

The political economy of tropical deforestation in Africa

the impact of economic globalisation and the role of domestic institutions: 1990 - 2010

The story of human life on this planet is, in many ways, also the story of our relationship with forests, and the way they've shaped the culture, demographics, economy, politics, and technology of successive societies over the millennia.

Along with the world's atmosphere and oceans, they constitute one of our most important global commons, offering renewable raw materials and energy, protecting land and water resources, providing recreational facilities, maintaining biological diversity and regulating our climate.

Beyond purely material considerations, most people are also aware of forests' cultural and symbolic meanings, embodied in our various forms of story-telling, religion, legends, and myth. Yet as a species, we display a tendency not only to use forests intensively, but unsustainably.

This is not a new phenomenon - humans have always cleared forests to provide fertile land for settlement, pasture and crops, but until recently, our limited physical capacity to clear large expanses of trees meant that changes took place on a relatively limited geographical scale, and in isolated areas.

However, the ancient process of deforestation has changed beyond recognition in the last half century or so. With the advent of modern, industrial methods of production, we now have the capacity to clear areas of forest the size of small countries.

According to the latest major global assessment by the UN's Food and Agriculture Organisation (FAO), we are now witness to the biggest and fastest period of deforestation in the earth's history. In the last two decades, the average annual global rate of deforestation was an unprecedented 130 000 square kilometres, or an area roughly equal to the size of Greece or the state of Pennsylvania every year.



This research project is concerned primarily with the causes of deforestation in what are known as tropical moist forests - by far the richest biologically, the most complex ecologically, and the most valuable in terms of both timber and carbon stocks (Myers, 1994). Yet they are an increasingly scarce resource; less than half of the world's original rainforests at the turn of the 20th century remain intact today, and two-thirds of these exist only as fragmented remnants of the original. Their rate of loss is increasing too; tropical forests are subject to the highest rates of deforestation, with losses accounting for around 70% of total global deforestation between 1990 and 2005 (FAO, 2006).

The problem is particularly acute in Africa, home to about a quarter of the world's tropical forests. Public awareness and debate usually revolves around the fate of the rainforests of South America and South-east Asia, yet between 1990 and 2005, Africa experienced the highest levels of deforestation, at an average rate of around 43 000km² per year. This compares to corresponding figures of 39 500 km² per year in South America, and 26 700 km² per year in South-east Asia.

During the same period there have been substantial increases in levels of trade and finance flows to and from African countries as they have liberalised their economies in a bid to compete in the global marketplace. While such market reforms have arguably contributed to a sustained period of GDP growth for most countries on the continent, they have not always resulted in socially equitable or environmentally sustainable outcomes. Deforestation offers a particularly striking example, and this project attempts to better understand how this process has played out by asking the following question:

how does economic globalisation, defined as an increase in flows of international trade and finance, affect levels of deforestation in different African countries?

Given the absence of good governance in many African states, key questions also exist about the shape of current and future public and private policy options for the management and supervision of Africa's forests. The problem boils down to a simple dilemma; African countries are the most in need of addressing tropical deforestation, yet they are also the least able to do so.

While the existence of this dilemma has often been pointed out, very little is yet understood about exactly how and why systems of forest governance in Africa are poor, and what types of policies to limit deforestation are likely to succeed. Accordingly, this research will look specifically at the role of domestic institutions in translating material changes in production, trade and finance associated with economic globalisation into action on the ground.

The main hypothesis is that economic globalisation has a complex dual effect on deforestation, intensifying certain macroeconomic drivers, while at the same time creating counter pressures that often work to dampen those same effects. How this dual effect plays out is as much a function of the design and operation of existing domestic institutions, as it is of economic globalisation itself.



what are the drivers?



population



income



international trade



international finance



multinational production



technology

Deforestation is, quite simply, a massive market failure. More specifically, economic globalisation, when coupled with the interplay of market forces, results in inefficient allocations of land for either conversion or conservation, while creating a bias against the latter. In part this is due to the nature of market mechanism itself, which tends to result in the distribution of resources without taking ethical and social questions into account, and in part due to the problem of missing markets - the full range of services provided by forests at both the local and global level is not adequately captured by current valuation mechanisms.

However, it is also the case that market forces do not operate in isolation; they co-exist with different forms of government intervention and within different institutional contexts. And it is these variables that hold the real key to understanding why different patterns of deforestation play out in different countries around the world.

can they be managed?

democracy



political stability



rule of law



decentralisation



property rights



community management



and what are the implications for the future management of the continent's forests?

methodology

In terms of approach, this project adopts a mixed methodology, utilising "nested analysis" that begins with traditional economic modelling and large N regressions at the country level to look for broad drivers of deforestation in Africa. While such an approach cannot produce firm evidence of causality, it allows for the construction of a generalisable model, and should provide evidence for some kind of robust dependence between the independent variables above and the dependent variable of tropical deforestation. This is followed by the selection of one or two case studies either 'on the line' or 'off the line', which will be unpacked and investigated in much greater detail. The case studies themselves will involve qualitative analysis and a substantive portion of work in the field, conducting on the ground research and interviews. The results of this research are then incorporated back into the general quantitative model, to ensure some kind of external validity.

data

The timing of this research is fortunate - the UN's Food and Agricultural Organisation (FAO) is set to release their latest Forest Resources Assessment (FRA) late in 2010. A combination of newly available records from the Landsat archives and recent advances in interpreting satellite data means that for the first time the FRA will not have to rely primarily on individual country reporting for deforestation data. This is the first serious new data in five years, and represents a huge improvement in the reliability of statistics on land cover change over the last few decades. Coupled with better monitoring of economic indicators for African countries since the early 1990s, it means this project will be able to employ datasets that have never been previously analysed.

An analysis of the domestic institutional contexts in which deforestation occurs hasn't been adequately tackled in Africa. There is of course plenty of literature on the larger underlying causes of deforestation - indeed it's been something of a cottage industry for economists over the last two to three decades. There is also a rich set of individual cases of forest management looking at everything from household decision-making to community forestry to local land tenure arrangements. However, the broader institutional dimension of the story is still somewhat lacking; there is very little work that combines a comprehensive analysis of global economic processes and their effects on deforestation via policy choices and institutional design at the national and local levels.