.22	5.41*	0.02
Shashemene	0.11	0.08	0.25
Ziway	0.07	0.19	2.22

\*=rejected at 5 percent.

\*\*=rejected at 1 percent.

## Chapter 7

### Fiscal Aspects of the Transition from War to Peace: with Illustrations from Uganda and Ethiopia

*David Bevan and Sanjay Pradhan*

#### 1. Introduction

When a country emerges from a lengthy war, it is inevitable that the transition to a peacetime economy should have profound budgetary consequences. A number of African countries have embarked on this transition in recent years, and it is to be hoped that others will soon follow suit. In these circumstances, it is natural to enquire whether the fiscal challenges and opportunities accompanying the transition have common features, and whether the experience of countries which began the process relatively early may be useful in the formulation of policy in the others. This paper considers this question, using the experiences of Uganda and Ethiopia to illustrate. Section 2 identifies a number of potentially systematic features, and later sections look at these in more detail. Section 3 discusses the revenue characteristics of the transition and Section 4 considers expenditure patterns. Section 5 looks briefly at the impetus to decentralize, and Section 6 concludes.

#### 2. Fiscal Characteristics of Transition

In one sense the fiscal implications of the cessation of hostilities must be benign. At the very least, there will be the possibility of a substantial redirection of government spending from military to civil and, hopefully, socially productive purposes; alternatively, the resources can be released from public to private control, permitting a reduction in government financing. Unfortunately, it does not follow that there is a substantial "peace dividend" for distribution in the short run, relative to the period immediately before the cease-fire. The potential redirection or reduction is relative only to

what would have been possible had the war continued.

To make the point clear, we may contrast two hypothetical transitions. In the first, the country had been engaged in a long-running border dispute, had never lost control of territory, and had reached a military stalemate and fiscal steady state. The war was costly but sustainable, and the end of it does release resources which can be **shifted** into beneficial uses. In the second example, the country had been engaged in an exhausting civil war. Neither of the warring factions had been able to maintain control of national territory, and the war led to the steady erosion of the country's infrastructure, its productive base, and the government's revenue base. Eventually, the war became unsustainable as a result of economic and fiscal exhaustion, and ended. Since it would not have been feasible to continue military spending at its previous inflated level, the end of the war does not release resources for civil purposes. Far from there being any peace dividend in the conventional sense, the economic and fiscal collapse which accompanies the transition may mean that the government's resources are falling faster than its commitments. Without an increase in external finance, the short run outlook for civil expenditures would then be contractionary **rather** than expansionary. Of course, these circumstances also offer the prospect of accelerated change in the medium or long run as the lost ground is recovered.

While these two cases are stylized, they serve to demonstrate how very different the fiscal consequences of transition may be, depending on the antecedent circumstances. The overwhelming

majority of military disputes in Africa involve civil war, so that very substantial damage to the infrastructure and to the economy in general is routine. Both Uganda and Ethiopia fall into this category. The immediate post war period is therefore characterized by unusually high expenditure requirements for rehabilitation. Whether the government's revenue base (relative to the inevitably diminished GDP) has also been damaged is more various; in Uganda, for example, it had been massively contracted for some time before the peace, while in Ethiopia it remained at a very high level. In consequence, the immediate revenue prospects were quite different in the two countries. In Uganda, there was every reason to suppose that revenue effort could usefully be increased, though it remained unclear how fast revenue actually collected could be raised. In Ethiopia, the very high wartime collections reflected an unacceptably authoritarian approach, rather than an efficient structure of taxation. Domestic revenue would inevitably fall sharply in this case, prior to a probably slow and partial recovery as a reformed structure is put in place.

Even the view that military expenditure must necessarily fall is mistaken. In a civil war, there **are** (at least) two armies; during the fighting, only one of these is on-budget. It may not be thought prudent immediately to release the defeated army because of the dangers of banditry or insurrection, and it may be felt necessary to reward **the** victorious guerilla contingents by regularizing them. In the short run, the new government may end up financing two armies. To the extent that the military hardware was supplied off-budget by foreign governments, there may be little scope for major reductions in material military spending either. In consequence, the compressibility of the military budget in the short run may be quite limited or even perverse. Both Ethiopia and Uganda, however, have managed to compress their military budgets to some extent, though the process took longer in Uganda and resulted in initially higher levels of spending.

To summarize the argument, in African transitions there need not necessarily be any substantial, domestically generated peace dividend in the short run. Expenditure needs may be temporarily high and revenue temporarily low. The real peace dividend lies in the enhanced flow of aid which is

typically triggered by the ending of hostilities. This carries with it three distinct fiscal complications. First, since the level of aid is typically very substantial and must be expected to decline in the medium term, there is an important issue concerning the feasibility of substitution of domestic revenue **and/or** contraction of expenditure in the medium term. Second, since the aid necessarily accrues as foreign exchange, whereas the government's rehabilitation spending could well be largely nontradable, the real exchange rate will be affected. Third, aid flows are subject to **conditionality** and a variety of release procedures which means the flow of revenue is volatile and unpredictable. These issues are not unique to economies undergoing war to peace transitions; indeed very similar circumstances arise in countries like Zambia where the trigger for serious increases in aid is the combination of thoroughgoing political and economic reform. However, it is certainly likely to be a systematic and important feature of war to peace transitions. Finally, one feature of enhanced aid flows in the transition is their potential role in providing a signal of international donor confidence in the government's overall economic program. Given uncertainty and apprehension in the aftermath of war, donors' effective underwriting of the economic program could become an important factor in allaying some of the private sector's hesitancy in making irreversible investments.

The discussion so far has focused on a fairly narrow interpretation of fiscal impact; in effect, we have assumed that the underlying view of the role appropriate to the state is little changed. The war may have devastated the economy, it may have severely damaged the public capital stock, it may have eroded the institutions of government themselves. In consequence, it may have distorted the shape and scale of government for a time, but in due course it is intended to revert to the original pattern. This is a perfectly plausible outcome, particularly when the incumbent government is victorious. However, there is an alternative possibility, which is more likely when the government is overthrown, so that the peacetime administration marks a break from that which fought the war as government. In this case, it is possible that the transition will be more thoroughgoing, with a general reconsideration of the purposes and mechanisms of public activity. There are examples of



both types of transition in Africa. but recently cases where the incumbent is overthrown have **predominated**; both Uganda and Ethiopia fall into this category.

There are a number of reasons why an incoming administration may wish to break not only with selected policies but with the entire policy regime of its defeated predecessor. **One** follows naturally if the war was fought partly on ideological grounds. Curiously enough, this does not well describe recent events in either Uganda or Ethiopia. In both countries, a government of predominantly socialist - or at least interventionist - leanings was defeated by forces of rather similar economic outlook. While in both cases the transition has been marked by a profound shift in the role that is perceived to be appropriate for the state, that was not a consequence in any profound way of the incoming government's prior economic philosophy.

A second reason is that the policies of the defeated regime may have become discredited, either by simple association, or more comprehensively as a contributory factor in the defeat. In this case extensive changes may be attractive, even in the absence of any ideological commitment, simply because what went before is perceived not to have worked. In fact, substantial changes in economic regime may have been inevitable even in the absence of the switch in political regime; the latter may simply permit the former to take place more rapidly and comprehensively. An interesting illustration is provided by Ethiopia; as already noted, the economic philosophy of the incoming regime differed little from that which had characterized their predecessors. Indeed, inexorable economic decline had persuaded those predecessors to adopt a substantial package of liberalizing reforms; in the first months of the transition it appeared possible that the new government might attempt to put the clock back, and refuse to maintain the impetus to reform. In the event, this paradoxical outcome did not materialize. However, it is clear that important components in the economic policy switch predate the end of the war and the associated change of government.

A third reason, not wholly unrelated to the second, is that the incoming regime typically has no experience of government, or experience of an unusual kind, for example that obtained when

territorial gains are made but do not include the administrative institutions of government. In these circumstances, the leaders of a guerrilla army may have to undertake at least a limited delivery of public services **outwith** the usual institutional channels. Good examples of this process are provided by the organs of the National Resistance Movement in Uganda, and by those of **the** Eritrean People's Liberation Front which had effectively barred the institutions of the Ethiopian government from operating in Eritrea for some years before the end of the war. These institutional improvisations may prove quite durable after the end of hostilities. First, they constitute an important **part** of the apparatus which brought the new regime to power, may still provide a significant power base subsequently, and may also engage many loyalties. Second, they may be perceived to have been effective vehicles for the delivery of local services and other functions, and this against a background where the more routine institutions of government are perceived to have failed. These circumstances are calculated to induce a relatively experimental approach to institution building by the incoming regime.

There is a fourth reason, linked to the second and third; it is that ousting the previous regime required a coalition to be assembled, of groups which had been previously excluded from power. This process is likely to bring into the successor regime ethnic and other groups which are suspicious of centralization. Indeed, in the limiting case, the war may have been fought on secessionist grounds. More generally, the transition may involve a powerful impetus towards devolution. The secession of Eritrea is an example of the former extreme, but there is ample evidence in both Uganda and the remainder of Ethiopia of the strength of the latter. The circumstance in which a government is overthrown also means that the old constitution is effectively suspended; while the new regime could in principle simply adopt the old constitution, in practice it typically does not. The actions of the Transitional Government of Ethiopia provide a case in point, with an extended process of constitutional redefinition still under way as well as an accompanying redrafting of legislation.

Finally, there is the fact that, for the reasons outlined earlier, the successor government will both be in need of, and able (conditionally) to

obtain. enhanced donor financing. The nature of the conditionality will vary only in minor respects, and will largely reflect the international community's current view of good practice. This is not only understandable, it is in many respects admirable. However, conventional wisdom is itself somewhat fickle, and not ideology free. When an incoming government does not have a deeply entrenched position in respect of some public activity, and is in need both of funds and guidance, it is not only vulnerable to external pressure, it may even welcome some aspects of it. In these circumstances, part of a policy shift may simply reflect an external agenda, whether this has been imposed or accepted by the domestic government.

Several of these reasons tend to reinforce each other in shaping the type of policy shift that occurs. Since the ousted regime was often highly centralized, interventionist, and perceived to lack both legitimacy and competence, and since the international community has been pressing for liberalization and deregulation, there is a convergence of forces toward markets and away from controls; toward devolution and away from the center; toward expenditure on social services and away from (non-infrastructure) economic services; and toward greater fiscal prudence.

These various strands may be summarized, for a representative case, as follows. There need not necessarily be a real prospect of a domestic peace dividend in the short run; on the contrary, the immediate prospect may be one of low or falling domestic revenues and elevated expenditure requirements. A key issue is whether countries will be able to reduce their military budgets in the aftermath of war. More significantly, there is the likelihood of a substantial temporary increase in aid. The success in the expenditure transition depends upon whether countries are able to make major changes in public expenditure patterns towards the civilian sector, and within the civilian sector, towards economic infrastructure and social spending. However, the phasing of these shifts is uncertain, and the process may be slow.

### 3. The Revenue Transition

As the preceding discussion stressed, the revenue positions inherited by new regimes are extremely varied. Ethiopia and Uganda had very contrasting

initial positions. both as regards explicit tax and non-tax revenue, and as regards the availability of seigniorage.

Ethiopia has had a remarkably varied fiscal history, culminating in the later years of the Derg in a very high rate of resource **extraction** by the government, albeit with a still higher rate of public spending. Since the overthrow of the Derg in 1991, there has been a substantial fall in revenue collection.

The data for the 1980s exhibit a number of striking **features**.(Bevan, 1992) Tax revenue itself was not unusually high by African standards, averaging 17 per cent of GDP over the decade, with relatively little trend. Non-tax revenue, by contrast, was both substantial, and broadly rising, so that total revenue averaged 24 per cent over the decade (22 per cent in the first five years, 27 per cent in the second). This non-tax revenue was comprised largely of the residual **surplus** of public enterprises. Despite the relatively high level of total revenue, it fell very substantially short of total expenditure, which climbed rapidly at the beginning of the **1980s**, to settle thereafter at a fairly trendless level around 39 per cent of GDP. In consequence, the overall deficit between 1982/13 and 1989/190 only twice dipped below 10 per cent of GDP, and averaged 13 per cent. A little over half of this was externally financed (7 per cent), with the domestically financed component being more or less entirely financed by bank borrowing.

It has been a remarkable, and much discussed, feature of the Ethiopian economy that such a high rate of monetization of the deficit should have been associated with so little inflation especially given the lack of real growth. The Ethiopian government's record is often described as one of fiscal prudence, but this can only be justified by the fact that it did not engender a high rate of inflation. Approaching the matter from the other end, an overall deficit of 13% of GDP, half financed from the banking system, looks anything but prudent. The rapid monetary deepening that made this fiscal stance consistent with so **little** inflation may have been a transitional process leading to a permanent shift in the economy, or it may have been a temporary and reversible process which will be unwound in the near future. However, it seems inconceivable that this process of deepening could continue. Equally, it is not **feasi-**

ble for Ethiopia's external debt to be much increased, except on the softest of terms. In consequence, a very substantial reduction in budget deficit had become a necessity towards the end of the war as a matter of financing imperatives if accelerating inflation or excessive debt service was to be avoided.

Two further aspects of the inherited situation are important. First, despite the very substantial scale of the fiscal intrusion into the economy that is revealed by these data, they significantly underestimate the real weight of the government's fiscal operations. In particular, the direct taxation of agriculture embodied in the reported figures is only a small part of the total, since there was heavy implicit taxation via compulsory quotas levied on producers at artificially depressed prices as well as a plethora of forced contributions in kind, in cash and in labor services.

Secondly, and notwithstanding this substantial degree of under-reporting of fiscal impact, the data do make it clear that, by any conventional standards, the Ethiopian government had become too big relative to the economy. It would probably not have been feasible and would certainly not have been desirable to attempt to close the excessively large budget deficit by increasing revenue; the bulk of the adjustment inevitably had to take place on the side of expenditure. (World Bank, 1990) Even if the present short run revenue problems are put to one side, the longer run perspective must be that the fiscal stance of the 1980s was unsustainable, and that massive expenditure reductions would relatively soon have become inevitable.

To put the matter somewhat differently, the direct fiscal costs of the war were being carried either off-budget (as already noted) or by an unsustainable increase in the deficit. Indeed, ostensible, on-budget defense expenditure averaged a little under 10 per cent of GDP over 1980/12 - 87/18, compared to the average budget deficit over this period of a little under 12 per cent of GDP. In consequence, there was virtually no scope for substituting peaceful government expenditure for the reduced military spending; in the absence of peace, any continuation of military expenditure at its previous level would have required both continued (*de facto*) grants of equipment from the Eastem bloc and a reduction in non-military spending. In this sense, the transition to peace did not so

much provide a fiscal dividend as avert a fiscal catastrophe.

In any event, the early part of the transition has been accompanied by a sharp fall in domestic revenue, from 25% of GDP in 1989/90 to 20% in 1990/91 and around 16% in 1991/92. Of this, tax revenue amounts to barely 11%, down from around 17%; this fall partly reflects the operation of a relatively primitive and as yet somewhat unreformed tax system when excessive coercion is removed. One feature that has been much discussed is the virtual disappearance of revenue from the explicit taxation of agriculture. This was partly due to the collapse of the institutions which acted as tax collectors, partly to the fall in the world coffee price and the increase in smuggling, partly to the relatively tenuous control which the central government was initially able to exert in the regions of agricultural surplus, and partly to the decentralizing thrust of its fiscal thinking.

Non-tax revenue - mainly from state-owned enterprises - continued to provide substantial resources to central government, though not at the previous scale. Similarly, financing from the domestic banking system fell over the period from around 10% of GDP to less than 4%. Apart from a brief surge in prices as the war came to a close, inflation has remained low and the level of seigniorage revenue high. (For example, seigniorage of nearly 3% of GDP will be available if inflation remains at its current level of around 10%, real growth is at the level assumed for planning purposes of 5.5%, and the main money to GDP ratios are stable.) Finally, foreign financing has risen from about 10% of GDP in 1989/90 to 13% in 1992/93, in each case very roughly evenly split between grants and loans.

The aggregate fiscal experience of these four years, two before and two after the end of the war, may be summarized as follows. Domestic revenue fell by 8 percentage points, from 25% to 17%; total expenditure fell by 12 percentage points, from 46% to 34%; in consequence the overall deficit narrowed from 21% to 17%. The contribution of foreign financing rose from 10% to 13%, and that of domestic financing (overwhelmingly from the banking system) fell from 11% to 4%. The increase in external finance was therefore less than sufficient to match the much needed contraction in domestic borrowing, and spending had to fall

Ethiopian case, defense spending grew in the initial years of the transition, reflecting problems in financial management and provision of uniforms and basic supplies for the victorious army. In the first two years of the transition, defense spending grew by 40% per annum in real terms, (World Bank, 1991) and its share grew to 46% of recurrent expenditures and 3% of GDP in 1987/1988. However, since attention began to focus on this growth, on the severe underfunding of the economic and social sectors, and the consequent unsatisfactory provision of public services, the share of defense spending has been reduced substantially; by 1992/1993 it had fallen to 28% of recurrent expenditures and 1.5% of GDP (see Tables 7.4 and 7.5). The Government has also embarked upon a carefully designed demobilization program, funded through external assistance. At the same time, reflecting increased concerns about poor health and education indicators, the share of social sectors has increased from 27% to 33% of recurrent expenditures.

Overall, the increase in external assistance combined with expenditure restructuring has permitted Uganda also to begin the process of redirecting expenditures towards priority sectors. A central feature of Uganda's expenditure transition has been the emphasis placed upon and success achieved in the *rehabilitation of physical infrastructure*. War inflicts very substantial damage to infrastructure, and its rehabilitation is vital for restoring economic activity, fostering market integration, and inducing the private sector to make irreversible investments. Indeed, in the first few years of the transition, all major trunk roads in Uganda were rehabilitated and this has been a key factor in the revival of economic activity and initial high levels of growth. Given the constraints on domestic resource mobilization stressed above, external financing played the dominant role in this rehabilitation. As the attached map of donor participation in the road sector indicates, donors effectively carved up major regions in Uganda as their principal domain of responsibility.

In order to examine the economic implications of this infrastructure rehabilitation, a detailed survey was carried out for all the major infrastructure rehabilitation projects financed by each donor during the transition. The results are summarized

in Table 7.7 which shows that donors financed 85% of the rehabilitation costs. The potential concern that donor financing of infrastructure rehabilitation may have a Dutch Disease impact was noted earlier. As it turns out, this problem may not materialize in the aftermath of war: given the collapse of the construction sector and the lack of availability of materials and equipment, the bulk of project costs consist of imports, mitigating the Dutch Disease impact. As Table 7.7 shows, the average foreign exchange component of the infrastructure rehabilitation projects amounted to 85% of total costs! Moreover, given the constraints on implementation capacity in the aftermath of war, there was a heavy reliance on importing managerial services and using foreign contractors.

The contribution of the resulting infrastructure rehabilitation in Uganda can be seen in the very high estimated economic rates of return, which average close to 40%. The value of infrastructure rehabilitation is also seen in the results of a 1990 survey of rural households in Uganda conducted by Bigsten and Kayizzi-Mugerwa. In this survey, respondents were asked to name the single biggest improvement in the area brought about by the government since 1985; 48% of the respondents listed improvements to the road network.

While donor financing of infrastructure rehabilitation has made an important contribution, it also highlights likely medium- to long-term problems of sustainability. Indeed, while the major trunk roads have been rehabilitated, there is a massive maintenance crisis looming over the rehabilitated roads. This will call for considerably enhanced and sustained recurrent expenditures, and will necessitate that over time domestic resource mobilization substitute for external assistance.

Another critical characteristic of a budget so dependent on external finance, particularly in the context of very low monetization, was discussed in the opening section of the paper. It is the potentially great vulnerability of macroeconomic stability to the vagaries of donor finance, in particular to relatively minor lags in the release of funds. The Ugandan experience of 1991/92 illustrates the point well. There was a shortfall in import support receipts early in the fiscal year, due to implementation delays. Expenditure continued at programmed levels, before being cut back later in the year. The

consequent deficit, which was financed through the domestic banking system, barely exceeded 1% of GDP. Given the excess sensitivity noted earlier, this small monetary shock triggered a serious inflationary surge, at an annual rate of 70% (with the monthly **rate** reaching 10%). The response of the government to this unwelcome demonstration of the vulnerability of its program to relatively minor aid shocks was to adopt monthly cash budgeting. If the path of revenue is volatile, then the path of expenditure is made equally so. If properly executed, this system does indeed prevent unprogrammed deficits from materializing, but at the cost of a disruption in the delivery of services and in efficient public activity. Once again, there is nothing in this story which fixes it uniquely into the war peace framework; indeed, a more or less identical story could be told for Zambia. However, war peace transitions are more likely than most to be characterized by the combination of heavy external dependence and inflation sensitivity which makes this outcome likely.

## 5. Decentralization

While emergence from a war is neither a necessary nor a sufficient condition for an impetus towards decentralization, there is evidence for a strong link, at least when the incumbent regime loses a civil war. There is certainly such an impetus in both Ethiopia and Uganda, which appears to be partly rooted in the guerrilla origins of the resistance, and partly a response to the imperialistic behavior attributed to the defeated center. By way of contrast, there appears to be no decentralizing impetus of comparable strength in countries undergoing thoroughgoing but peaceful transitions, such as Zambia.

Ethiopia has a long history of centralized government, a feature carried over from the imperial period and maintained after the revolution. In consequence, political institutions outside of the center are rudimentary, and there is little administrative experience or capacity at the regional and district level. This high degree of past centralization is perceived as being intimately connected with a history of unsatisfactory and authoritarian government. (Eshetu Chole, 1992) There is now a **strong** political commitment to create a substantial **degree** of decentralization, and statements to this

effect were among the first actions of the Transitional Government. While it would have been possible to pursue this aim by devolution of power within a unitary state, the present intention is to go further than this and adopt a federal constitution. Fourteen regions were declared in the transitional charter (subsequently reduced to ten) and a series of proclamations have been issued which have progressively defined regional policy. Elected councils are now in place in all regions. Two complications with the new structure should be noted. First, the regional boundaries have been determined to a great extent by ethnic rather than administrative or economic considerations. Consequently, they vary enormously in nature, size and viability, and will pose difficult challenges to the designers of the federal constitution. Particularly acute difficulties will be involved in the design of the revenue sharing arrangements. Second, the new regions have been inserted into an already existing local government structure, and it is far from clear how the various parts of the system will relate to each other.

While the question of regionalisation is immensely pervasive and there have been a number of policy statements, it remains unclear what the net effects will be, not least in the fiscal sphere. (Bevan, 1993) It is very difficult to assess what the partition of revenue will be, either between center and regions in aggregate, or amongst the regions themselves. This partly reflects uncertainties over the eventual ownership of state assets, partly the absence to date of any public statement concerning the rules for partitioning joint revenues, and partly the lack of a comprehensive **fiscal** data base. However, it appears inevitable that all the regions will require heavy subsidization, given the scale of the obligations devolved to them. This suggests that the central government not only possesses the means to maintain macroeconomic control (via borrowing restrictions) but, informally, will have the bargaining power to control the composition of expenditure as well.

There have also been extensive statements setting out the powers and duties of central and regional governments. The most interesting feature of these **arrangements** is the dual accountability that is implicit in them, with a regional bureau typically responsible both to the regional government of which it is an executive agency, and to the

Ministry which formulated the policy it must implement. This construction seems certain to cause considerable tension both between the central and regional tiers and within each tier, between the executive and budgetary branches. Indeed it may prove an unworkable hybrid between administrative decentralization and a more thoroughgoing federalism.

The administrative aspects of the new arrangements are also far from clear. There have been movements of personnel between central and regional administrations, and some between regions. However, in view of the general lack of capacity with which the regions started, most of them remain well short of being capable of executing their new responsibilities. So far it has been necessary for the central government to continue to fulfil functions which have theoretically been devolved; in some ways, this may have postponed some of the potential efficiency losses.

While in other respects the Ugandan transition is further advanced than that in Ethiopia, this is not true of its decentralization program. As in Ethiopia, the eventual shape of the institutional arrangements and their fiscal consequences remain obscure. Two major differences are the more highly disaggregated structure in Uganda (39 districts), and what appears to be a less thoroughgoing degree of devolution. However, primary education and health are now the responsibility of the district councils, as of the Ethiopian regions, and there seem to be similar ambiguities as regards the chain of command and the financing arrangements which will permit these responsibilities to be executed. In both countries, policy in this area is being made "on the hoof".

Drawing these various considerations together, what can be said about the likely fiscal consequences of these developments? First, will decentralization reduce the efficiency with which the **rest** of the transition is managed? The main danger here is probably the potential diversion of scarce political and administrative resources. So far, though the relatively small cadre of policy makers in both countries is very stretched, there is no evidence that the devolution issue has impacted adversely on other policy areas.

Second, will expenditure rise as a consequence of duplication? In the long run, as in other countries which have undertaken extensive devolution.

this appears all too likely. However, in the short run, the sheer lack of appropriately qualified and experienced personnel should prevent this outcome, always provided that **reasonably** tight control of recruitment is maintained.

Third, will the central government's **control** of macroeconomic management be compromised? In the case of Uganda, the district budgets will apparently be considered within the central budgetary process, so there should be no additional problem. In Ethiopia, the central government is likely de facto to retain more direct control of general government outcomes than was intended, because of the practical difficulty of devolution in the short run; but the new arrangements appear in any case to give adequate control, provided that proper budgeting and accounting procedures can be operated. A serious danger in the medium run may be the difficulty of maintaining macroeconomic control in a federal system if many of the constituent governments are incapable of producing accurate and timely management information.

Fourth, will the central government be able to maintain control over the composition of public expenditure? Here again, the retention of central control over the national policy agenda should in theory ensure this. The two caveats are first, whether the informational base will be adequate to permit effective control, second whether the new arrangements are politically workable. In particular, will the lower tier governments go on being content to accept policy from the center, and what action will the center be prepared to take if its policies are not implemented?

## 6. Conclusion

The three preceding sections have summarized aspects of the two countries' fiscal experience that bear on the issues raised in the introduction. Despite remarkably different initial conditions, they provide ample evidence that while a reduction in military spending is feasible to some extent in the transition, it offers only limited possibilities of a peace dividend. The increased spending on social services and infrastructure that is certainly required must therefore be found by reducing other categories of civil expenditure, which appears **difficult** to execute though the process has begun in each country, or by increased flows of aid, which appear

easier to achieve. There is an added, important benefit from external assistance in the transition. Donor assistance, especially from the IMF and the World Bank, effectively underwrites the overall economic program, and provides an important positive signal to a cautious and apprehensive private sector in the aftermath of war.

One danger of going this route is that it may induce a form of Dutch Disease, inhibiting the structural recovery of the economy. This is most likely if the government uses import support to finance nontradable activities. However, if it is also liberalizing the economy, and correcting for an overvalued exchange rate, the effect may only be to slow the reallocation of resources, not to reverse it. In any case, the alternative is a radically smaller level of government activity, which is likely to constitute a still more serious brake on economic rehabilitation. Moreover, to the extent

that donor assistance has also been used to finance high return infrastructure rehabilitation projects, the bulk of which consists of foreign exchange requirements, the Dutch Disease concern is likely to be mitigated.

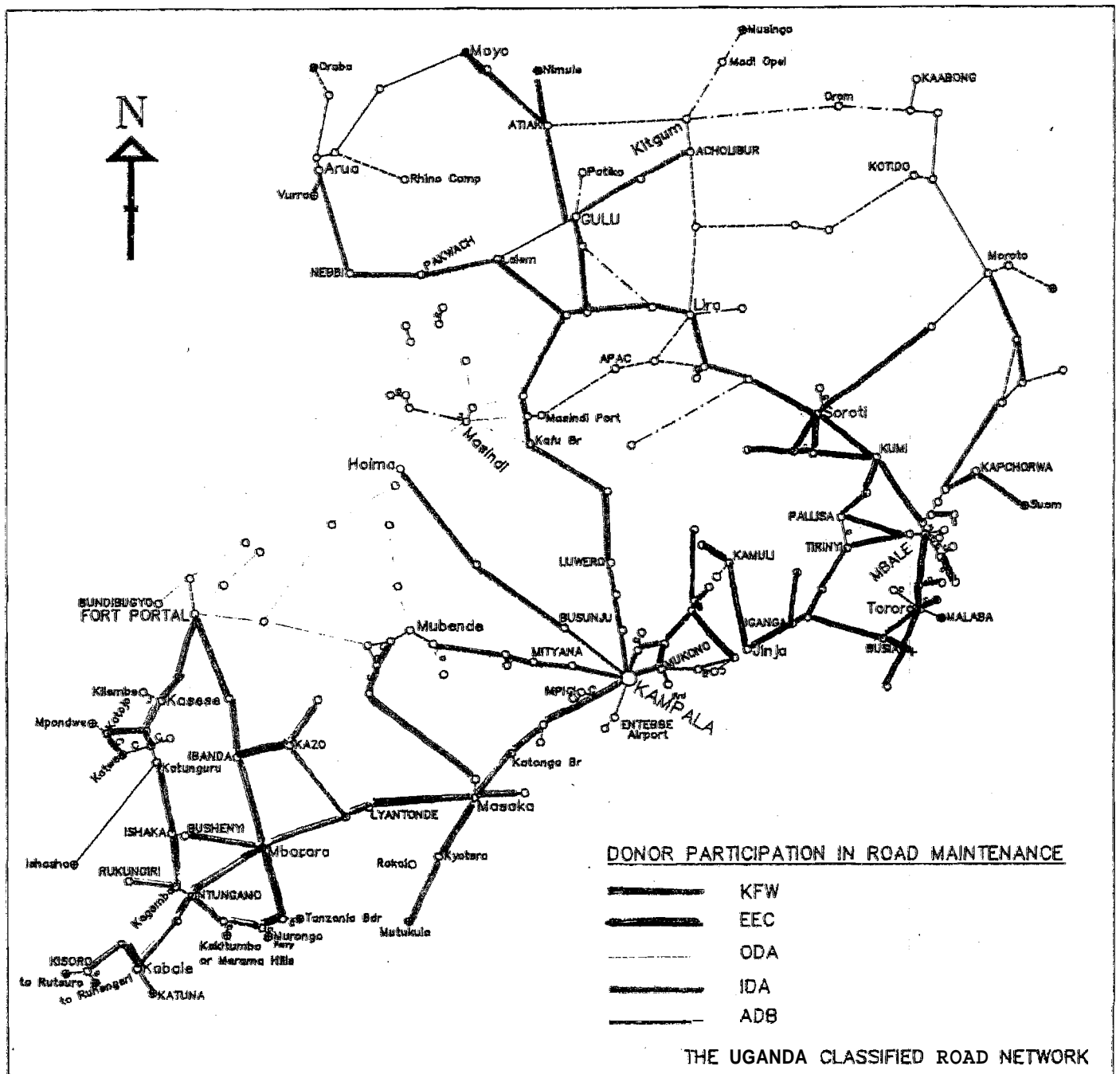
There are, however, three other problems with this dependence on aid. For one, the volatility and potential inflationary leverage of aid, Uganda provides a cautionary note. For the other two, the jury is still out. Whether it will prove possible to substitute domestic revenue for aid rapidly and durably enough as aid tapers down, and whether governments can reacquire effective capacity for public service provision remains to be seen. On a more positive note and despite these uncertainties, the difficult process of expenditure restructuring -- redirecting expenditures towards economic infrastructure and social spending -- has begun in both countries, although much more remains to be done.





# UGANDA

## Donor Financing for Road Rehabilitation/Maintenance





**Table 7.1. Ethiopia: fiscal accounts  
(% of GDP)**

<b>Variables</b>	<b>FY87 act.</b>	<b>FY88 act.</b>	<b>FY89 act.</b>	<b>FY90 act.</b>	<b>FY91 act.</b>	<b>FY92 act.</b>	<b>FY93 prlm.</b>	<b>FY94 proj.</b>
Tax Revenue	18.4	19.6	19.1	17.4	15.5	11.3	12.2	16.1
Non-tax Revenue	7.3	9.7	12.3	7.5	4.3	4.3	5.4	2.8
Total Revenue	25.7	29.3	31.4	24.9	19.8	15.6	17.6	18.9
Grants	2.8	5.4	6.4	3.7	3.5	3.3	5.8	9.5
Revenue and Grants	28.5	34.7	37.8	28.6	23.3	18.9	23.4	28.4
Recurrent Expenditures	23.0	28.9	31.0	34.0	27.4	22.5	22.1	22.5
Capital Expenditure	12.1	12.3	15.6	11.2	8.9	6.7	12.2	15.2
Total Expenditure	35.1	41.2	46.6	45.2	36.3	29.2	34.3	37.7
Deficit before Grants	9.4	11.9	15.2	20.3	16.5	13.6	16.7	18.8
Deficit after Grants	6.6	6.5	8.8	16.6	13.0	10.3	10.9	9.3
Net External Financing	3.5	3.4	5.4	5.5	3.3	1.8	6.5	7.6
Domestic Financing	3.1	3.1	3.4	11.1	9.7	8.5	4.4	1.7

Sources: MOF

Table 7.2. Ethiopia: Public Expenditures Budget  
(% of GDP)

Variables	1987	1988	1989	1993	1994
<b><u>I. Recurrent Budget</u></b>					
General Administration	3.12	2.88	2.82	3.18	3.19
Defense	8.81	10.7	13.5	4.89	3.40
Economic Infrastructure	0.58	0.52	0.43	0.53	0.61
Education	3.27	3.12	3.13	3.96	3.87
Health	1.04	1.01	0.99	1.33	1.46
Other Economic Services	0.97	1.12	1.24	1.53	1.63
Other Social Services	0.76	0.69	0.84	0.89	0.63
Others <sup>a</sup>	4.46	8.76	8.45	5.90	7.69
Total	23.01	28.8	30.95	22.22	22.48
<b><u>II. Capital Budget</u></b>					
Economic Development	9.24	9.93	11.48	8.62	7.96
Economic Infrastructure	1.66	1.23	2.34	1.99	4.07
Education	0.41	0.41	0.50	0.71	1.26
Health	0.28	0.3	0.33	0.37	0.78
Other Social Development	0.21	0.23	0.64	0.23	0.52
Others	0.33	0.21	0.33	0.28	0.61
Total	12.1	12.31	15.62	12.2	15.2
<b><u>III. Sector Budget</u></b>					
Economic Infrastructure	2.24	1.75	2.81	2.52	4.67
Health and Education	5.0	4.84	4.95	6.37	7.37
Total	7.24	5.39	7.76	8.89	12.04

Note: <sup>a</sup> pension, debt servicing, subsidies, safety net, and external assistance  
Sources: MOF

**Table 7.3. Ethiopia—Composition of Public Expenditures  
FY1987 to FY1994**

A. Recurrent Budget					
Sector	1987	1988	1989	1993	1994
1. General Administration	13.6	10.0	9.1	14.3	14.2
2. Defense	38.3	37.1	42.1	21.9	15.1
3. Economic Infrastructure	2.5	1.8	1.5	2.4	2.7
4. Education	14.2	10.8	10.1	17.9	17.2
5. Health	4.5	3.5	3.2	6.0	6.5
6. Other economic services	4.2	3.9	4.0	6.9	7.3
7. Other social services	3.3	2.4	2.7	4.0	2.8
8. Others(1)	19.4	30.4	27.3	26.6	34.2
TOTAL	100.0	100.0	100.0	100.0	100.0
B. Capital Budget					
1. Economic Development	76.2	80.7	73.5	70.7	52.4
2. Economic Infrastructure	13.7	10.0	15.0	16.3	26.8
3. Health	2.3	2.4	2.1	3.0	5.1
4. Education	3.4	3.3	3.2	5.8	8.3
5. Other Social Development	1.7	1.9	4.1	1.9	3.4
6. Others	2.7	1.7	2.1	2.3	4.0
TOTAL	100.0	100.0	100.0	100.0	100.0

NOTE: Figures in per cent of total. For absolute expenditure levels see annex tables 2.1A, and 2.1B.

(1) These include pensions, debt servicing, subsidies, safety net. and external assistance.

SOURCE: Ministry of Finance

Table 7.4. Uganda--Composition of Recurrent Expenditures  
(% Recurrent Expenditures)

UGANDA	1993194	1992193	1991/92	1990191	1989190	1988190
Percentage of Total Recurrent Expenditure	Budget	Actuals	Actuals	Actuals	Actuals	Actuals
Economic Services	8.8%	9.4%	9.2%	10.2%	9.0%	9.7%
Agriculture	2.6%	3.0%	2.9%	3.2%	2.7%	3.5%
Infrastructure	3.9%	4.4%	3.9%	3.5%	3.7%	4.1%
Other	2.3%	1.9%	2.4%	3.5%	2.6%	2.1%
Social Services	34.4%	36.7%	33.6%	30.3%	25.1%	32.4%
Education	20.3%	21.5%	20.8%	18.8%	15.2%	19.3%
Health	9.1%	7.7%	6.3%	6.3%	5.1%	4.8%
Local Government	4.1%	6.6%	5.4%	3.5%	2.0%	3.2%
Other	0.8%	0.9%	1.1%	1.7%	2.7%	5.2%
Defense <sup>1/</sup>	20.2%	27.7%	29.8%	37.2%	39.3%	35.5%
Public Administration	36.6%	26.3%	27.4%	22.4%	26.6%	22.4%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

<sup>1/</sup> Excludes Section 1 from the Ministry of Defense.

**Table 7.5. Uganda--Recurrent Expenditures  
(% of GDP)**

UGANDA	1993194	1992193	1991192	1990/91	1989190	1988189
	Budget	Actuals	Actuals	Actuals	Actuals	Actuals
<b>GDP at MP - U Sh millions</b>	<b>4,501,000</b>	<b>3,888,676</b>	<b>2,7 18,870</b>	<b>1,821,485</b>	<b>1,395,073</b>	<b>901,936</b>
<b>As Percentage of GDP at MP</b>						
<b>Economic Services</b>	<b>0.6%</b>	<b>0.5%</b>	<b>0.7%</b>	<b>0.6%</b>	<b>0.6%</b>	<b>0.5%</b>
<b>Agriculture</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>
<b>Infrastructure</b>	<b>0.3%</b>	<b>0.2%</b>	<b>0.3%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>
<b>Other</b>	<b>0.2%</b>	<b>0.1%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.1%</b>
<b>Social Services</b>	<b>2.4%</b>	<b>2.0%</b>	<b>2.5%</b>	<b>1.7%</b>	<b>1.6%</b>	<b>1.8%</b>
<b>Education</b>	<b>1.4%</b>	<b>1.2%</b>	<b>1.6%</b>	<b>1.1%</b>	<b>1.0%</b>	<b>1.1%</b>
<b>Health</b>	<b>0.6%</b>	<b>0.4%</b>	<b>0.5%</b>	<b>0.4%</b>	<b>0.3%</b>	<b>0.3%</b>
<b>Local Government</b>	<b>0.3%</b>	<b>0.4%</b>	<b>0.4%</b>	<b>0.2%</b>	<b>0.1%</b>	<b>0.2%</b>
<b>Other</b>	<b>0.1%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.2%</b>	<b>0.3%</b>
<b>Defense<sup>1/</sup></b>	<b>1.4%</b>	<b>1.5%</b>	<b>2.3%</b>	<b>2.1%</b>	<b>2.5%</b>	<b>2.0%</b>
<b>Public Administration</b>	<b>2.6%</b>	<b>1.4%</b>	<b>2.1%</b>	<b>1.3%</b>	<b>1.7%</b>	<b>1.3%</b>
<b>TOTAL</b>	<b>7.1%</b>	<b>5.4%</b>	<b>7.6%</b>	<b>5.6%</b>	<b>6.3%</b>	<b>5.7%</b>

<sup>1/</sup> Excludes Section 1 from the Ministry of Defense

Table 7.6. Uganda -Central Government Operations (As a % of CDP)

										Prelim	Est	****	Projection		****
	1993/94	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	
Total Revenue	11.2	9.2	6.8	4.7	5.8	5.3	6.8	7.5	6.8	7.2	8.5	9.5	10.2	11.3	
Tax Revenue	10.5	9.1	6.7	3.9	5.0	4.5	6.2	7.0	6.4	6.7	7.9	8.9	9.6	10.7	
o/w coffee	5.0	5.3	4.5	1.6	1.6	0.6	1.1	0.7	0.1	0.0					
Non-Tax Revenue	0.7	0.2	0.1	0.8	0.7	0.8	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	
Total Expenditures	13.9	13.6	11.3	8.8	11.3	10.2	12.5	14.8	21.4	18.5	17.0	17.6	17.5	17.7	
Current Expenditure	8.4	8.9	8.4	5.5	6.3	6.7	7.0	7.2	11.9	8.3	8.8	9.4	9.4	9.7	
Wages & Salaries	1.5	2.5	1.3	1.0	0.9	1.1	0.9	1.3	1.8	1.6	2.0	2.4	2.7	2.9	
Interest Payments	2.0	1.5	1.3	0.4	0.6	0.6	0.6	1.0	3.3	1.8	1.6	1.5	1.2	1.1	
Other	4.9	4.9	5.8	4.2	4.8	5.0	5.5	4.8	6.8	4.9	5.2	5.5	5.6	5.7	
Net Lending/Investment	4.0	2.7	0.0	0.0	0.0	0.2	0.0	0.2	0.3	0.0	0.1	0.0	0.0	0.0	
Capital Expenditure	1.5	2.0	2.9	3.3	5.0	3.2	5.5	7.4	9.2	10.1	8.1	8.1	8.0	8.0	
External	1.2	1.5	1.2	1.8	3.0	2.0	3.1	4.5	7.8	9.2	7.0	6.9	6.8	6.5	
Domestic Counterpart	0.4	0.5	1.7	1.5	0.6	0.5	0.4	0.5	0.5	0.9	1.2	1.2	1.3	1.5	
Local Capital	**	**	**	**	1.4	0.7	2.0	2.3	0.8	0.0	0.0	0.0	0.0	0.0	
Current Account Balance	2.8	0.3	-1.6	-0.9	-0.5	-1.4	-0.3	0.3	-5.0	-1.1	-0.3	0.1	0.8	1.6	
Overall Deficit (Commitment)	-2.7	-4.4	-4.5	-4.2	-5.6	-4.8	-5.8	-7.3	-14.5	-11.2	-8.5	-8.0	-7.3	-6.5	
Change in Expenditure															
Related Arrears	-1.0	0.4	0.0	0.0	-0.3	-0.4	-0.7	-0.7	0.1	-1.9	-1.1	-0.6	0.2	0.2	
Overall Deficit (Cash)	-3.7	-4.0	-4.5	-4.2	-5.9	-5.2	-6.4	-7.9	-14.5	-13.1	-9.6	-8.7	-7.1	-6.3	
Financing:	3.7	4.0	4.5	4.2	5.9	5.2	6.4	7.9	14.5	12.6	9.6	8.8	4.4	3.9	
Budgetary Grants	0.5	0.4	1.2	0.4	1.7	1.6	1.5	3.9	7.2	8.1	5.2	4.5	4.4	3.9	
External, net	0.4	0.5	1.0	0.3	2.2	2.2	6.6	3.6	5.2	5.2	4.4	5.0	**	**	
Borrowing	2.2	2.8	2.7	1.4	2.9	2.5	5.4	5.3	4.8	6.5	6.6	6.4	**	**	
Repayment	1.8	2.2	1.7	1.0	1.3	1.5	2.0	3.2	4.6	3.2	2.7	2.0	**	**	
Debt Relief	0.0	0.0	0.0	0.0	0.6	1.2	3.2	1.5	4.9	1.9	0.6	0.6	**	**	
Domestic	2.8	3.1	2.2	3.4	2.0	1.5	-1.6	0.5	2.1	-0.6	-0.1	-0.8	**	**	
Bank	-0.3	3.2	1.4	3.8	2.0	1.4	-1.4	0.2	1.9	-0.4	-0.3	-0.9	**	**	
Non-Bank	3.1	-0.1	0.9	-0.3	0.0	0.1	-0.2	0.3	0.2	-0.2	0.3	0.1	**	**	
Memorandum Item:															
Revenue and Grants	11.7	9.7	8.0	5.1	7.4	6.9	8.2	11.4	14.0	15.3	15.7	14.1	14.6	15.1	
Overall Deficit plus Grants	-2.1	-4.0	-3.3	-3.7	-3.9	-3.3	-4.3	-3.4	-7.4	-3.2	-3.3	-3.5	-2.8	-2.6	

Source: Ministry of Finance, INF, and staff estimates



**Table 7.7. Economic Characteristics of Infrastructure Projects in Uganda  
(Million of US\$)**

<b>Project Name</b>	<b>TIME</b>	<b>TC</b>	<b>FOREIGN</b>	<b>LOCAL</b>	<b>ODA</b>	<b>GOVER'T</b>	<b>TA/CONSULT</b>	<b>ERR(%)</b>
WB: THIRD HIGHWAY PROJECT <sup>A</sup>	84-87	74	58	16	58	16	7.12	58%
WB: FOURTH HIGHWAY PROJECT <sup>B</sup>	88-93	60	52	7.7	52	7.7	6.1	38%
UK: ROAD MAINTENANCE PROJECT <sup>C†</sup>	89-90	7.28	6.1	1.18	6.1	1.18	1.46	40%
UK: ROAD MAINTENANCE PROJECT II <sup>D</sup>	92-93	2.58	1.28	1.30	1.28	1.30	0.36	40%
EC: NORTH CORRIDOR ROAD IMPROVEMENT PROJECT	88-91	36.84	36.84	N.A.	36.84	N.A.	1.82	28.8%
EC: NORTH CORRIDOR ROAD IMPROVEMENT PROJECT II	89-92	57	57	N.A.	57	N.A.	4.94	16%
EC: KAMPALA-MASAKA ROAD A+B+C PROJECT	84-87	13.44	10.08	3.36	10.08	3.36	N.A.	38%
EC: KAMPALA-MASAKA ROAD D PROJECT	87-89	7.67	7.67	N.A.	7.67	N.A.	N.A.	46%
EC: KABALE-KATUNA PROJECT	87-89	6.55	5.44	1.11	5.44	1.11	0.53	50%
GERMANY: HIGHWAYS REHABILITATION PROJECT	91-93	17.84	14.28	3.56	14.28	3.56	3.34	N.A.
GERMANY: HIGHWAYS REHABILITATION PROJECT II	93-95	12.74	9.8	2.94	9.8	2.94	2.52	N.A.
GERMANY: HIGHWAYS REHABILITATION OST-UGANDA PROJECT	92-95	15.68	10.08	5.6	10.08	5.6	3.08	N.A.
WB: RAILWAYS PROJECT <sup>E†</sup>	89-92	8.8	5.1	3.7	7	1.8	1.32	34%
WB: WATER & SANITATION PROJECT	85-89	30.8	22.74	8.09	28	2.8	4.4	20%
WB: SECOND POWER PROJECT	86-90	73.4	52.4	21	53.8	19.6	4.4	16.7%
<b>TOTAL (ROAD)</b>		311.62	268.57	43.05	268.57	43.05	31.27	
<b>TOTAL</b>		424.62	348.81	75.81	357.31	67.25	41.39	
<b>TOTAL (ROAD) %</b>		100	86.2	13.8	86.2	13.8	10	39.42
<b>TOTAL %</b>		100	82.1	17.9	84.2	15.8	9.75	35.46

NOTE:

- A. REQUIRE 400 MAN-MONTH CONSULTANT SERVICES
- B. REQUIRE 515 MAN-MONTH CONSULTANT SERVICES
- C. WITH PERFORMANCE INCENTIVE US\$ 0.05 MILLION
- D. WITH STAFF EMOLUMENT US\$ 0.12 MILLION
- E. REQUIRE 48 MAN-MONTH CONSULTANT SERVICES
- F. NEW UNITS WERE SET UP TO OPERATE THE PROJECT

TABLE 7.8. WORLD BANK PROJECTS UGANDA, 1984--1989

PROJECT NAME	# OF PROJECT	TIME	TC(MILLION OF US\$)	% OF PROJECT	% OF TC
<b>INFRASTRUCTURE</b>	<b>7</b>		<b>197.2</b>	<b>39</b>	<b>69.6</b>
THIRD HIGHWAY		1984	58		
PETROLEUM EXPLORATION		1985	5.1		
WATER & SANITATION		1985	28		
SECOND POWER		1985	28.8		
FOURTH HIGHWAY		1987	18		
RAILWAYS I		1989	7		
TELECOMMUNICATION II		1989	52.3		
<b>SOCIAL SECTOR</b>	<b>2</b>		<b>64.5</b>	<b>11</b>	<b>13.3</b>
HEALTH RECOVERY		1988	42.5		
EDUCATION IV		1989	22		
<b>STRUCTURE ADJUSTMENT</b>	<b>2</b>		<b>115.7</b>	<b>11</b>	<b>24</b>
ECONOMIC RECOVERY I		1988	89		
ECONOMIC RECOVERY II		1989	26.7		
<b>AGRICULTURE</b>	<b>4</b>		<b>57.9</b>	<b>22</b>	<b>12</b>
AGRICULTURE DEVELOPMENT		1985	10		
SOUTH WEST AGRICULTURE REHABILITATION		1988	10		
SUGAR REHABILITATION		1988	24.9		
FORESTRY REHABILITATION		1988	13		
<b>INDUSTRY</b>	<b>1</b>		<b>15</b>	<b>5.6</b>	<b>3.1</b>
PUBLIC ENTERPRISE		1989	15		
<b>TECHNICAL ASSISTANCE</b>	<b>2</b>		<b>33</b>	<b>11</b>	<b>6.8</b>
TECHNICAL ASSISTANCE II		1984	15		
TECHNICAL ASSISTANCE III		1988	18		
<b>TOTAL</b>	<b>18</b>		<b>483.3</b>	<b>100</b>	<b>100</b>

**TABLE 7.9. WORLD BANK PROJECTS UGANDA, 1984–1989**

<b>PROJECT SECTOR</b>	<b># OF PROJECT</b>	<b>TC(MILLION OF US\$)</b>	<b>% OF PROJECT</b>	<b>% OF TC</b>
INFRASTRUCTURE	7	197.2	39	69.6
SOCIAL SECTOR	2	64.5	11	13.3
STRUCTURE ADJUSTMENT	2	115.7	11	24
AGRICULTURE	4	57.9	22	12
INDUSTRY	1	15	5.6	3.1
TECHNICAL ASSISTANCE	2	33	11	6.8
TOTAL	18	483.3	100	100



## Chapter 8

### Economic Aspects of the Ethiopian Transition to Peace

*David Bevan*

#### 1. Introduction

The war in Ethiopia is usually regarded as having continued for the thirty years from September 1961, when the first armed engagement between the Government and the Eritrean Liberation Front took place, until the fall of the Dergue in May 1991, so that by any standards it was a lengthy and very damaging conflict. However, while sheer duration is probably its most striking characteristic, there are three other features which are central to any analysis of the problems posed by the transition to peace.

First, there was really not one war, but a set of wars which took place in parallel: the Eritrean war lasted for the full thirty years, while the others were of varying but shorter durations. For most of the period, there was fighting on more than one front: what was common to each of these subsidiary wars was that they (almost invariably) involved the Government as a participant, not that they involved a coordinated or cohesive opposition. The intensity of fighting shifted between different fronts over time, as did the identity of the opposing groups in particular regions. This feature had two important consequences, one in splitting the Government's forces, dividing its attention and making its ultimate failure more probable; the other in reinforcing the centrifugal tendencies which were in any case likely to be important during the peace.

Second, the identity of the Government itself changed dramatically in the middle of the conflict (and arguably partly in response to it), when the Emperor was overthrown in the coup of 1974. While the ideological orientation of the government and many of its policies were radically altered, the powerful centralizing thrust of government was unaffected. This had the consequence of

delinking the objectives of the **war(s)** very largely from broader political or economic issues.

Third, prior to the lengthy set of wars under consideration here, the area presently covered by Ethiopia and Eritrea had seen a very long history of territorial conflict of a brutal and **feudal** kind, with armies of both sides living off the land and the victors being rewarded with grants of occupied land, coupled with the **services** of the occupiers. Since the prosecution of this traditional type of war required any **army** to sequester the agrarian surplus, there was an alternative strategy to that of direct military engagement, namely to pursue a scorched earth policy which denied the opposing army the means of sustenance, while incidentally inflicting great hardship on the civil population. **These** traditions were largely carried over into the more recent conflicts, which meant that the damage to productive activity was substantially greater than would necessarily have followed from the scale of the military actions themselves. Since the bulk of the action took place in the rural hinterland, the consequences were particularly severe for the rural populations and for agricultural activity and development.

While events have moved rapidly since the end of the war, not least in the secession of Eritrea, the transition is still at an early stage of a necessarily protracted process. The longer run characteristics of the successor states are uncertain, so that both the destination and the path toward it are **difficult** to discern. However the idiosyncratic features of the conflict itself are bound to loom large in any likely transition. First, the evolution of agriculture has been powerfully affected; provided the restoration of peace is accompanied by appropriate policies, there must be scope for a very substantial

and extended growth in production. Second, the defeat of a distant, predatory and highly centralized government by a subset of a widely disaffected set of regions has pushed the likely successor state (in Ethiopia) towards a smaller, more devolved and possibly federalist political structure. Interestingly, Ethiopia has escaped one typical inheritance of so extensive and protracted a war, namely extreme macroeconomic imbalance resulting in a collapse in confidence and very high inflation.

This paper examines salient features of the Ethiopian transition; it makes reference to the companion papers which discuss particular themes in this transition, but does not summarize or paraphrase those discussions. It is structured as follows. Sections 2, 3 and 4 examine the issues raised in the preceding paragraph in more detail, and trace the effects of the war and implications of peace for agriculture and the rural economy, for the macroeconomy and for the structures of government respectively. Section 5 considers the possible responses of various agents to the changed situation further, and concludes.

## 2. The Rural Economy

According to the 1984 census, nearly 90 per cent of Ethiopia's population was then rural, the overwhelming majority of them peasants. Nomadic and semi-nomadic pastoralists accounted for only 10 per cent of the population, though they ranged over 60 per cent of the land area, and non-peasant agricultural production (formerly private estates, later state farms) engaged only 1 or 2 per cent of the population (Clapham, 1988). Since more than three-quarters of all Ethiopians are peasants, the fortunes of the whole economy are necessarily heavily dependent on what happens in peasant agriculture. It is conceivable for a civil war to be conducted in a fashion that impacts relatively little on the peasant economy, or where the main impact is to restrict the access of peasants to market interactions, leaving them free to substitute into relatively undisturbed subsistence activities. This was very far from being the pattern in Ethiopia. As noted in the introduction, the government viewed the peasant population as central to the conduct of the war, both as a source of resources for itself, and as a potential source of support and resources

to the various insurgents. In consequence peasant agriculture was subject to massive interventions, both by means of taxes, levies and confiscation of produce, and by means of actions to destroy livestock, standing crops and productive assets. These interventions were compounded after 1974 by the revolutionary government's attempts to **carry out** a **socialist** transformation of agriculture. While the original impetus for these policies is not attributable to the war, the energy with which they were pursued, and the shape they took, were profoundly influenced by it.

The rural economy of Ethiopia, particularly in the Northern Highlands, is characterized by a very uneven degree of local self-sufficiency. In consequence inter-regional sales of grain from surplus to deficit areas, and migration of labor in the converse direction have been crucial to sustaining adequate consumption in normal times and in permitting survival in bad ones. The government did not content itself with directly attacking the means of rural production, the producers and the product in insurgent areas: it also acted to stifle markets and to prevent traditional migration. This was achieved both by legislation in respect of trading and the hiring of labor, and by direct military means such as bombing markets and vehicles. (Africa Watch, 1991). The effect predictably was to severely damage market integration, reduce the rural economy's capacity to handle shocks and to create the conditions which turned the 1984 drought into a major human catastrophe.

Closely related to the war itself and to its consequences are four sets of policies; land reform, agricultural marketing, resettlement and **villagisation**. Land reform was the central component in the revolutionary government's plans to transform rural agriculture and was instituted in April 1975, six months or so after the fall of the Emperor. It abolished all existing forms of tenure, making all rural land the collective property of the Ethiopian people; restricted the maximum size of holding; prohibited the hiring of labor to work the land; and established peasants' associations, whose most important task was the allocation of land, both immediately after the reform and every two or three years thereafter. (Their other major role was to have been to induce a move towards voluntary cooperativisation, but in this they met with very restricted success). Given the complexity of the

previous tenure systems and the prevalence of litigation they had induced, the reform was carried out remarkably successfully. In those areas under the government's control, (and these comprised by far the greater part of cultivated land) the reorganization was rapid, effective and relatively complete (Clapham, 1988). In Eritrea and **Tigray** only a proportion of households was covered and this varied substantially with the territorial ebb and flow of the war. The identity of the gainers and losers and the size of the gains and losses also varied substantially across the country. Where the pre-revolution peasants had owned most of the land they worked, they had little to gain from the abolition of tenancy, and their plots were sometimes smaller after the reform than they had been before: but in areas which had been taken over by settler landlords, as in much of the south, the bulk of the population had been tenants, wage laborers and landless. For them the gains were potentially substantial, either in obtaining access to adequately sized plots, or in being relieved of the exactions of the pre-revolutionary landlord (this relief was frequently worth a quarter of the crop, sometimes - as in coffee-growing Kaffa - more like a half of it).

Since there had been relatively few large private estates prior to the revolution, and the largest of these had been taken over intact as state farms, the reform did not increase the total land available to peasants appreciably, unlike land reform in some other countries. In addition, the very process which guaranteed peasants access to land in their own area denied them access to land elsewhere, and halted the tradition of landless peasants migrating south in search of land. Coupled with low rates of pay on state farms, the prohibition on private hiring of agricultural labor, and restrictions on movements to the towns, these policies impeded the operation of factor markets just as those discussed earlier impeded the operation of goods markets. In the context of a difficult climate and difficult terrain, the impact was to lock peasants into an initial configuration which became progressively less adapted to circumstances. The leaders of the peasants' associations also became progressively more divorced from their constituents, as the associations became instruments of central government, rather than agencies for self administration.

In 1976 the Agricultural Marketing Coopera-

tive was established, and its powers were consolidated and extended over the following several years. While there was always a parallel system of private traders, their freedom of action became steadily more circumscribed. They not only had to be licensed and operate subject to AMC restrictions, which restricted grain movements between regions, but they had to deliver a proportion of their purchases to the **AMC** at official (low) prices. This proportion was raised over time **until** it covered all purchases in many cases. Meanwhile, a system of quotas was established in a hierarchical **arrangement** running from the regional administrations right down to the individual household, under the aegis of the peasants' association. The **AMC** was not in general able to achieve its quotas, but the pressure placed on peasants was often intolerable, and led to them having to make purchases at the (substantially higher) open market price to meet their quota. The overall impact of these arrangements was twofold. First, they reinstated the system whereby a large share of peasant production reverted to non-peasants. However, these exactions were now universal, and not limited as before to tenants; and in place of landlords, the beneficiaries were now the urban population, especially the inhabitants of **Addis Ababa**, and the army, or more generally the constituency favored by the government. Second, they powerfully reinforced the impact of the other developments noted above in ensuring the progressive fragmentation of Ethiopia into a set of insulated local markets.

What the policies had not achieved was any very significant growth in voluntary **co-operativisation**. The government's response was to abandon the emphasis on **voluntarism**, and embark on a program of villagisation. A major national campaign was operated between 1984 and 1990, but there had been prior experience, both in the south and in the **north**, of using villagisation as part of counter-insurgency operations (involving the construction of fortified "strategic hamlets"). Remarkably, a very substantial proportion of the rural population was successfully villagised, at least in the south, despite the very considerable initial costs of compliance and the very uncertain and generally negative long run consequences. The latter include increased difficulties in obtaining water and firewood, increased distances between

dwelling and fields, and severe problems of livestock management, which sometimes enforced the abandonment of traditional mixed **farming/herding** in favor of wholly sedentary agriculture. These difficulties were exacerbated by the strategic agenda in the program, which dictated that village locations should permit rapid access (often along roads constructed using compulsory labor levied from the villagers). Against this incomplete list of costs, it is **difficult** to set any clear benefits, at least for the peasants. From the government's perspective, villagisation may well have increased the possibility of **efficient** extraction of the agricultural surplus, even if its main effect was to reduce the size of the surplus. The lack of violent resistance, particularly in the south, possibly reflected the long history (dating back to the imperial campaigns of the nineteenth century) of severe reprisals if the government's writ were not closely followed. In any event, by 1988 the government was reporting that more than 12 million individuals had been villagised, or fully half of the rural population in the areas it then controlled.

The other major policy of moving peasants was the much longer range one of resettlement, largely from the north to the south. There has been much debate about the motives, necessity and consequences of this policy. In one perception, it was a device for moving the population away from the control of the insurgents; in another, it was an attempt to achieve the type of internal migration which would have taken place atomistically and automatically if land reform and related policies had not inhibited it; in another, related to the last, it was a necessary response to the emergence of sustained food deficits and environmental degradation in the north. Whatever the rationale, there is no doubt that extensive coercion was involved in recruiting individual settlers, ranging from the conditional use of food aid, through quotas operated by the peasant associations, to people being rounded up at gun-point. The whole exercise was very costly, both in material and human terms, with very high mortality rates amongst the resettled (Africa Watch, 1991).

It was inevitable that this immensely disruptive compound of policies and events would severely damage the functioning of the rural economy, paralyse its capacity for adaptation, and greatly inhibit innovation and investment. Land

reform had not provided peasants with any guarantee of retained control of any specific piece of land (as opposed to rights to an allocation in the area). In consequence the incentive to undertake long term investments in terracing, planting trees and the like was much weakened. Indeed, given the political control over allocation, energetic improvement of land might actually shorten the household's tenure of it. Far from encouraging investment, the system was better designed to induce asset stripping and disinvestment. These effects were magnified by the asset losses occasioned by the war, both directly from military action, and in consequence of the famines, which forced massive slaughter and sales of livestock, including ploughing oxen. The role of the state in inducing or making investment in the sector was directed at the state farms and producer cooperatives which yielded very low returns.

Given this background, even the very lack lustre performance exhibited by peasant agriculture over the last decade or two is quite creditable. While yields did not increase, at least they did not fall, which could easily have been the consequence of so sustained an "economic war" on the peasantry. However, since the area under cultivation was also stationary - and probably had been since the 1960s (World Bank, 1990) - while the population was growing rapidly, per capita food production trended strongly downwards. This required increased food imports with no increase in the volume of export crops (and a sharp deterioration in the terms of trade) to pay for them. In consequence, there was a growing macroeconomic imbalance, as well as a deterioration in average nutritional adequacy and an increased vulnerability to adverse shocks.

Partly in response to the evident failure of these policies, many of them were beginning to be abandoned or reversed, even prior to the fall of the Dergue. Liberalization of internal trade had been implemented systematically in the areas under the control of the EPRDF from 1989, and the government's own position shifted decisively in 1990. This shift was in one sense overtaken by events, with the defeat of the regime the following year, but since in many respects the incoming government pursued a similar reforming trajectory to that belatedly initiated by the Dergue, there was more continuity in economic than in political matters



from 1990.

It remains to consider the likely impact of these reforms. Preliminary studies of agricultural supply response in Ethiopia (Soares, 1992) have estimated supply elasticities of the type usually found in such studies, positive but well below unity. It can be argued that the most significant short run impact of liberalization is not to be found in aggregate supply changes, but in the reintegration of the regional markets. Studies have found a marked reduction in the regional price dispersion for grain, and a reduction in the average trading margin, consistent with prior expectation (Azam, 1992; Dercon 1993).

Other aspects of the transition are less satisfactory. While much of the dismantling of institutions is inevitable and often desirable (as with the hated producer cooperatives), some institutions of value have been damaged too. For example, the service cooperatives had played a central role in the distribution of inputs and provision of services to peasant farmers, and they, or similar successor agencies, will have a major and expanded role in the economic transformation of peasant agriculture which is vital to the longer run prospects of the Ethiopian economy. However, in the north, many of these cooperatives and their assets were effectively destroyed during the war, and most of those in the rest of the country were incapacitated soon after the fall of the Dergue. This was a result of the power vacuum which was created in most localities, and the consequent uncertainties, which permitted and encouraged asset stripping even of socially useful institutions (Kello, 1992).

Most serious of all has been the refusal of the Transitional Government to resolve the issue of the ownership of rural land. The initial policy guidelines made it clear that this would have to await a referendum following the eventual transition to democratic government. If anything, this has increased uncertainty about security of tenure and the appropriability of the returns to individual investments. While the government has successfully addressed some of the problems constraining short run recovery in the sector, it has not done so in respect of this crucial constraint on long run recovery and growth. Other requirements for the long run are in hand, but inevitably some will require many years to achieve. A major example is the provision of adequate transport, where deregulation of the freight system and importation of new

vehicles and replacement parts can be achieved relatively quickly, but construction and rehabilitation of an always inadequate and now highly degraded rural road system cannot.

It seems clear that there is scope for very substantial growth in agricultural output, if only because of the history of stagnation, low investment and lack of innovation. Since this lack of progressiveness is all too easily explained by the self-reinforcing mix of warfare and perverse intervention, there need be no inference that the Ethiopian peasantry (who are in any case extremely heterogeneous both ethnically and in agricultural practices) are constitutionally lacking in dynamism. However, advancing from such a low base, and with a history so inimical to initiative, it would be unreasonable to expect the growth to be very rapid.

### 3. The Macroeconomy

The macroeconomic evolution of Ethiopia is notable in two ways. First, and unsurprisingly, aggregate growth has been erratic and on average very slow; since 1974 per capita income has declined at roughly 0.5 per cent per annum. Though other sectors have grown more rapidly and consistently than agriculture, the latter is dominant and its poor performance has seriously retarded the whole economy. Second, severe macro imbalances emerged, but, surprisingly, these did not lead to rapid inflation or to a rapid depreciation of the parallel exchange rate. Inflation rarely exceeded 10 per cent per annum, and the parallel rate depreciated against the dollar at an average annual rate of only 4 per cent over the entire 30 years of the war (Collier and Gunning, 1993).

It is clear that the budget was a major stabilising influence in the macroeconomy for many years (Bevan, 1992, 1993a, 1993b). The interesting question is why this did not engender more inflation than it did. The rapid monetary deepening that made this possible may have been a transitional process involving a permanent shift in the private sector's behavior, or it may have been a temporary and reversible process which will be unwound in the future. For this to have happened, events in the 1980s must have had an asymmetric impact on savings and investment

behavior, with investment becoming temporarily infeasible or unattractive to a much greater extent than was the case for savings.

It is extremely difficult to obtain a reliable picture of either investment or saving in the Ethiopian case. Government capital formation figures are presently available only up to 1987/88, data on public enterprise are incomplete, and those on the private sector are more or less non-existent. However, for what they are worth, the available figures suggest that in the mid 1980s, private investment accounted for only 2 percentage points out of a national investment total running at the low level of 14 per cent of GDP. While this may well be an underestimate, it does imply an immensely inhibited rate of provision for the future. Since these figures are gross, it is hard to avoid the conclusion that the private sector was dis-investing in real assets at a fairly rapid rate. This is not implausible, given the options available. These did not include real estate to any great extent, since it was forbidden to own more than one modest house, and all land, both rural and urban, was vested in the state. Investment in productive assets was rendered difficult or unattractive by a number of factors; these included the war itself (a major concentration of industry had been located in Eritrea), the immense difficulty of negotiating for a site, the labor and other codes which virtually prohibited flexible operation, the difficulty of obtaining inputs, and the general hostility of government to private enterprise. Taken together, these conditions must inevitably have greatly dampened the enthusiasm of potential investors.

Private saving figures are probably even less reliable, but the observed monetary deepening itself suggests that saving held up better than investment in real assets, and whether or not there was substantial capital flight, the domestically retained share was also substantial. This presumably means that even though the confidence was lacking for real investment in the short run, there was no comparable loss of confidence in the currency, or in the longer run possibilities. It was acceptable to go liquid in the domestic currency and wait on events (Since a sizeable share of these liquid funds were probably generated in parallel exchange dealings, the option of capital flight would have been readily available, if desired).

The macroeconomic inheritance of the incom-

ing government comprised an economy in which growth of output had failed to match population growth for nearly a decade; where aggregate investment had probably fallen below replacement levels, and private investment all but disappeared; where private savings were very low and public sector savings negligible; where the overall budget deficit was typically in excess of 10 per cent of GDP, and substantially financed by borrowing from domestic banks; where there was severe import compression and a significantly overvalued exchange rate. As remarked above, this catalogue of problems had not yet engendered a runaway inflation, but the position was clearly not sustainable. After a period of hesitation, the new government devalued the currency (from 2.07 birr to the US dollar to 5 birr to the dollar). This did not set off the inflationary response which the government had feared, since the domestic price level already reflected the scarcity of foreign exchange. It also continued with the program of reform and market liberalization which had been initiated belatedly by its predecessor. This program included sweeping reforms of some aspects of the regulatory structure impeding private initiative, such as the labor code and grain marketing arrangements, and a statement of its intention gradually to limit its role in productive economic activities in favor of the private sector.

While the end of the war saw a large reduction in military expenditures, it also saw a collapse in revenues (Bevan, *op. cit.*). Even with the significant increase in aid inflows which has taken place, if domestic financing is to be held within prudent limits, it is only possible for total civil spending to be maintained at its war-time level, not increased. Whatever the long run implications of the end of the war may be, there is certainly no short run fiscal peace dividend in the sense of increased resources for the government's social and economic activities.

The previous point referred to the government's resourcing in terms of flows; it remains to consider whether there is scope for temporarily relaxing the resource constraint by selling assets and generating capital revenues. This is particularly attractive in a context where the end of war, and the concomitant need for wholesale reconstruction and rehabilitation, is combined with a transition from socialism, where the redefinition of

the scope appropriate to the state includes a substantial reduction in the type and quantity of assets it should hold. In Ethiopia, the state currently owns all land, both rural and urban; it also owns a high proportion of the urban housing stock, the bulk of the country's industrial assets, and a great deal of military hardware, in addition to the economic infrastructure which is state owned, as in most countries. Leaving the last category aside, there might appear to be extensive scope for realizing asset values, and generating revenue, while shifting to a more appropriate portfolio. Unfortunately, there are difficulties with each of these assets.

It is essential that some redefinition of rural land rights be made to increase peasants' actual and perceived security of tenure and provide assurance that they will be able to appropriate the returns to their own efforts and investments. In general, much the simplest and most reliable way of achieving this is to vest ownership of small holdings in the peasants themselves. However, achieving this in Ethiopia would probably be a politically fraught, acrimonious and lengthy process, partly because it would not involve a return to a clearly defined original position, partly because of the large amount of involuntary locational shifting that has taken place over the last 15 years. In any case, vesting the land in peasants as poor as these is not a mechanism for raising substantial cash revenues. If it were seriously intended to sell government owned rural land, rather than merely transfer title, then this would have to be to third parties, and would re-create a class of landlords; it does not appear conceivable or desirable that the government should obtain capital revenue by auctioning re-created rental rights over peasants. For whatever reason, the government has refused to address the issue of ownership to date, so this is not on the agenda as a revenue device.

The circumstances governing urban land are rather different; while land occupied by dwellings carries a similar political charge, and may have somewhat similar properties to those just discussed (occupiers do not currently reimburse the state for the implicit rental; however they may still end up paying it if they are in the private sector), land for industrial use does not. While outright sales of freehold are not on the agenda, sales of long leases certainly are. These may generate considerable revenues, depending on the strength and speed of

the recovery in private investment. Since the land is now vested in the regional governments, not in the central government, these revenues will not accrue directly to the central budget. However, the regions are likely to be in receipt of grant aid from the center for the foreseeable **future**, so this may make little difference in practice.

Sale of government owned housing is actively under consideration, but is **unlikely** to generate substantial revenues in the short **run**. Current rents are very much below market rates, the bulk of the occupiers have very low incomes (and many are not on the public sector payroll, so could not be compensated for rental rises), and could not afford to buy: sales would have to be at very deep discounts or to third parties, with the danger of subsequent eviction. Privatization of productive parastatals is also in process, but as elsewhere in Africa, this will inevitably be a lengthy business, and will not yield large revenues in the short run. Finally, sale of military hardware as scrap is unlikely to generate large revenues, and sale in working order raises difficult **moral** and political issues.

All in all there are a range of political, social and economic constraints which mean that the desirable switch in the government's portfolio is unlikely significantly to **ameliorate** its resourcing constraints. Equally, it leaves the **government** with a problem if success in creating a climate for private investment leads to a **switch** out of liquid assets as private portfolios are switched into real assets. It must either create an **attractive** longer run government liability (which **would** also have the perverse effect of partially crowding out the private investment recovery) or run a domestic surplus to correct the domestic **financing** balance. To the extent that it can engineer rapid economic growth, **and/or** an increase in **the** private propensity to save, these difficulties **will** be correspondingly reduced.

In the longer run, the government should be able to engineer some recovery in domestic revenue, partly by reform of the relatively antiquated tax system, partly as economic recovery shifts activity into a more tradable, and hence more taxable, configuration. However, the share of revenue in GDP will not recover to the levels reached under the previous regime, which involved a politically unacceptable and economically dam-

aging degree of coercion. In the plausible circumstance that donor preparedness to close the fiscal gap does not remain indefinitely at its present high level (around 13 per cent of GDP), it may be difficult to maintain spending at its present level (around 34 per cent of GDP). While the present macroeconomic position appears to be comfortably under control, the medium term will require careful **management**. A tapering of aid inflows, coupled with a sluggish revenue response to tax reforms and an unwillingness to grasp the nettle of expenditure control would lead to a rapid **re-emergence** of high domestic deficits in circumstances where they had ceased to be financeable.

#### 4. Government Structures

Changes as momentous as those that have taken place in Ethiopia are bound to have major consequences for the nature of government and its structures. This section focuses on three of these. Both the Dergue and the imperial regime which preceded it were highly centralized and highly authoritarian; in addition, until almost the very end of its period in power, the Dergue was strongly committed to a socialized scheme of ownership and control, and to a rejection of market processes. The military defeat of the Dergue, the nature of the coalition that defeated it, and the evident failure of its economic program jointly implied a revulsion from these three attributes.

The unifying theme in the history of government in Ethiopia, running from Tewodros through Menelik and Selassie to Mengistu, was the attempt to create an ever more powerful centralized state, while imposing the progressive subordination of regional movements and nationalities. In the later years, this saw the government fighting a succession of unwinnable wars, in ever more desperate attempts to enforce unitary control, in the face of endemic economic failure and in the face of increasing alienation of the population, even in areas which were not in revolt. Since defeat was achieved by forces from the periphery, and not by an insiders' coup, it never seemed likely that this centralizing thrust would be maintained after the fall of the Dergue; a more serious danger is that the whole Ethiopian state will unravel after the fashion of the USSR.

It is clear that national unity could not be

imposed by force after the fall of the Dergue, and the EPRDF, in its new incarnation as the Transitional Government of Ethiopia, adopted a strategy of recognizing ethnic differences within a loosely defined federal structure. The secession of Eritrea was bitterly resented by those who still subscribed to the concept of an inclusive and centralized Ethiopian state, but attempting to block this secession was never really an option for the EPRDF. Given its political base in **Tigray**, a small, poor and distant part of the country, and given that it had itself no secessionist aspirations, the EPRDF faced a problem. If Ethiopia could no longer be governed by military force, least of all from the periphery, it would be necessary to build some form of **ruling** coalition. However, this requires different skills from those appropriate to waging a guerilla war.

Equally serious, if a coalition has to be forged out of the country's different nationalities and regions, is the disparity between these. **Tigray** is in many respects atypical; it is coherent, with a strong sense of regional identity, and no serious problem of internal minorities (it has not been subject to inward migration). It has been an integral **part** of Ethiopia from the beginning, aspires to a substantial degree of autonomy within it, but stands to gain substantially from transfers from the center. Most of the other regions are much less clearly defined both as to nature and as to interests; a process of sharpening this definition should logically precede the process of coalition-building. In the meantime, it is extraordinarily difficult either to start negotiations, or to agree on a concrete form for the ensuing federal structure.

There has been a great deal of activity on devolution, with proclamations defining (at least broadly) the physical boundaries and rights and responsibilities of the regional governments, and announcements of budgetary allocations. However, the real shape of the future structure, including how truly federal it proves to be, remains profoundly obscure (**Bevan, 1993c**). On the resolution of this issue, much depends. It appears that there can be no going back to the old centralized pattern, but what has replaced it is still evolving. It is unclear whether this evolution will settle in a configuration which permits a healthy federated Ethiopia to flourish; in one which is plagued with instability, political tension and unproductive ethnic rivalry; or whether the country will end up

tearing itself apart with all the horrors of ethnic cleansing culminating in further secessions.

It is also difficult to discern how complete a transition will be achieved from Ethiopia's authoritarian tradition of government to a more responsive, democratic one. The original timetable within which the Transitional Government undertook to hold national elections has already been extended. While the scale and urgency of the agenda for economic reform and the need for prior work on a new constitution make this understandable, the precedents of deferred elections elsewhere in the continent are not encouraging. Questions have also been raised about the conduct of the regional elections, which have already been held. While continuation of an Ethiopian state clearly requires that a viable form of power sharing be developed, there is no guarantee that this will be embodied in democratic processes. These issues should begin to be clarified in the very near future.

Since the nature of the successor regime is unclear, so is the extent of future disengagement from socialist interventions. The retreat from wholesale market intervention seems to be well established, and there does not appear to be any constituency for systematic reversion. However, while the liberalizing thrust of economic reforms may be secure, attitudes to the ownership and control of productive assets are much more ambiguous. The unwillingness of government to contemplate outright sales of land has already been discussed. There is also a great deal of policy ambivalence on the relative roles of public and private sectors in production, with no unambiguous commitment to privatization. Indeed, the TGE has reserved a number of industrial activities to be the exclusive preserve of the state, on the ground that they are "essential for the development of the economy" (Eshetu Chole, 1992). On the other hand, despite the large extent of the state-owned enterprise sector in Ethiopia, it has probably been less problematic than elsewhere on the continent. While the previous structure of incentives, price controls and protection meant that they were sometimes foreign exchange absorbing rather than foreign exchange generating, they were usually profitable, unlike the experience of many African countries (World Bank, 1985, 1989). Indeed, Ethiopia has been remarkable in the region in its capacity to maintain a high level of managerial

effectiveness in difficult circumstances.

The direct efficiency costs of retaining a large public sector presence in productive activities need not, therefore, be high, but two aspects of it may prove more problematic. The first relates to the general perceptions of the business community, who remain deeply skeptical of the government's willingness to create an appropriately enabling environment for their activities, and whose skepticism is reinforced by its intention to remain a major player on the allegedly level playing field. The other danger is that current arrangements may encourage the regionalisation of public enterprise activity. Regional governments are likely to be short of revenue sources, and it will be tempting to utilize their control of industrial land to engage in extensive joint or sole enterprise activities using land both as a bargaining counter and **as** a potential barrier to competitive entry. Even if the successor regime in central government adopts a stance more committed to private enterprise, it might not be able to ensure that this was pursued nationally.

Whatever the balance **between** public and private participation may be, the two sectors jointly face a daunting challenge in mobilizing a very large and substantially unemployed urban labor force (Mengistae, 1992). A survey conducted in 1990 implied that half of the younger urban adult population was then unemployed, and the situation will have worsened **following** demobilization, since many ex-soldiers remained in the towns, particularly **Addis Ababa**. This level of unemployment, apart from being a potent source of poverty and its associated **misery**, is a potential source of political unrest. To date, however there has been relatively little sign of increased crime or banditry following the end of the war and the demobilization (Collier, 1993).

## 5. Conclusion

Amongst the many unknowns that make any present assessment of Ethiopia's prospects so speculative the most important are the ways in which different agents, both public and private, respond to the opportunities and challenges facing them, and to each others' actions. Circumstances now **permit** major beneficial shifts in behavior, but these require both that ingrained habits be broken and that individuals have some confidence in the

stability and reliability of the new economic and political environment. Unfortunately governments, whether old ones proclaiming they have reformed, or new ones claiming **they** are different, have a serious credibility **problem** in announcing that the environment will in future be more supportive to private agents. The only reliable way of establishing a reputation is to earn it in execution, by building an observable track record. If private agents reasonably decide to defer irreversible and costly decisions, **and wait** and see, the payoff to the new government strategy will certainly be postponed, **and** may be aborted altogether.

While there may be no short cut in this process, it is certainly possible to prolong it, by postponing crucial choices, leaving major policy issues ambiguous, and generating mistrust and uncertainty. The Ethiopian authorities are in somewhat of a cleft stick; it has been mandatory that they orchestrate a major break with the past, and the choices involved, such as those over the new constitution and the regions, require a great deal of time. Indeed, in some respects it would be more appropriate to criticize them for moving too quickly rather than the converse. However, there are areas in which it would have been possible and desirable to have moved more quickly, and which have still not been resolved. One is the vexed issue of finding a mechanism for ensuring adequate tenure of land; another is the need to demarcate very clearly the conditions under which private enterprise may operate and the safeguards on which it may rely, not least from incursions by the state.

The speed with which the economy is able to emerge from its current state depends on releasing energies which have been dormant or directed into privately but not socially profitable uses. One **difficulty** is that, just as honing the skills required to win a guerilla war may be a poor preparation for government by coalition, so the skills required to flourish in a set of black markets may not lay the foundation for successful productive entrepreneurship. In this case, private agents with liquidity may not be best placed fruitfully to invest it, while the banking system has no experience of the type of intermediation required to resolve the difficulty. However, experience of the subsequent success of those who made fortunes in wartime elsewhere suggests that entrepreneurial skills may in fact be

rather transferable between different activities. The problem, as indicated earlier, may be more a matter of residual mistrust of government by the business community, coupled with some genuine remaining "objective" difficulties in **the way** of private productive activity. Experience of structural adjustment in Africa provides a warning that private investment may take a very long time to recover, and it is difficult to know where to place Ethiopia in this context. On the one hand, the scale and depth of the intrusion by the state was extraordinarily great, so that suspicion and distrust might be more entrenched than elsewhere. On the other, the fall of the previous regime has been particularly decisive and irrevocable, and there does exist a substantial diaspora of successful emigre Ethiopian businessmen. In consequence, the familiar gap between inexperienced and illiquid local entrepreneurs and a reluctant international business community probably does not hold in the case of Ethiopia.

Recovery in the rural economy is also subject to uncertainties. Apart **from** that associated with the climate itself, the most significant is the question of tenure. One complicating factor is that the resettlement and villagisation programs have left many farmers in locations they are desperate to leave. There are other displaced persons in need of relocation, notably many demobilized soldiers. Some relocation has taken place spontaneously, but the process is very far from complete. There is also the ruinous state of much of the transport system. In these circumstances, the rate at which investment and innovation will occur is also highly uncertain.

There are two main conclusions from this discussion, neither surprising. First, while the main problems and opportunities facing Ethiopia are relatively easy to characterize, the transitional process is at an early stage, and it is profoundly unclear how it will evolve. Second, the sheer scale of the damage, and the scope of the changes that are needed means that the adjustment horizon must be very long indeed. Fortunately, the end of the war does not appear to have unleashed an **unsustainable** revolution in expectations, so that Ethiopia may be spared the intolerable political pressures under which some adjusting governments have to operate.

## Chapter 9

### Economic Aspects of the Ugandan Transition to Peace

*Paul Collier and Sanjay Pradhan*

#### 1. Introduction: The Economic Meaning of 'War'

This paper applies aspects of the analytic papers developed in the study to the case of the Ugandan civil war and the subsequent recovery. Section 2 considers the macroeconomy and some sectoral disaggregation. Sections 3 and 4 consider private and government behavior respectively. Section 5 considers the third important actor, namely the donors. First, however, I discuss the economic meaning of the Ugandan war.

Whereas international wars can invariably be precisely dated, civil wars are less precise. Here I will date the start of the war to 1972, the time of the declaration by the Amin government of 'Economic War' on its Asian community and the resulting expulsion of that community. Civil war subsequently engulfed far larger groups than the Asian community: during the Amin era (1972-79) up to 500,000 Ugandans died as a result of the regime. Exiles in Tanzania mounted two invasion attempts, the latter in 1979 being successful. Whereas the 1979 campaign was short and decisive, the first part of the 1980s was one of extreme military instability as successive governments gradually lost control of territory to insurgent forces. By 1985 some 7% of the population was displaced or refugees. In January 1986 the National Resistance Army gained control of Kampala and secured more complete territorial control the following year, this marking the start of the return to peace. Just as the Asian community was the first to be embroiled in the war, it has been among the last to be incorporated in the peace. The return of confiscated assets is still in process, and to date only a small proportion of the community and those assets which it expatriated have returned despite strenuous efforts on the part of the NRM government. In addition to the slow process of

Asian repatriation, Northern Uganda has not yet been entirely integrated into the present civil society.

Once a government declares 'economic war' on a part of its population, it abandons the central economic functions of government: the provision of impartial arbitration, protection and contract enforcement. While some of these functions can in principle be provided privately, in Uganda as in most societies, the state had reserved to itself the monopoly of supply and so the sudden cessation of state provision could not be met from alternative sources. Hence, a defining economic feature of the Ugandan civil war was that public officials, military personnel and private agents were to a considerable extent able to behave outside due process of law. This extended beyond the expropriations suffered by Asian entrepreneurs. Many of the Asian businesses were acquired in a rather confused and ad hoc manner by soldiers, ministers and other members of the political elite. There was generally defacto control but not the acquisition of good title, giving rise to insecurity of tenure and non-marketability of the enterprises. In these circumstances there was a tendency for those who currently controlled the enterprise to strip it of its assets.

The economic consequences of civil war in Uganda are not, therefore, primarily related to military expenditure and material destruction, they are about the removal of legitimate authority. It is this which makes the economic consequences of civil war quite different from those of a conventional international war: civil war removes legitimate authority. Consequently, the restoration of 'economic peace' is not the automatic corollary of

military victory, it is the reconstruction of systems of legitimacy.

The longer a society stays in a state of civil war the more do conventions of legitimate conduct decay. In this sense, the period 1972-86 was a fairly continuous descent from civil society, while the **post-1986** period is better conceptualized not as post-war material reconstruction but as the gradual **re-** emergence of the institutions and conventions of civil society. 1971 marks the last full year of peace, 1986 marks the nadir of economic civil war, and 1986-93 marks the period of a gradual and partial return to economic peace.

## 2. Aggregate Consequences of War and Peace: Production, Expenditure and Their Composition

I begin by describing the salient changes in the **level** and composition of production and expenditure during and after the war. I then introduce a disaggregation which attempts to rank activities by their vulnerability to war.

Between 1971 and 1986 GDP declined by 13%. Since fertility far exceeded mortality, this is an amazing scale of contraction. For example, a normal slow-growing African economy would have expanded by around 3.5% **p.a.** during this period. Had the Ugandan economy grown at this rate it would have been double its actual 1986 size. To a small extent the decline in output relative to this counterfactual is due to endogenous losses of the laborforce through emigration. Although only a small proportion of the labor force left Uganda, this was disproportionately the most productive. The expelled Asian community was highly skilled, and the **Amin** regime systematically targeted the educated. Hence, not only did these groups have the best earning opportunities abroad, they had pressing reasons to leave. However, a decline on this scale must predominantly be explained by a reduction in the productivity of a given stock of labor. This was partly a matter of reduced productivity in all sectors, and partly reallocation between sectors to those with initially lower returns. With the return to peace post-1986, some of this output loss has been recovered. Between 1986 and 1992 GDP has grown by 37%. Although above the growth rate for the region, the

economy is still far short of 1971 per capita production. In the first two years of peace there was rapid growth of over 8% **p.a.**, but this was followed by four years in which growth was modest. Only in 1992/93 did growth **recover**. It may be that peace delivers some readily **realizable** economic gains, but that sustained rapid recovery depends upon the restoration of **private** sector confidence which in Uganda is only now happening.

During the war the decline in per capita GDE exceeded that in GDP. This was for both exogenous and endogenous reasons. Exogenously, the terms of trade deteriorated though with major fluctuations. Endogenously, the disproportionate decline in the export sector (discussed below) reduced the real income of the economy, being equivalent in terms of income loss to the introduction of severe trade restrictions. A second endogenous income loss was the decline in aid. Neither the **Amin** regime nor its successors were very attractive to donors and had little appeal to commercial **banks**. Hence, relative to need, Uganda was considerably underborrowed by 1986. Indeed, during the first half of the 1980s the balance of official merchandise trade was approximately zero. Further, as argued below in our analysis of private response, there is likely to have been a private capital outflow. There were thus three endogenous reasons why expenditure relative to GDP was lower than in the counterfactual. **Post-1986** there was a more rapid reversion in aggregate expenditure than in aggregate production. First, the shift of resources back into the tradable sector produced a trade-liberalization effect, enhancing real income for a given level of production.

Secondly, there was a resumption of aid flows on a large and conceivably unsustainable scale. This seems to be a common pattern in war-peace transitions, for **example** in the first three post-war years Zimbabwe was able to run a payments deficit approaching ten percent of GDP. Thirdly, there was some repatriation of private capital. In 1992 private capital inflows totalled \$200m. Offsetting these endogenous gains there was an exogenous loss due to the collapse in the world coffee price. The resulting collapse in export earnings is temporary in that the coffee price will probably recover somewhat from its historic low,



and the Ugandan economy will diversify its exports away from the extraordinary dependence upon coffee which was a by-product of the war, however, during the post- 1986 period the endogenous gain was approximately offset by the exogenous loss.

The severe decline in the size of the economy was accentuated by a change in its shape, resources moving to less productive activities. Table 9.1 depicts the change in the composition of GDP during the period. The Table is organized around the concept of transactions costs pioneered by North (1992). There are two broad mechanisms by which civil war changes the composition of an economy. First, directly productive activities vary in their vulnerability to civil war according to two

characteristics: transactions-intensity and asset-intensity. Transactions depend, to a varying degree upon the institutions of civil society, but at a minimum expose the transactors to a degree of visibility and potential predation. Assets are vulnerable because their continued possession depends upon defensible property rights which are eroded by civil war. Because activities vary in these two intensities, civil war changes their relative cost and so shifts resources between them. The second mechanism by which the composition of activity is changed is that some other sectors supply either transactions services or assets to the directly productive sectors and these face a collapse in demand.

**Table 9.1. The Composition of GDP by War-Vulnerability**  
(% share of GDP)

at 1987 constant prices

	1971	1981	1986	1992
<i>Transaction-using</i>				
Manufacturing	7.7	3.5	3.3	5.4
Marketed agric	31.0	27.4	26.8	25.4
Subsistence	30.5	39.2	39.2	35.8
Transaction-providing				
Transport	4.7	3.1	3.9	3.8
Commerce	23.0	14.2	13.2	15.0
Asset-vulnerable				
Livestock (inc sub)	-	12.3	10.3	9.3
Construction	9.3	2.9	2.5	3.4

Note: The National Accounts provide data at 1987 prices for 1981-92. The 1971 data has been put onto an approximation of 1987 prices as follows. Both 1971 and 1981 data are available at constant 1966 prices. The estimated share of sector *i* in GDP in 1971 at 1987 prices is then its share at 1966 prices multiplied by (share of *i* in 1981 at 1987 prices / share of *i* in 1981 at 1966 prices).

**Table 9.2. Index of Components of GDP by War-Vulnerability**

(index, 1972=100)  
value-added at 1966 prices, 1971-86  
at 1991 prices, 1986-92

	1971	1986	1992
<i>Transaction-using</i>			
Manufacturing	100	37	73
Export crops	100	{75	88
Marketed food	100	{	97
Subsistence	100	100	127
<i>Transaction-providing</i>			
Transport	100	85	113
Commerce	100	58	86
<i>Asset-vulnerable</i>			
Livestock (inc sub)			
Construction	100	45	96
<i>Memo</i>			
<b>GDP</b>	100	87	119
Government	100	166	198

Four sectors might be distinguished as 'directly productive', but having very different degrees of vulnerability to war: manufacturing, export crops, marketed food production, and the subsistence economy. Of these four sectors it is evident that the subsistence economy is the least transaction-intensive. However, it is still exposed to war. First, it is still to an extent dependent upon transactions, since it is only 'subsistence' in the sense that its output is not sold, whereas it depends upon purchased inputs. Secondly, it depends upon assets some of which are acutely vulnerable to war, namely stores of seed grain. A hungry army will attempt to asset-strip subsistence agriculture. These two negative effects may explain why, although the subsistence sector gained very considerably relative to other sectors, its total output was no higher in 1986 than in 1971. The next activity up the scale of vulnerability is likely to be marketed food. The marketing

channels can be highly informal and food is sufficiently standardized that transactions can be anonymous with little cost, since there is little role for reputation. Although more vulnerable than subsistence in that a transaction is involved, marketed food production involves less asset-holding than subsistence since output can be sold immediately after harvest. Arguably more vulnerable than marketed food is marketed export crops. The decision to produce these crops is the decision to sell or store them, since they cannot be consumed. Hence, if there is a risk of increased predation, the safe course of action is to grow food crops, the marketing decision being postponable. Further, export crops by their nature have a higher value-to-weight ratio than food crops and so predation (for purposes other than hunger) is more attractive, and they must be transported right through the country rather than just to the nearest purchaser of food.

The most vulnerable of the directly productive activities is manufacturing. First, it is transaction-intensive. The ratio of the value of transactions per shilling of value-added is much higher than in agriculture and the number and variety of transactions is also higher. Further, the output is less standardized and so reputation is more important, requiring repeated transactions with the same agent and a higher profile. In addition to transaction-intensity, manufacturing is asset-intensive and its scale economies imply that assets are geographically concentrated.

This pattern of vulnerability is consistent with the changes in the shares of the four activities during and after the war. The sector which benefited most from the war was subsistence agriculture, which increased from 30% to 40% of GDP. The sectors which contracted most severely were market agriculture and manufacturing. Official exports, which were an important subset of market agriculture, declined in overall volume by around 60%. Indeed, only coffee survived as an official export activity, all other official exports declining by close to 100%. Manufacturing more than halved as a share of GDP. Post-war, the structure of output has tended to revert but only partially. Subsistence activities have grown least (25%), though remain at 36% of GDP, so that only around half of the retreat in subsistence has been reversed. Manufacturing output has more than doubled, but is still one third smaller relative to GDP than in 1972.

The next group of activities identified in Tables 9.1 and 9.2 supply transactions services: transport and commerce. In aggregate these services indeed reached their nadir as a share of GDP in 1986 and have thereafter partially recovered. The argument is that since these sectors are supplying transactions services they are peculiarly vulnerable. They are also intensive in **lootable** assets.

The final pair of activities identified in the Tables are asset-related. Livestock is an activity which is peculiarly intensive in **lootable** assets and so particularly vulnerable: it is harder to conceal livestock than to conceal grain. The construction sector is not only subject to a transactions-intensity similar to that of the manufacturing

sector. but its output is irreversible investment which cannot be removed from the country. The willingness to make this sort of commitment evaporates during the uncertainties of war and so the construction sector suffers a demand collapse. This behavior has persisted through to the present.

The supply response to the change in transactions costs and the resulting changes in demand for transactions services and asset-related activities in turn changed relative prices. The sector-specific GDP deflators are shown in Table 9.3, however, for much of the period they are unfortunately highly unreliable. For what they are worth, prices are shown relative to the deflator used for the subsistence sector, and with the relative price structure in 1971 set to unity. Thus, the numeraire is subsistence output. For example, the figure of 152 for commerce in 1986 implies that the price of a unit of value-added in commerce rose relative to a unit of subsistence by 52% between 1971 and 1986. The changes in transaction-using prices relative to subsistence are modest. The deflator on subsistence is, however, derived from that for marketed agriculture and so would be unlikely to deviate substantially from it. The manufacturing deflator may, however, indicate that despite the war the trade regime was relatively liberal. That is, the collapse of the customs **service** implied de facto trade liberalization, so that domestic manufacturers were restricted in their capacity to raise prices. Manufactures entered the economy through informal trading channels which were not substantially inconvenienced by the war. On this account, the rise in unit costs in manufacturing due to its transactions intensity could not be passed on to consumers and so resulted in a yet more severe quantity contraction. Turning to the transaction-providing sectors, the apparent fall in the relative cost of transport during the war period is evidently spurious, presumably failing to take into account quantity rationing. The sharp rise and subsequent fall in the unit price of commerce is consistent with what might have been expected. The sharp rise in construction costs despite the collapse in demand for construction services demonstrates that there was a severe cost shock to the sector.

Table 9.3. Relative Price Changes by War-Vulnerability

(relative to subsistence, 1971 relative prices = 100)

	1971	1986	1992
<i>Transaction-using</i>			
Manufacturing	100	84	96
Marketed agric	100	95	91
Subsistence	100	100	100
<i>Transaction-providing</i>			
Transport	100	89	115
Commerce	100	152	131
<i>Asset-vulnerable</i>			
Construction	100	259	348

Less is known about the change in the composition of expenditure than that of production because there are not yet any expenditure National Accounts. However, the war gave rise to two major shifts in expenditure composition. First, expenditure shifted away from investment. The share of investment in GDP fell from 12% in 1971 to 2.9% by 1978 (the peak of the coffee boom) and thereafter if anything declined further. Secondly, expenditure was privatized: the share of government expenditure in GDP fell from 20% in 1971 to 10% by 1986. Between them, these two responses cushioned the other expenditures of private agents against the 40% fall in per capita production. Both of these changes in composition were reversed post-1986. Investment increased by about 70% during 1986-91, whereas consumption rose by only around 27%. Within investment, there was a modest switch towards non-tradable capital goods as opposed to imported capital. Most of the investment recovery was private: private investment more than doubled whereas public investment rose by around 40%. By 1991 private investment was slightly higher than public investment. The leading role played by the private sector in investment recovery was despite a strong recovery in public expenditure. By 1991, government expenditure had fully recovered its pre-war share of GDP, being back to 21%. However, the

increase in government expenditure was skewed towards consumption. Whereas private consumption rose by 20%, public consumption rose by nearly 50%.

To summarize, war caused a collapse in aggregate output and an even more severe collapse in expenditure. It shifted production out of transaction-intensive, transaction providing and asset-vulnerable sectors, and expenditure out of investment and the public sector. During nearly seven years of peace the economy has only partially reverted to its pre-war characteristics. Expenditure levels and composition have reverted much more swiftly than production. Both the slow recovery of production and the swift recovery of expenditure warrant further analysis. The incomplete recovery of production might reflect an incomplete fall in transactions costs rather than just slow adjustment to a complete reversion in transactions costs. Below we therefore investigate further what is involved in their reduction. The rapid expenditure reversion has been achieved by the public sector raising its consumption whereas the private sector has raised its investment. The recovery in the share of public expenditure reflects both the increase in the tax base and the effects of aid. The recovery in the tax base is brought about because taxation falls disproportionately upon the tradable sector of the econ-

omy and least upon the subsistence and smuggling parts of the economy, so that the shift in the structure of the private economy endogenously raises the share of public revenue. However, in Uganda this effect has been fairly modest precisely because the private recovery has been so incomplete. Whereas in 1972 revenue was 15% of GDP and at its trough in 1986 was only 4.5%, it has only recovered to 8%. The major reason for the recovery in government expenditure has therefore been due to the **channelling** of aid through the budget rather than directly to private agents. Since the sustainable recovery of public expenditure depends upon the recovery of taxable activities, the primary focus of attention should therefore be upon the impediments to that recovery. Why has the private sector not shifted resources back into the tradable and marketable components of the economy more swiftly? I turn to private responses to the return of peace.

### 3. Private Responses to Peace

#### *Asset Responses*

In *War, Peace and Private Portfolios* (Collier and Gunning, 1993) we suggested that during civil wars entrepreneurs build up large holdings of financial assets and that in Uganda these assets took the form of dollars. Government estimates of coffee smuggling imply that during the coffee boom of 1976-79 unofficial exports were \$520m. While some of this will have been counterbalanced by unofficial imports, this gives some idea of the possible scale of foreign asset holdings. I begin with an implication of this high liquidity in foreign assets for domestic financial markets and then discuss the switch back into domestic real assets. Because of the large accumulated holdings of foreign exchange, the capital account is *de facto* open even prior to *de jure* liberalization. Hence, once the domestic financial market is liberalized, the domestic interest rate becomes set by the conventional open capital account condition that it should equal the interest rate on dollars plus the expected depreciation of the shilling against the dollar. In turn, the expected exchange rate reflected the credibility of the government's macroeconomic strategy. A transition government has had little **opportunity** to acquire reputation and

the economy is subject to external aid shocks. Hence, private agents attach some probability to a high-inflation scenario. Interviews with the business community in March 1993 established that the consensus **expectation** of the exchange rate for the end of 1993 was 1500 shillings per dollar, as against 1200 at the time of the interviews. The differential between domestic and foreign interest rates prevailing at the time were consistent with those expectations of depreciation. However, in the event, the government's tight macroeconomic policy was sustained so that by late-November 1993 the actual exchange rate had appreciated to 1150. The result was that real interest rates for borrowing denominated in domestic currency were around 30%, whereas the real interest rate for those who were financing investment in foreign currency **was** around zero. This created considerable **tension**, since the entrepreneurs with foreign assets were disproportionately Asian, whereas newly entering African businessmen needed to borrow locally **and** were thus at a heavy disadvantage. This configuration of incredible disinflation leading to high real interest rates for a part of the business community is not unique to war-peace transition, but it may be a common feature given the conjunction of dollarisation of financial assets and the likelihood of bouts of high inflation during the transition period as the budget is subject to shocks and the demand for money function shifts in an unpredictable manner. For example, no matter what a post-war Angolan government were to do, it would be unable initially to generate a credible expectation of sustained single figure inflation.

The domestic financial sector is doubly damaged by civil war and its aftermath. First, using the classification of the previous section it is transactions-providing, and so contracts sharply during the war. Additionally, it is intensive in a government-provided service, namely a numeraire and this is undermined both during and after the war. In those sophisticated economies in which the government has a history of high and variable inflation, such as much of **Latin** America, the government nevertheless provides a numeraire through the publication of a reliable CPI, permitting indexation of contracts. In Uganda the government is not trusted to produce a price index. In fact the government has invested in an accurate

and rapid consumer price index, but in interviews it was evident that its use for purposes of indexation of contracts was not practicable given private skepticism. Indeed, an article in *Uganda Confidential* had claimed (inaccurately) that the CPI was manipulated by the government. Hence, the domestic financial sector lacks a numeraire which can be trusted to maintain its value. The government therefore faces the dilemma that it either grants the private sector the inflation which it expects, achieving low real interest rates but high inflation, or maintains low inflation, yielding high real interest rates until private expectations adjust. The latter option continually wrong-foots the private sector. For example, during 1992-93 the government **disinflated** from an annualized inflation rate of 230% to 0%. Although this was unexpected, so that real interest rates became very high; the disruption cost was remarkably low. The economy grew at 7.2% during the year. The reason for the low cost of disinflation was that there were few long term contracts denominated in domestic currency and in particular few credit transactions. **Thus**, the legacy of the civil war was an inability of the domestic financial sector to function and this in turn made disinflation an unusually cheap option. **An** implication is that the early post-transition years, during which the domestic financial sector is inevitably truncated, are a good time for the government to invest in a once-and-for-all disinflation. However, the price of this will be that the credit market will be bifurcated into a predominant low real interest rate foreign currency denominated market, and a minor but politically sensitive high real interest rate domestic currency market.

I now turn to the switch from foreign financial assets to domestic real assets. As noted, private investment recovered rapidly, but even by 1991 it was only around 7% of private income. This suggests that **upto** that date there had been little if any net repatriation into real assets. The Kampala household survey of 1990 (**Bigsten** and Kayizzi-Mugerwa (1992)) asked some long recall questions on asset transactions and migration, and so provides some basis for comparing the immediate post-war situation with that four years after recovery. One marked change was the increase in land transactions. They argue that this reflected the pent-up need for asset transactions and that,

while peace enabled fairly small-scale land transactions to take place. transactions in other assets remained very difficult. In effect, social conventions related to land transactions were sufficiently strong that the restoration of basic social order was sufficient to permit them without recourse to the more complex legal framework needed for other asset transactions. A second marked change was the reduction in urban-to-rural migration. This is again consistent with the reversal of the retreat to the rural economy induced by the war.

Private investment tended to be concentrated in three types of capital, housing, transport equipment and machinery for manufacturing. The housing boom is picked up in the National Accounts, where the construction sector expands substantially more rapidly than GDP, and in the **Bigsten** and Kayizzi-Mugerwa survey, which found a high incidence of house construction. The concentration on vehicles and machinery is found from the breakdown of investment in data supplied by the Uganda Investment Authority. As discussed in Collier and Gunning (1993, **1993a**), if private investors are worried about a reversion to 'war' this may be the expected pattern. The advantage of transport equipment is that it can be removed from the country if conditions deteriorate, and since it does not last long, the investor does not have to take a favorable view of the long-term future. Manufacturing machinery is also readily removable as long as it is chosen with this in mind. Housing has neither of these features: it depreciates only slowly and it cannot be removed from the country. However, it is relatively immune to war since the flow of its services is not transactions-intensive. The housing boom has taken two forms, dwellings for owner-occupation and dwellings for rental to expatriates ('dollar houses'). The former are part of the subsistence economy. In effect, were agents to view peace as only temporary, they would use the **opportunity** of the temporary reduction in transactions costs, to undertake the transaction-intensive business of investment, but locate the investment in the subsistence part of the economy. The dollar houses are superficially precisely the sort of investment which might appear most difficult to attract: irreversible investment in the export sector of the economy. However, once the investment has been made, the activity is again **transac-**

tions-extensive. The services provided by the house are not very dependent upon a production process and so are not transactions intensive. When they are sold to expatriates, the latter can pay rent direct from one foreign bank account into another, so that the main transaction in this export activity is relatively immune from government control. Finally, in the worst case scenario in which expatriates leave, the house can be occupied by the owner. Although not internationally mobile, the capital can thus be switched from the export sector into the subsistence sector. Collier and **Gunning** argue that the social return on irreversible investments in transactions-intensive sectors is higher than the private return, because the latter must allow for the risks of 'war'. Non-tradable investments are irreversible (whereas imported capital can often be exported if necessary). The private sector will therefore underinvest in non-tradable capital in the tradable sector (the latter being transactions intensive). The evidence for this is that of the investments reported to the Uganda Investment Authority (all large scale investment in the economy), currently only around 3% is going into agriculture, which is the sector most intensive in non-tradable capital. Tea estates, for example, could be rehabilitated at a far faster rate. Hence, there is a case for public inducement of private investment of non-tradable capital in the tradable sector. They argue that during the 'war' private investment collapsed by more than private savings so that there was a substantial acquisition of foreign financial assets. Hence, private investment is not severely financially constrained so much as being deterred by high war-related transactions costs, and perceived risks of a reversion to 'war'. The complete private investment problem then is to encourage repatriation into the purchase of non-tradable capital goods for the export sector. The policy instrument which best achieves the desired subsidy is the exchange rate. In the 1970s an over-valued exchange rate implicitly subsidized the use of domestic resources for the purchase of imported capital and made the non-tradable sector relatively attractive. Each of these features of the 1970s implicit subsidy is now needed in reverse. Instead of domestic resources being used to finance the investment, it is repatriated assets; instead of imported capital being the target of subsidy it is

non-tradable capital; instead of the non-tradable sector being the targeted recipient, it is the tradable sector. Hence, the appropriate policy is under-valuation of the exchange rate.

#### Risk-bearing and Market Integration

The retreat into a subsistence economy reduces average income sharply, and also **leaves** some private agents more exposed to risk: the representative urban **household** becomes more diversified whereas the representative rural household becomes less diversified. The urban response is because of the collapse of incomes in the formal sector. As **Bigsten** and **Kayizzi** show, by 1990 the typical urban household with a base in the formal sector nevertheless drew a substantial part of its income from informal activities, including agriculture. By contrast, the representative rural household loses remittances from urban households (there is evidence of a sharp decline in remittances), loses the chance to work in **the** rural labor market as the latter contracts disproportionately, withdraws from the non-coffee export crops almost completely, and reduces its earnings from coffee. Finally, as discussed **below**, whatever domestic financial assets it is holding evaporate due to inflation. Although there are large foreign asset holdings in the economy, these are clearly not held by the poorest households. Hence, exposure to risk increases in the rural economy just as the mechanisms for coping with risk are reduced. These features are altered only gradually by the restoration of peace.

To some extent, risk reduction in the rural economy is an externality provided by other agents. For example, opportunities in the labor market reduce risk even for those who choose not to enter the market and so enable more **risky** but higher-yielding production decisions to be taken. Hence, there is a social premium upon the reconstruction of markets because of the externality of risk-reduction. There is therefore a case for public subsidy of transactions. Although it might seem that such a subsidy would be difficult, in fact the government has a readily usable instrument at its disposal. One private transactions cost is the inflation tax on money. Agents need to hold money for transactions purposes and so loss of value of money implied by inflation is a cost

which is born not by economic activity in general but by transactions. If the recovery of the transactions part of the economy is socially too slow because the risk-reducing effect is an externality, then there is a case for subsidizing transactions. It is very difficult for the government directly to subsidize transactions, however, indirectly it is taxing them through inflation. Since the government is short of revenue (see below) there would be a case for setting the inflation tax at the revenue-maximizing level which may be around 10% (see Adam (1992) and Adam et al. (1993)). However, the case for subsidizing transactions tends to offset this case for an implicit tax. Logically, it is possible to subsidize transactions by means of a falling price level. However, a falling price level gives rise to side effects to the extent that there are nominal rigidities such as wage rates. It might therefore be better to aim for price stability: the government foregoes implicit taxation of transactions in the interest of compensating for the externalities which transactions generate for **risk-** reduction.

#### 4. Government Responses

##### *Fiscal Responses*

The war had undermined government revenue and thereby gradually reduced expenditure. However, whereas the share of government expenditure in GDP was radically reduced between 1971 and 1986, as Table 9.2 shows at constant prices **government** was much the most rapidly expanding sector. In terms of quantities, the government sector doubled relative to GDP. Hence, the fall in government expenditure relative to GDP was because of a radical fall in the unit price of government. During the war the country acquired a very large and very low price government sector. Post-war the share of government expenditure in GDP has reverted to its 1971 level, but the quantity of government has expanded less rapidly than GDP. Hence, the increase in expenditure has reflected an increase in the unit price of government. Comparing 1992 with 1971 the government was much larger relative to GDP in quantity terms though as a share of expenditure it was similar. The unit cost of government was much lower and the quantity of government was correspondingly

higher. If the 1971 structure is viewed as normal, and so in some sense the target to be restored, the most striking feature is the failure to contract the quantity of government **post-1986**.

During the war the government had not been in a good position to borrow either abroad or domestically, and so it had resorted to the inflation tax. Adam (1992) estimates that the long term revenue-maximizing inflation tax rate in Kenya has been around 10% and Adam et al. (1993) show that this sort of range is probably broadly true also in Ghana and Tanzania. Were it to apply approximately to Uganda, it would suggest that the actual rate of inflation had grossly exceeded the **revenue-** maximizing rate: the government had snatched a short term gain in exceeding it, but this gradually reduced the real demand for money and so reduced the sustainable yield. By 1986 the government had few tax handles. The economy had shifted towards subsistence and **transactions-** extensive activities. The civil service had decayed to the extent that revenue collection was arbitrary and ineffective. Because of the exodus of the professional classes, enterprises were operated on an informal basis with poor book-keeping, and **tax** officials were not proficient in applying **normal** accountancy rules. The conjunction of these features made the taxation of enterprises a process of coercion countered by bluff. Although there are always elements of this in a tax system, the extreme form reached in Uganda implied that until the restoration of a **well-** functioning civil society, extra tax revenue from enterprises would to an extent be at the price of a higher incidence of coercion and arbitrariness: in other words, extra revenue from this source would be at the price of regression in the move to 'peace' in its wider meaning.

The government had relied heavily on coffee taxation. The fall in the world coffee price induced the **government** to repeal this tax, but it attempted to collect import duties more vigorously. This switch from export taxes to import taxes is analytically immaterial. By the Lerner equivalence theorem the two have common effects with two exceptions. First, that portion of imports which is not **financed** by exports now pays the tax whereas under export taxation it would not. However, most of these imports are financed by government sales of foreign aid. Since private



agents pay the market-clearing price for imports. If the government taxes them then private agents will simply offer correspondingly less for the aid dollars. The government is therefore paying its own import duty by selling the foreign exchange more cheaply than it otherwise would. Secondly, that component of exports which is not coffee, was untaxed during the export tax on coffee phase, but is implicitly taxed when trade taxes are levied on imports. In 1986 non-coffee exports were negligible and so this was not a significant consideration. Further, since it is very much in the economy's interest that exports re-diversify out of coffee, it is not clear that the government should want to tax them in the short term. Thus, if the case for dropping taxation of coffee was a good one, and it probably was, then there is little to be said for replacing it with taxes on imports.

So far I have suggested that the government's major revenue options of extra taxation of enterprises and extra taxation of imports should not be exercised in the short term. Further, the risk externality argument set out above, implies that the government should forgo the revenue-maximizing inflation tax. This implies that the government should not place much emphasis upon revenue recovery in the early phase of transition.

There is a final argument for low taxation during the transition phase. As discussed below, aid is endogenously very high during the early stages of peace. Since aid is channelled to the government, this enables public expenditure to recover more swiftly than private expenditure. As we have seen, public expenditure doubled as a share of GDP in the first five years of peace, fully regaining its previous level. It is arguable that this pace of recovery is too fast relative to the private sector. The most slowly adjusting component of the economy is a wide variety of private activities, including private consumption. Some private recovery is indeed dependent upon public recovery, and so to this extent it is justifiable for the public sector to recover at a more rapid rate. However, public recovery financed by higher taxation is directly at the cost of private recovery and so the indirect effects need to be substantial for the net effect to be beneficial. As suggested above, some of the indirect effects, such as the arbitrary coercion by the tax authorities, as negative. There is therefore a case for part of the aid

(which is there to finance recovery in both the public and private sectors) should be passed on indirectly to the private sector by reduced tax effort relative to the no-aid counterfactual, and even conceivably in absolute terms. That is, even though the economy was generating very little government revenue, increasing that **would** not be a high priority. Donor conditionality of revenue recovery, by gearing up aid with tax revenue, forces a rapid recovery in the public sector which may be at variance with private sector needs. During the war the Ugandan **government** was predatory and this is how government is perceived by the population. During the early stages of peace this predation needs to be downplayed: what is most scarce during 'war' is not the material services of government, but coherent and restrained authority. Services can be expanded massively by the infusion of aid and any change through revenue is peripheral. In Uganda, public expenditure has more than doubled as a share of GDP, increasing by 11 percentage points of GDP, Revenue has also nearly doubled, but its increase of 3.6 percentage points is evidently a minor part of financing. The question is thus whether, given that public expenditure has increased by around 150%, the marginal 18% has been worth incurring the 100% increase in predation which it cost? Might it not be more appropriate for there to be a temporary decrease in predation. If the objective is to re-establish the private activity conditioned on peacetime authority patterns, the critical path might be first to remove the wartime authority patterns rather than attempt to get public expenditure **upto** its peacetime share regardless of the authority patterns which that effort must entail if it is to succeed.

#### *Social Service Provision and Private Priorities*

There is one area in which the government can usefully increase revenue and this is through the sale of its social services, especially in rural areas. The government is a supplier of health and education services. As discussed above, these have declined severely during the period of war, however, the government is still a fairly large supplier in these markets. **Bigsten** and **Kayizzi** (1992) in a survey of the use of health facilities, found that in rural areas **27%** of treatments were supplied by

government services, and in Kampala 13%, the rest being either mission or private. The government is a much larger supplier of education. As reported above, the main demand on the part of the rural population is for increased public provision of health services. The suggestion here is that in the short run these services should be run at a profit so that their expansion enhances the budget. The sale of social services has three potential advantages. First, it directly improves the budget.

Secondly, it permits service provision to be expanded when there is evidently a demand.

Thirdly, by raising the need of the rural population for cash, it encourages re-integration into the market economy. Since both curative services and education services are used disproportionately by the better off, the distributional implications of raising revenue in this way are probably now worse **than** the alternatives, whereas the incentive effects are probably more favorable.

Evidence on private prioritization of services is provided by a survey of rural households conducted in 1990 (**Bigsten** and Kayizzi-Mugerwa (1992)). Respondents were asked to name the single biggest improvement in their area brought about by the government since 1985. For 34% the biggest improvement was peace and for 48% it was the road network. These responses can be compared with those to identical questions asked in surveys conducted in Kenya in 1982 and Tanzania in 1983 (**Bevan** et al. (1989)). In Kenya (in Central and Nyanza provinces) the most valued public expenditure over the preceding seven years was also roads, chosen by 43% and 55% of respondents respectively. Hence, the Kenyan average was virtually the same as the Ugandan. In Tanzania, by contrast, road expenditure was chosen by less than ten percent of respondents, the most valued service being primary schooling. Rural Tanzania in 1983 was in one important respect analogous to rural Uganda in 1986, namely, there had been a retreat from the market (though for somewhat different reasons). The low valuation placed upon road expenditure 1975-83 in rural Tanzania was not that the government had not made such expenditures, but that they were irrelevant to a peasant society which during this period was in retreat from the market. By contrast, the Kenyan peasantry in 1982 had over the previous seven years experienced the coffee boom

and was deeply integrated into the market. Road improvements were consequently very important. The high valuation of road improvements in rural Uganda 1986-90 must therefore **indicate** not merely that peasants recognized that this was the main focus of the public expenditure **commitment**, but that the expenditure was actually found useful. Thus, there must have been a desire to **re-integrate** into the market.

The **Bigsten** and Kayizzi-Mugerra survey also investigated what people now most wanted the government to provide. Further expenditure on roads was fairly low on the list of priorities. The most desired improvement was for health facilities (40%) and the next most wanted improvement (27%) was the streamlining of the functions of the local administration (the resistance councils). These responses can again be compared to the priorities given in rural Kenya in 1982 and rural Tanzania in 1983. As in Uganda, what people most wanted in the future was different from what they had most appreciated in the past. In both Kenyan provinces the most desired expenditure was water supply, and in Tanzania it was health services. Thus, in Kenya although the reduction in transactions costs implied by road expenditure was most appreciated, the new demand was in effect for more labor time, since piped water replaced a very labor-intensive activity. The Kenyan **prioritizations** can be interpreted as the move from market integration to its consequence, an increased value of labor time. The Tanzanian valuations, a switch from primary schooling to health, can be interpreted as the response of a peasantry which saw less value in market integration and consequently had a lower opportunity cost of labor. The provision of free primary education in villages had largely sated the demand for this social service, leaving health care as the next social service demand. The Ugandan prioritization is distinctive, but it is closer to the Tanzanian than to the Kenyan. It is distinctive in that the high **priority** placed on the reform of government local **institutions** has no parallel. It is akin to Tanzania in that social services rather than output-enhancing services are demanded. However, within social service provision the ranking is somewhat different. In Tanzania although health care was now the top priority, **this** was because of the satisfaction of the previous priority of primary schooling. In

Uganda. primary schooling featured neither as a past priority nor as the future one. Hence, the prioritization responses are atypical for the region in that the design of local government is seen as an important issue, and greater weight is placed upon distress-related social services than either education or production-enhancing services.

It might seem surprising that the second most popular request should be something to do with local administration reform. However, this takes us back to the wider notion of how civil war has affected the economy. Our argument has been that the predominant route is not through the physical damage or risk of violence inherent in war, but rather in the more generalized breakdown in the institutions of civil society. While the former type of cost very largely ceased (except for a high incidence of crime discussed below), the rebuilding of civil society after a civil war is a slow process. Four years after the end of it, the second most important perceived need in rural Uganda was that the power of public officials should be contained and clearly demarcated. That this is ranked above everything except health care suggests that it is regarded as really important.

The high relative demand for health facilities partly reflects their chronic deterioration during the war. The World Bank (1993) estimates that by 1985 government real expenditure on health services had declined by 91% from its 1972 level. Additionally, the legacy of warfare and vagrancy was an unusually high level of sickness and debility. As discussed in 'Demobilization and Insecurity', this has implications for the design of demobilization.

However, the high ranking of health is also partly due to the relatively low demand for public expenditure on education. This is consistent with evidence on the private returns to education in rural areas. Bigsten and Kayizzi-Mugerwa construct agricultural production functions and find that formal schooling does not contribute to agricultural productivity in Uganda. Previous studies have found different results for Kenya, but the contrast is consistent with the Schultz hypothesis that while peasants are confined to traditional activities they are efficient, so that education is only useful in modernizing environments. War produces a 'traditionalising' environment. A recent comparative study of the rate of return to

agricultural technology transfer in various parts of Africa (Oehmke and Crawford (1993)) finds that Uganda during the period 1986-91 is a very rare exception to a general pattern of quite high returns. In Uganda the return was negative (Laker-Ojok (1992)). The negative return was attributed to the effects of the war, in part the costs involved in reconstruction of buildings and staffing, and in part the lack of an adequate distribution system for seed and an adequate market for output. In such a context investment in innovation, whether public (i.e. technology transfer programs) or private (i.e. education) does not pay. Bigsten and Kayizzi-Mugerwa also investigate the entry decision into non-farm enterprises using logit analysis and find similarly that in the small scale business sector education plays no role in the entry decision. This again is likely to be the case only while the range of business activities is highly conservative. Essentially, until the economy has surpassed its previous frontier, there is no need for innovation and so the private returns to education are likely to be low. This showed up in the Bigsten and Kayizzi-Mugerwa analysis of rural income distribution. The high income group was landed rather than educated.

The evidence from prioritization of past and future public expenditures therefore points to the Ugandan peasantry re-entering the market (and so valuing roads unlike their counterparts in Tanzania in 1983) but not yet to the extent that the valuation of labor time has risen much (so water supply is not demanded as it is in Kenya, but rather social services as in Tanzania). Within social services, both private priorities and objective evidence from earnings functions and the return on agricultural technology transfer point to the low return to education. The take-up of school places is correspondingly low in rural Uganda and we now consider whether this is a socially optimal response, given the circumstances which have produced a low rate of return, or whether there is a case for public intervention.

The decline in private investment in education need not be socially sub-optimal. While the private economy has retreated into subsistence and non-tradable activities, the social return to education has fallen and so the case for public investment in education is correspondingly reduced. However, the low current returns to education are

likely to be temporary. Once the economy returns to the production frontier the returns to education will then rise. Since the gestation period on primary education is **extremely** long, the returns now are a poor guide to the returns on new investments in education. There is a case for social intervention in that the present signals generating private decisions are a temporary reflection of the effects of war and so are predictably lower than the returns which will apply to children educated now. Private decisions reflect current returns, social decisions can legitimately anticipate what the returns will be once the economy has recovered to the old frontier.

Further, there is evidence that private investment decisions in East African agriculture are influenced quite strongly by social learning (Burger et al. (1993)): households copy each other rather than just calculating the returns based on their own information. The popularity of an investment is therefore self-reinforcing. In the context of the spread of a new technology social learning can be socially beneficial, accelerating adoption. However, in the context of the decline in the return to an existing asset, it can lead to excess disinvestment. There is therefore a role for the state in offsetting 'social herding'.

## 5. Donor Responses

Peace brings an aid boom. Uganda and Ethiopia, being in addition extremely poor and relatively high profile in the media, are receiving substantial inflows of private charity through NGOs. Both the donors and the NGOs have their own priorities.

It is quite possible that the government of a post-war state has a greater interest in fiscal probity and output-enhancing public expenditure than some of the donors. Both the NGOs and some of the bilaterals have a constituency motivated by immediate perceived social need rather than longer-term considerations of economic management. For example, in Uganda Danida during 1993 and the EC during 1992 were lobbying for increased public expenditure at the price of more rapid inflation. Most of the donors have emphasized social expenditures as a priority and have attempted to attach conditionality to the composition of expenditure with this in mind. An alternative approach may be for the donors to

purchase some of the social expenditure which they and their constituents desire, without interfering with the budget. At present, only a small share of expenditure upon rural health and education services goes through the budget, since mostly it is private. Rather than donors attempting to increase government expenditures on these items, which would first require that the ministries function much better than at present (which in turn requires very large increases in salaries), the donors might simply by-pass the government for at least part of this component of their aid, encouraging NGOs or private initiatives. The lower priority of the government for social expenditures might be quite appropriate given the priorities of reconstruction, and yet incompatible with donor constituencies.

A related donor priority has been accountability for program aid. Much aid takes the form of program aid because of the very limited capacity of post-war government to implement projects. Hence, an aid boom must be program-unspecific. Yet the high inherited level of military expenditure produces an acute concern that scrutiny is necessary to avoid the money being wasted on armaments. In Uganda the donor demands for scrutiny delayed the reform program. The object of scrutiny was the import program, and the method chosen was the inspection of import documentation. Because of the collapse of the normal institutions of government during the war, notably the customs service, the only reasonably reliable way in which these documents could be generated was by linking them to the disbursement of foreign exchange. Thus, the apparatus of foreign exchange control was needed for donor scrutiny and the move to an inter-bank market was consequently resisted by the government until November 1993. In the Ugandan context it was reasonable of donors to demand scrutiny of the composition of imports. However, the imposition of documentation requirements failed to take into account the extent of the decay in government institutions. The donors had a ready alternative in that they could have acquired more accurate evidence on imports from Direction of Trade statistics rather than from import documentation. **This** is indeed how the Ugandan Statistics Department (bureau of statistics) itself gathers data on Ugandan imports, having decided that customs

data is unusable. The grounds which made it sensible for donor contributions to be atypically large during the post-war phase, and for much of this to be project-unspecific, also make it appropriate for the mechanisms of monitoring to be modified.

## 6. Conclusion: Commitment and Adjustment in a Frightened Society

Dornbusch has recently suggested that the adjustment costs of policy reform are higher in societies which are polarized. The two key adjustments which he has in mind are disinflation and trade liberalization. The underlying argument is that polarized societies are particularly sensitive to redistribution and are organized so as to block it. Uganda does not accord well with the Dornbusch hypothesis. Whatever is meant by a 'polarized' society, it would be hard to maintain a definition on which in the aftermath of a civil war polarization is other than extreme: onto the disputes which provoked the war are added the legacy of atrocities committed during the war. Yet in Uganda during 1989-91 there was a comprehensive trade liberalization, and during 1992 there was a spectacular disinflation from 230% to -1%. The ease of reform in a post-civil war context is perhaps explicable in terms of three features.

First, few people benefit from a wartime regime. Government expenditure is so heavily skewed towards the military that, other than the political problem of demobilization, there is unlikely to be a major group which suffers from recomposition of public expenditure.

In Uganda non-military public expenditure was such a small fraction of GDP that no group needed to be squeezed. The same is broadly true of trade policy. As suggested by Table 9.3 above, in Uganda the borders were sufficiently porous during the war that the underlying trade regime was free trade other than for a certain level of export confiscation. In particular, it was not possible for industries to gain protection from imports by quantitative restrictions. Secondly, as discussed above, the transactions-intensive activities such as import-substitute manufacturing were particularly vulnerable to civil war and so con-

tracted. It was therefore a weak lobby and a lobby much more concerned with the ending of predation than the removal of trade restrictions which were in any case notional. With the gradual reduction in predation, the import-substitute manufacturing sector has been able to double between 1987 and 1993 despite trade liberalization.

Secondly, people have become used to flux and so have avoided the irreversible specific commitments which are the source of the redistributive effects of policy reform. The Ugandan disinflation is a remarkable instance. In most societies such a rapid disinflation would have produced enormous inter-private transfers. In Uganda the credit market was so limited that such transfers were small.

Thirdly, in Olsen's hypothesis, defeat in international war breaks up the domestic coalitions which normally block policy change. By extension, if civil war is resolved by defeat of the government as in Uganda and Ethiopia, the vested interests which must be challenged are predominantly those of the enemy, and the fact that the enemy has just been defeated means that the new regime has the power to impose change.

Hence, the period of the transition to peace is a particularly suitable time for radical policy reform despite the high degree of polarization. The policy inheritance makes **reform** necessary, and the uncertainty surrounding prospective reform will reinforce the reluctance to make irreversible decisions until reforms have been implemented. Far from increasing uncertainty, speedy reform will reduce it. This is important not only because the reforms are desirable in themselves, but because it is the reluctance of the private sector to make irreversible decisions which is perhaps the major impediment to rapid recovery. After a civil war private agents are frightened. They are frightened of each other, and most of all they are frightened of the government in its various **forms**. The transition to peace is not primarily the reconstruction of **damaged** infrastructure, it is the transition from fear and the defensive responses which have become ingrained.



## References

- Adam, C.S. 1992. "On the Dynamic Specification of Money Demand." *Journal of African Economies*, Vol.1.
- Adam, C. 1993. Time series econometrics *for Africa*, AERC and CSAE (mimeo).
- Adam, C.J., B. Ndulu and N. Sowa. "Financial Liberalisation, Exchange Rate Unification and Seigniorage Revenue in Kenya, Ghana and Tanzania." mimeo (Oxford, CSAE, 1993).
- Adam, C.J., "On the Dynamic Specification of Money Demand in Kenya", *Journal of African Economies*, Vol. 1, No. 2 (August 1992), pp. 233-70.
- Africa Watch. 1991. *Evil Days. Thirty Years of War and Famine in Ethiopia*, New York: Human Rights Watch.
- Alemayehu Lirenso. 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, Addis Ababa: Institute for Development Research.
- Alesina, A. and R. Perotti. 1993. "Income Distribution, Political Instability and Investment", mimeo, Harvard University, Department of Government.
- Alesina, A., S. Ozler, N. Roubini and P. Swagel. 1992. "Political Instability and Economic Growth." Working Paper, NBER.
- Alexander, C. and J. Wyeth. 1994. "Cointegration and Market Integration: An Application to the Indonesian Rice Market." *Journal of Development Studies*.
- Azam, J-P. 1992. Grain Market Decontrol in Ethiopia (1990), Background paper to D.I.A.L. report on How to *Pass from a War to a Peace Economy: the Ethiopian Case*.
- Azam, J-P. 1993. Democracy and development: a theoretical framework. *Public Choice*, forthcoming.
- Azam, J-P. 1994. La faisabilité politique de l'ajustement en Côte d'Ivoire (1981-1990). in Azam, J.-P. and Morrisson, Ch.: *La faisabilité politique de l'ajustement structurel (Côte d'Ivoire, Maroc)*, Paris: Etudes du Centre de Développement, OECD, forthcoming.
- Azam, J-P. 1995. "How to Pay for the Peace." *Public Choice*.
- Azam, J-P., P. Collier and A. Cravinho. "Crop Sales and Portfolio Choice under Shortages: an Application to Angola." forthcoming in the *Journal of Development Studies*.
- Azam, J-P., "Liberalisation du commerce de grains en Ethiopie" (*The Ethiopian Grain Market during the Transition to Peace*), *Revue d'Economie du Développement*, Vol. 2, No. 4 (December 1993), pp. 95-116.
- Banerjee, A., J. Dolado, J.W. Galbraith, and D.F. Hendry. 1993. Co-integration, Error-Correction, and the Econometric Analysis of *Non-Stationary* Data, *Advanced Text in Econometrics*. Oxford: Oxford University Press.
- Banerjee, A., J. Dolado, D.F. Hendry and G.W. Smith. 1986. "Exploring Equilibrium Relationships in Econometrics through Static Models: Some Monte Carlo Evidence." *Oxford Bulletin of Economics and Statistics*, Vol.48, pp.253-77.

- Bevan, D.L., P. Collier and J.W. Gunning. 1989. Peasants and Governments: an Economic Analysis. Clarendon Press, Oxford.
- Bevan, D.L. 1994. "Fiscal Aspects of the Transition from War to Peace: with Illustrations from Uganda and Ethiopia." Centre for the Study of African Economies Working Paper no. WPS/94.7, Oxford.
- Bevan, D.L. 1993. "Economic Aspects of the Ethiopian Transition to Peace." mimeo, Oxford, CSAE.
- Bevan, D.L. 1993a. "Fiscal Aspects of the Transition from War to Peace." mimeo, Oxford, CSAE.
- Bevan, D. 1992. "Fiscal Aspects of the Ethiopian Transition", CSAE and DIAL, Oxford.
- Bevan, D.L., P. Collier and J.W. Gunning. 1990. Controlled Open Economies, Oxford, Clarendon Press.
- Bevan, D. 1993a. "The Ethiopian Budget: Macroeconomic Perspectives and Implications of Devolution", CSAE and DIAL, Oxford.
- Bevan, D. 1993c. "Regionalisation", (Background Paper to the Ethiopia Public Expenditure Review), CSAE, Oxford.
- Bigsten, A. and S. Kayizzi-Mugerwa. 1992. "Adaption and Distress in the African Economy: a Study of Retrenchment and Reform in Uganda." mimeo. (Unit for Development Economics, Department of Economics, University of Gothenburg).
- Bigsten, A. and S. Kayizzi-Mugerwa. 1992. "Adaption and Distress in the African Economy: A Study of Retrenchment and Reform in Uganda." Unit for Development Economics, Department of Economics, University of Gothenburg.
- Burger K., P. Collier and J.W. Gunning. 1993 "Social Learning: an Application to Kenyan Agriculture." mimeo, CSAE, Oxford.
- Bryceson, D. 1993. Liberalizing Tanzania's Food Trade, London: James Currey.
- Chole, E. 1992. "Privatization and Deregulation in Ethiopian Industry: Problems, Prospects and Impact on the Economy", DIAL, Addis Ababa.
- Clapham, C. 1988. "Transformation and Continuity in Revolutionary Ethiopia", CUP.
- Collier, P. and J.W. Gunning, 1992. "Aid and Exchange Rate Adjustment in African Trade Liberalisations." *Economic Journal*, vol. 102, 1992, pp. 925-939.
- Collier, P. 1993. "Demobilisation and Insecurity." CSAE, Oxford.
- Collier, P. and J-W Gunning. 1993. "Some Economic Consequences of the Peace." CSAE Oxford and VU Amsterdam.
- Collier, P. and J.W. Gunning. 1993. "Trade and Development: Protection, Shocks and Liberalization", in: L.A. Winters and D. Greenaway (eds.), *Surveys in International Trade*, London: Macmillan.
- Collier, P. 1994. "Demobilisation and Insecurity: a Study in the Economics of the Transition from War to Peace." *Journal of International Development*, 1994(3).
- Collier, P. and J.W. Gunning. 1995. "War, Peace and Private Portfolios." *World Development*.
- Collier, P. and J.W. Gunning. 1994a. "Policy Uncertainty, Repatriation and Investment." mimeo, Centre for the Study of African Economies, Oxford.



- Collier, P. and J.W. Gunning. 1993. "Policy Uncertainty, Repatriation and Investment", mimeo. CSAE, Oxford and Free University, Amsterdam.
- Collier, P. and J.W. Gunning. July 1992. "Macroeconomic Aspects of the Economic Reforms in Ethiopia." mimeo, CSAE, Oxford and Free University, Amsterdam.
- Collier, P. and S. Pradhan. 1994. "Economic Aspects of the Ugandan Transition to Peace." mimeo, Oxford, CSAE.
- Collier, P. and S. Pradhan. (forthcoming) "Economic Aspects of the Ugandan Transition to Peace" in H.B. Hansen and M. Twaddle (eds.) *Developing Uganda*, James Currey.
- Dercon, S. 1993. "The Consequences of Liberalisation and Peace for Food Markets in Ethiopia", CSAE Oxford and Catholic University of Louvain.
- Dercon, S. 1994. "The Consequences of Liberalisation and Peace for Food Markets in Ethiopia." mimeo, Centre for the Study of African Economies, Oxford.
- Devereux, S. 1987. "Entitlements, availability and famine: a revisionist view of Wollo, 1972-74." *Food Policy* (August).
- Dixit, A. "Exit and Entry Decisions under Uncertainty." *Journal of Political Economy*, Vol.97, No. 3 (June 1989), pp. 620-38.
- Doornik, J. and D.F. Hendry. 1993. *The Econometrics of PC-GIVE 7.0*. Oxford: Institute of Economics and Statistics.
- Dowd, K. and D. Greenaway. "Currency Competition, Network Externalities and Switching Costs: Towards an Alternative View of Optimum Currency Areas." *Economic Journal*, Vol. 103, No. 420 (September 1993), pp. 1180-89.
- Ensminger, J. 1992. *Making a Market*, Cambridge University Press.
- Engle, R.F. and W.J. Granger. 1987. "Cointegration and Error Correction: Representation, Estimation and Testing." *Econometrica*, Vol.55, No.2, pp.251-76.
- Engle, R.F., D.F. Hendry and J.F. Richard. 1983. "Exogeneity." *Econometrica*, Vol.51, No.2, pp.277-304.
- Engel, C. and K.M. Kletzer. 1991. "Trade Policy under Endogenous Credibility", *Journal of Development Economics*. vol. 36, pp. 213-228.
- Franzel, S., F. Colburn and Getahun Degu. 1989. "Grain marketing regulations: Impact on peasant production in Ethiopia." *Food Policy*, November, pp. 347-358.
- Goodwin, B. and T. Schroeder. 1991. "Cointegration Tests and Spatial Price Linkages in Regional Cattle Markets." *American Journal of Agricultural Economics*, Vol.73, no. 2, pp.452-64.
- Government of Uganda. 1993. *Key Economic Indicators*, 13th Issue. Statistics Department, Entebbe. April 1993.
- Granger, C.W.J. and A. Escibano. 1987. "The Long-Run Relationship Between Prices from an Efficient Market: The Case of Gold and Silver." University of Californi, San Diego. *Mimeo*.
- Hausman, J.A. 1978. "Specification Tests in Econometrics." *Econometrica*, Vol.46, no.6, pp.1251-71.
- Holmberg, J. 1977. *Grain Marketing and Land Reform in Ethiopia*, Research Report no.41, Uppsala: The Scandinavian Institute of African Studies.

- Keen, D. 1994. *The Benefits of Famine: a Political Economy of Famine and Relief in Southwestern Sudan. 1983-89*, Princeton University Press.
- Kello, A.B. 1992. *"Institutional Mechanisms of Access to Resources in Smallholder Agriculture"*, DIAL, Addis Ababa.
- Legesse Dadi, Asfaw Negassa and S. Franzel. 1992. "Marketing maize and tef in western Ethiopia: implications for policies following market liberalization." *Food Policy*, June, pp.201-213.
- Lemma Merid. 1986. "The implications of State Procurement and Marketing of Agricultural Products to Market Prices: Ethiopia's Case." *Ethiopian Journal of Development Research*, vol 8, no.2, pp.15-48.
- Laker-Ojok R. 1992. "The Rate of Return to Agricultural Research in Uganda: the Case of Oil Seeds and Maize." mimeo, Department of Agricultural Economics, Michigan State University, East Lansing.
- Little, P.D. and I.B. Lundin de Coloane. "Trading to Eat: Petty Trade and Income Strategies in the Peri-Urban Areas of Maputo, Mozambique." *Development Anthropology Network*, Vol.11, No. 2 (Fall 1993), pp. 1-8.
- Little, P.D. "Traders, Brokers and Market 'Crisis' in Southern Somalia." *Africa*, Vol. 62, No. 1 (March 1992), pp. 94-123.
- Malkiel, B. 1987. "Efficient Market Hypothesis," in: J. Eakwell, M. Milgate and P. Newman, *The New Palgrave Dictionary of Economics*, London: MacMillan Press.
- Mengistae, T. 1992. *"Incomes. Employment and Industry: The Challenges of the Crisis in the Urban Rural Nexus."* Dial, Addis Ababa.
- Mosley, P. and J. Harrigan. 1991. "Evaluating the Impact of World Bank Structural Adjustment Lending." *Journal of Development Studies*, vol. 27, pp. 63-94.
- MSEC. 1993a. *The Uganda Veterans Assistance Board: Needs Assessment Survey*, Management Systems and Economic Consultants Ltd., Kampala.
- MSEC. 1993b. *The Uganda Veterans Assistance Board Veterans Assistance Programme: a Final Monitoring and Evaluation Report*, Management Systems and Economic Consultants Ltd., Kampala.
- Nakamura, A. and M. Nakamura. 1981. "On the Relationships among several Specification Error Tests presented by Durbin, Wu and Hausman." *Econometrica*, vol.49, No.6, pp.1583-88.
- Oehmke J.F. and E.W. Crawford. 1993. "The Impact of Agricultural Technology in Sub-Saharan Agriculture." mimeo, Department of Agricultural Economics, Michigan State University, East Lansing.
- Palaskas, T.B. and B. Harriss. 1993. "Testing Market Integration: New Approaches with Case Material from the West Bengal Food Economy." *Journal of Development Studies*, September.
- Pesaran, H.M. and R. Smith, 1990, 'A Unified Approach to Estimation and Orthogonality Tests in Single Equation Econometric Models', *Journal of Econometrics*, Vol.44, pp.41-66.
- Ravallion, M. 1986. "Testing Market Integration." *American Journal of Agricultural Economics*, pp.102-9.
- Ravallion, M. 1987. *Markets and Famines*. Oxford: Clarendon Press.

- Rodrik, D. 1989. "Credibility of Trade Reform: a Policy Maker's Guide." *The World Economy*, vol. 12, pp. 1-16.
- Rodrik, D. 1991. "Policy Uncertainty and Private Investment in Developing Countries." *Journal of Development Economics*, vol. 36, pp. 229-242.
- Sen, A. 1991. "War and Famine." Centre for Development Economics, Discussion Paper, LSE.
- Sims C.A., J.H. Stock and M.W. Watson. 1990. "Inference in Linear Time-Series with Some Unit Roots." *Econometrica*, Vol.58, pp.113-44.
- Soares, 1992. F.B. "Agricultural Supply Response." *DIAL*, Paris.
- Stock, J.H. 1987. "Asymptotic Properties of Least-Squares Estimators of Co-integrating Vectors", *Econometrica*, Vol.55, pp.1035-56.
- Taylor, M.P. and I. Tonks. 1989. "The Internationalisation of Stock Markets and the Abolition of UK Exchange Control." *Review of Economics and Statistics*, Vol.71, pp.332-36.
- Takayama, T. and G. Judge. 1971. *Spatial and Temporal Price and Allocation Models*. Amsterdam: North Holland Publishing Company.
- Urbain, J.-P., 1992. "On Weak Exogeneity in Error Correction Models." *Oxford Bulletin of Economics and Statistics*, Vol.54, No.2, pp.187-207.
- Wijnbergen, S. van. 1985. "Trade Reform, Aggregate Investment, and Capital Flight: on Credibility and the Value of Information." *Economics Letters*, vol. 19, pp. 369-372.
- Wijnbergen, S. van. 1992. "Trade Reform, Policy Uncertainty, and the Current Account: a Non-Expected Utility Approach." *American Economic Review*, vol. 75, pp. 626-633.
- World Bank. 1985. *Ethiopia: Industrial Sector Review*. Washington.
- World Bank. 1989. *Ethiopia: Strategies and Policies for Improved Performance*. Industrial Sector Review, Washington.
- World Bank. 1990. *Ethiopia's Economy in the 1980s and Framework for Accelerated Growth*. Washington.



**Policy Research Working Paper Series**

<b>Title</b>	<b>Author</b>	<b>Date</b>	<b>Contact for paper</b>
WPS1371 The Evolution of Trade Treaties and Trade Creation: Lessons for Latin America	Sarath Rajapatirana	October 1994	J. Troncoso 37826
WPS1372 Administrative Charges in Pensions in Chile, Malaysia, Zambia, and the United States	Salvador Valdes-Prieto	October 1994	E. Khine 37471
WPS1373 Firm Behavior and the Labor Market in the Hungarian Transition	Simon Commander Janos Kollo Cecilia Ugaz	October 1994	B. Keller 35195
WPS1374 Infrastructure Finance: Issues, Institutions, and Policies	Anand Chandavarkar	November 1994	M. Geller 31393
WPS1375 Policy Lessons from a Simple Open-Economy Model	Shantayanan Devarajan Delfin S. Go Jeffrey D. Lewis Sherman Robinson Pekka Sinko	November 1994	C. Jones 37754
WPS1376 How Trade, Aid, and Remittances Affect international Migration	Maurice Schiff	November 1994	J. Ngaine 37947
WPS1377 Macroeconomic Adjustment to Capital Inflows: Latin American Style versus East Asian Style	Vittorio Corbo Leonardo Hernandez	November 1994	R. Vo 33722
WPS1378 Mexico after the Debt Crisis: Is Growth Sustainable?	Daniel Oks Sweder van Wijnbergen	November 1994	S. Harbi 37143
WPS1379 Financing Infrastructure in Developing Countries: Lessons from the Railway Age	Barry Eichengreen	November 1994	WDR 31393
WPS1380 Transfers and the Transition from Socialism: Key Tradeoffs	Kathie Krumm Branko Milanovic Michael Walton	November 1994	K. Krumm 34263
WPS1381 Welfare Economics, Political Economy and Policy Reform in Ghana	Ravi Kanbur	November 1994	M. Youssef 34614
WPS1382 Saving, Investment and Growth in Developing Countries: An Overview	Klaus Schmidt-Hebbel Luis Serven Andres Solimano	November 1994	E. Khine 37474
WPS1383 Rural Demand for Drought Insurance	Madhur Gautam Peter Hazell Harold Alderman	November 1994	C. Spoones 30464

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
<b>WPS1384</b>	Fiscal Decentralization and Intergovernmental Finances in the Republic of Albania	David Sewell Christine I. Wallich	November 1994	G. Langton 38392
<b>WPS1385</b>	Fiscal Federalism Dimensions of Tax Reform in Developing Countries	Robin Boadway Sandra Roberts Anwar Shah	November 1994	C. Jones 37754
<b>WPS1386</b>	EU Bananarama III	Brent Borrell	December 1994	G. Ilogon 33732
<b>WPS1387</b>	Fiscal Decentralization and the Size of Government: An Extension with Evidence from Cross-Country Data	Saber Ehdai	December 1994	C. Jones 37699
<b>WPS1388</b>	Does Voice Matter? For Public Accountability, Yes	Samuel Paul	December 1994	B. Moore 35261
<b>WPS1389</b>	Ruble Overhang and Ruble Shortage: Were They the Same Thing?	Patrick Conway	December 1994	L. Suki 33974
<b>WPS1390</b>	Regional Integration and the Baltics: Which Way?	Piritta Sorsa	December 1994	J. Ngaine 37947
<b>WPS1391</b>	Where in the World Is Population Growth Bad?	Jeff Kling Lant Pritchett	December 1994	S. Fallon 38009
<b>WPS1392</b>	Some Economic Consequences of the Transition from Civil War to Peace	Jean-Paul Azam David Bevan Paul Collier Stefan Dercon Jan Gunning Sanjay Pradhan	December 1994	C. Jones 37699