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**MESO-ECONOMIC FILTERS ALONG THE POLICY CHAIN:  
Understanding the Links between Policy Reforms and Rural Poverty in  
Latin America**

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## ***Abstract***

The policy reforms introduced in Latin America in the 1980s and 1990s have induced profound and beneficial changes in the overall productive structure of most Latin American countries, and particularly concerning the increased competitiveness and profitability of some agro-export activities. Yet, even if a relatively stable macroeconomic environment has been achieved, agricultural price distortions have been removed, and inefficient governmental agencies serving the sector have been dismantled, high levels of rural poverty remain in the region. What went wrong? How have the intended impacts of the reforms been transmitted to the rural sector, and how have farmers responded to the newly created incentive structure, and how has this influenced the observed poverty outcomes?

Despite several attempts to introduce new dimensions to policy analysis, a consistent theoretical framework is still lacking capable of accounting for the various sources of policy and market failures leading to such unsatisfactory policy outcomes. The objective of this paper is to propose a framework aimed at developing a better understanding of the reasons of the failures of the past to inform the current policy debate.

The proposed framework takes the moves from the theoretical debate on the importance of considering transaction costs and institutions in policy design and implementation. It develops a synthesis of macro-, meso- and micro-economic perspectives, that focuses on the roles of the structural and institutional factors mediating the effects of policy reforms as they “trickle down” to rural households. Such synthesis is realised through a conceptualisation in three levels of filters intervening at various level of the “policy chain”, and by developing a model linking those to the household decision-making level.

The paper is organised into four parts. Part one provides stylised background information about policy reforms and rural poverty outcomes in Latin America. In the second part two main bodies of literature are reviewed: a) the “meso-economy” level of market mechanisms, institutional arrangements, and the administrative procedures mediating the “public” provision of goods and services; and b) the “micro-economy” level of rural farm household models. In the third part, the insights provided by these two bodies of literature are used to develop an analytical framework integrating the macro-economy to agricultural household models, as mediated by the meso-economy links. Finally, in the fourth part some policy implications are drawn and research guidelines proposed.

## **Introduction**

During the 1980s and 1990s market-led and outward-oriented policy reforms were adopted by all Latin American countries, putting an end to four decades of state-led, inward-oriented growth strategy. In 1974 Chile had been a precursor of the reform wave, having undertaken a radical macroeconomic adjustment programme. In 1985, as a result of the debt crisis Mexico and Bolivia started structural adjustment programmes (SAPs), sponsored by the IMF and the World Bank. During the 1989-1993 period most other countries embarked in similar macroeconomic stabilisation and structural adjustment programmes. Priority was given to eliminating budgetary deficits, restoring macroeconomic stability and international financial flows, and opening the national economies to global market forces.

While countries such as Bolivia, Argentina, Brazil, Nicaragua, and Peru had four to five digit inflation rates at the beginning of the 1990s, these same countries now exhibit one or two digit inflation rates, and hyperinflation has disappeared completely from the region. Economic growth has been restored. The region grew more than twice as fast during the 1990s than in the 1980s. In the early 1990s, as reforms began, foreign capital returned to the region in pursuit of anticipated growth. This exceeded 5 percent in 1994, a boom enjoyed by all but a handful of countries. However, financial crises hit the continent again at the end of the 1990s with Mexico's peso crisis, Brazil's real crisis and the dollarisation debacle in Ecuador. Despite a relatively healthy world economy the growth rate in Latin America fell to 2 percent in 1998 and to zero in 1999. In 1998 the poverty rate was higher than in 1986 (Londoño and Székely 1997; ECLAC 2000).

During the late 1980s and early 1990s the objectives of policy reform widened to include measures designed to influence microeconomic efficiency. Domestic market liberalisation, and privatisation of public enterprises were supposed to add to the more stable macroeconomic environment and economic opening to stimulate economic adjustment in line with the redefined structure of incentives.

The first round of reforms had already driven out most of the biases against the agricultural sector created during the previous inward-oriented development strategy. Reductions in the taxes on the main agricultural exports, the abolition of import subsidies for food and agricultural raw materials, together with a real depreciation of the domestic currency were all supposed to benefit relative agricultural prices since most farm products are considered tradable. In any case, the effects of these policies were expected to more than compensate the negative impacts of the discontinuation of protectionist policies for the sector, the elimination of subsidies for farm inputs and credits, and the reduction in budgetary allocations for rural investments and services. The assumptions underpinning policy reforms in agriculture were that: i) the removal of policy biases against farm products would increase agricultural growth and reduce poverty; ii) that following privatisation and budgetary cuts, the private sector would rapidly step in to provide the goods and services that were previously supplied by state agencies or marketed by parastatals; and iii) that most farmers would rapidly respond to price incentives.

Since the mid-1990s, however, despite some economic growth, persistent poverty and rising inequality led to a fundamental shift in the policy agenda<sup>1</sup>. Pro-poor growth and poverty

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<sup>1</sup> Londoño and Székely (1997) argued that not only does Latin America have the highest inequality level in absolute terms, but also that in 1995 the Latin American and Caribbean region registered a Gini coefficient that is 25 percent

alleviation programmes became the overarching goal for national governments and multilateral agencies, as growth was now seen as a necessary but not sufficient condition for poverty reduction.

It is beyond doubt that policy reforms have induced profound and beneficial changes in the overall productive structure of most Latin American countries, and particularly on the increased competitiveness and profitability of some agro-export activities. Yet, with the exception of Brazil where rural poverty has been reduced drastically mainly as a result of rural-urban migration, in the rest of Latin America the incidence of rural poverty has been constant or rising, and the number of rural poor increasing. Despite urbanisation, the incidence of rural poverty is considerably higher than the incidence of urban poverty, and rural poverty is considerably deeper than urban poverty (de Janvry and Sadoulet 2000). In sum, the 1990s have been a decade of recovery and relative economic stability in the region as a whole but, particularly in the rural sector, poverty and inequality have not declined significantly (Londoño and Székely 1997) <sup>2</sup>.

If a relatively stable macroeconomic environment has been achieved, agricultural price distortions have been removed, and inefficient governmental agencies serving the sector have been dismantled, why do so high levels of rural poverty remain in the region? What went wrong? How have the intended impacts of the reforms been transmitted to the rural sector, and how have farmers responded to the newly created incentive structure?

First, it is necessary to unravel the reasons why some farmers show apparently weak supply responses to the allegedly favourable incentives induced by the reforms. Second, it is necessary to grasp the long-term effects which have trapped many poor farmers into vicious circles of poverty. Why --given the same policy scenario-- are some rural households able to increase their wealth, while others are mired to do so? Is it because product and factor market imperfections encroach their capacity to respond to policies which were expected to be favourable for all? Or, is it because they lack access to the assets required to respond? Or else, is it because the reforms were not fully implemented by the government? Worse, is it because some policy reforms have been ill-designed from the beginning or ill-implemented thereafter? If these structural and institutional constraints could be well identified and weighed up, the reform policies could be redesigned so short-term supply responses could be enhanced and long-term poverty traps avoided.

A consensus has emerged in the academic literature, and among national policymakers and multilateral agencies, that structural adjustment particularly during the 1980s, was not structural enough, as it failed to focus on some critical links between policy measures, intended objectives, and their actual outcomes. In Latin America, by focusing almost exclusively on price reforms ("getting prices right") and macro-economic variables, policy reforms tended to ignore important structural and institutional traits that have hindered the achievement of the alleged goals of economic growth and increased human welfare. The negative social effects of the reforms, for instance, have only recently been recognised by policymakers and started to be addressed through the design of safety nets for the newly unemployed and the newly poor.

Despite several attempts to introduce new dimensions to policy analysis, a consistent theoretical framework is still lacking capable of accounting for the various sources of policy and market failures. The objective of this paper is therefore to propose a framework aimed at developing a

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higher than what one would expect given its GDP per capita. Besides, Latin America has the world's most unequal farm-land distribution, and hence much more poverty than would be predicted from income per person (IFAD 2001)

<sup>2</sup> See tables 1 and 2 in the Annex for poverty data according to World Bank and ECLAC sources.

better understanding of the reasons of the failures of the past to inform the current policy debate. The framework is written having the Latin American experience in mind, but can easily be applied to other developing regions. The framework takes the moves from the theoretical debate on the importance of considering transaction costs and institutions, in policy design and implementation. It develops a synthesis of macro-, meso- and micro-economic perspectives, that focuses on the roles of the structural and institutional factors mediating the effects of policy reforms as they 'trickle down' to rural households. Such synthesis is realised through a conceptualisation in three levels of filters intervening at various level of the 'policy chain', and by developing a model linking those to the household decision-making level.

The framework, thus, specifies the mechanisms through which public policy reforms affect the access of low-income rural households to product and factor markets, as well a to publicly provided goods and services. The ultimate goal is to apply this framework to empirical case studies, so as to generate research results capable of assisting policy-makers in designing more finely-tuned reform programmes to address the structural causes of rural poverty.

To accomplish this task the framework needs to respond to some characteristics. First, it has to be policy-oriented. Therefore, it has to provide specific clues for the design and implementation of policies tackling the causes of rural poverty. Second, it has to be flexible so it may be adapted to a diversity of country- and locally-specific scenarios.

In the framework we propose, as a result of policy (and other exogenous) changes, the incentive structures microeconomic agents face may be altered by the transaction costs created by ill-designed policies, or by the informational problems created in implementing them via private market mechanisms and public administration procedures. We conceptualise these two policy implementation channels as the mesoeconomy level, i.e. a link between the macro-economy of aggregated variables and policy decisions on the one hand, and the microeconomy of disaggregated production, consumption and investment decision making and their effects, on the other. Policies, in turn, are filtered three times: a) at the "policy delivery" level (i.e. before they help determine household incentives); b) at the "incentive transmission" level (i.e. before incentives reach the household; and c) at the household "decision" level. We hypothesise that, if neglected, these policy-cum-market failures may elicit unintended and undesired responses by microeconomic agents, leading to suboptimal production and welfare outcomes at the microeconomic level and undesired distributional and allocational problems at the aggregate level.

The paper is organised into four parts. Part one provides stylised background information about policy reforms and rural poverty outcomes in Latin America. In the second part two main bodies of literature are reviewed: a) the "meso-economy" level of market mechanisms, institutional arrangements, and the administrative procedures mediating the "public" provision of goods and services; and b) the "micro-economy" level of rural farm household models. In the third part, the insights provided by these two bodies of literature are used to develop an analytical framework integrating the macro-economy to agricultural household models, as mediated by the meso-economy links. Finally, in the fourth part some policy implications are drawn and research guidelines proposed.

## ***I. Policy Reform and Rural Poverty in Latin America***

Since 1982, when the debt crisis started, different economic reform programmes have been experimented in Latin America <sup>3</sup>. SAPs are one (big) part of the reform story, but not all. Furthermore, SAPs have not been uniform across countries, and within countries they have evolved over time. Analysing the reform process, even at the aggregate country level, is therefore a complex task, that is beyond the scope of this paper. What this part of the paper aims at is simply to provide some stylised facts about the changes intervened in the Latin American agricultural sector during the policy reform process, with particular emphasis on rural poverty trends.

Commonalities among SAPs in different countries are the result of conditionality to the IMF and other multilateral agencies. Differences have been the result of domestic political processes (resulting in different degrees of freedom of public decision-makers in relation to their domestic constituencies), the weight of external indebtedness (providing financial degrees of freedom of national decision-makers vis-à-vis multilateral agencies and the international financial community), and even geopolitical interests. Thus, in each country economic reforms were the result of the mediation of endogenous socio-political processes with the emerging global rules. Ideology also played a role. Some reforms were “socially exclusive”, thus increasing poverty and inequality. But others, such as the reforms in Chile after 1990, with the return to democracy, have been stressing poverty alleviation policies, including different types of safety nets.

In Chile reforms started as early as 1973, and in the first stage, until 1983 the reforms were applied to all sectors without any restraint. Argentina and Uruguay also had short lived experiments in the mid-1970s. Only in the 1980s the reforms spread to the whole continent, first to Bolivia, Costa Rica, and Mexico, later in Argentina, Peru, and Venezuela. Brazil can be considered a late reformer having started to open up and privatise the economy only in the 1990s (Reinhardt and Peres, 2000). After the crisis, from 1984 onward, Chilean policies turned to be less orthodox: the state rescued the private financial system of the risk of bankruptcy, international market price volatility was smoothed through price bands, buyers' organisations, and minimum tariffs. Non-traditional exports and on-farm irrigation schemes are subsidised. From 1990, while maintaining the essential traits of the “new economic model”, equity considerations have been given priority in the development strategies. Sectoral agricultural policies increasingly gave priority to the farms' rural context, and recognised the heterogeneity of rural households' income-generation strategies, therefore increasingly developing a multi-sectoral perspective. Economic opening was focused on establishing trade agreements, and price stabilisation instruments were continued. Productivity growth was sustained intensifying irrigation and fertiliser subsidies. The policy toward smallholder agriculture explicitly mentioned the need to promote its insertion in markets via promoting farmers organisation (Portilla 2000:7).

### *The impact of reforms on agriculture*

Policy reforms have meant profound changes in the productive structure, the productivity, competitiveness, and profitability of all economic activities, and structural changes appear to have been particularly deep within the agricultural sector (David *et al.*, 2000). Yet, these changes have been uneven between countries, within regions, between different agricultural sub-sectors, and between the different strata of the rural population.

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<sup>3</sup> Chile is an exception, since the reforms started in 1974 after the military coup of Augusto Pinochet.

Agricultural growth in general has been high in a restricted number of countries: Argentina, Chile and Uruguay<sup>4</sup>. The growth recorded in each of the most dynamic sub-sectors has generally been concentrated in a few countries: soybeans in Argentina, Bolivia, Brazil and Paraguay; oil palm in Honduras, Guatemala and Costa Rica; fruits and vegetables in Mexico, Chile, Argentina, Costa Rica and Brazil. In timber products, Chile, Argentina, Uruguay and Honduras led growth. Livestock production has increased in Brazil, Mexico and Chile, mainly due to an expansion of the land frontier (ECLAC, 2000).

Growth rates have also differed markedly across subsectors, while the average growth rate of the region's agricultural sector has remained almost unchanged within the last three decades: 3.5 percent in the 1970s, 2.1 percent during the 1980s, and 2.6 percent from 1990 to 1998. Sub-sectors such as fruits, vegetables, oilseeds and poultry have grown considerably, following the trends in global demand. On the other hand, the region's traditional export crops such as coffee, sugar, cotton, banana and wheat have experienced a decline. Domestic-oriented products such as root and tubers have also stagnated. While this pattern of growth certainly reveals a move toward a production structure that resembles more closely the region's comparative advantages, it also generates a polarisation between dynamic and stagnating areas and producers that cannot be overlooked by policymakers. Most dynamic products are in fact being produced by relatively large scale modern farms, while the least dynamic products are usually produced mainly by smallholders (David *et al.*, 2000).

In Chile, to make just one example, the irrigated central valley regions concentrate most fruit, horticultural, and oilseed firms, while the Lake District is the region where most potato production takes place within diversified plots (*chacras*). Around 70 percent of the less dynamic and less competitive crops (e.g. cereals and livestock) are concentrated in the Southern and Araucania regions (Portilla 2000:65-67).

### Policy reforms and rural poverty

While reforms certainly went some way in shaping the restructuring of the economy, they achieved much less in another of their stated objectives, i.e. alleviating poverty. This sub-section sketches very briefly the main trends in poverty during the reform period, focusing in particular on rural poverty.

Table 1 in the Annex reports recent data on percentages and number of persons living in poverty and absolute poverty, disaggregated between urban and rural areas. According to these data the percentage of poor people increased significantly between 1980 and 1994, with most of this increase taking place in urban areas. It should be noted, however, that more than one every two rural dwellers remain poor, and that an increasing number of these are in absolute poverty. The other striking observation is that the number of poor more than doubled during the period, with most of the increase happening in urban areas<sup>5</sup>.

In the 1990s, for the first time in the region's history, the number of urban poor surpassed the poor in the rural areas. However, in 1997, 54 percent of the rural households was classified as

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<sup>4</sup> The high agricultural growth rates of Nicaragua and Peru are mainly related to the extremely low initial situation during the 1980s, when both countries were experiencing severe political crises.

<sup>5</sup> It should be noted that there is increasing evidence from around the world that urban poverty depends *inter alia* on the performance of the rural sector, so to attempt to alleviate urban poverty by focusing on urban economic activities alone would be myopic.

poor vis-à-vis 30 percent in urban areas. Besides, 31 percent of households in the rural areas were considered “extremely poor” vis-à-vis 10 percent in the urban areas.

The problem of poverty in Latin America is deeply interlinked with that of the unequal distribution of income and assets. The rural sector is no exception to that. Rural poverty is highly correlated with land distribution. The land concentration Gini coefficients for the 17 countries for which there are enough data show that the situation is highly uneven between countries. Chile, Mexico and Paraguay exhibit indices over 0.90, followed by Argentina, Brazil, Costa Rica, El Salvador, Panama, Peru, and Venezuela which exhibit indices between 0.70 and 0.80<sup>6</sup> (ECLAC, 2000).

Latin America as a whole has the highest levels of income inequality in the world. There is an increasing consensus that economic growth alone cannot be effective in reducing poverty if the current levels of inequality persist<sup>7</sup>. Londoño and Székely (1997) calculated that with levels of income inequality comparable to those found in Africa, poverty in Latin America would be at half its current levels. The reduction would be even more dramatic with an income distribution comparable to that of Southeast Asia or OECD countries.

Furthermore, evidence shows that while inequality and poverty had decreased during the growth period of the 1970s, they both increased sharply in the slow growth period after 1982, and that not much of this decline was reversed with the resumption of economic growth in the 1990s (Londoño and Székely, 1997; see also Lustig and Deutsch, 1998). These persisting high levels of inequality seriously hamper attempts to reduce poverty.

De Janvry and Sadoulet (1998) argue that income growth did reduce inequality over the 1970-94 period and that "frequently made assertions that growth has been inequalising in Latin America are thus globally incorrect". They also stress that "estimation of a negative overall relation between income and inequality (...) that does not distinguish between growth and recession, is misleading: the policy implication is not that income growth reduces inequality, but that recession is devastating on inequality, and growth ineffective in reducing it. (...) contrary to frequent statements, we certainly do not find that income growth increases inequality. However, growth (...) cannot be relied upon as an equalising force".

The associations between these trends do not say much in themselves about the causal relationship between reforms and inequality. Existing studies that have investigated the relationship came to sometimes differing conclusions. Morley (1999) reviews some of these studies concluding, on the basis of new analysis, that "reforms taken together are mildly regressive", with sharp increases in the early reform years in Argentina, Chile and Mexico, and reduced inequality in Jamaica, Peru, and Bolivia.

#### *Policy, poverty and agricultural performance: Are there missing links?*

Two main facts emerge by looking at the broad picture sketched in this section. First, that policy reform did bring a good deal of much needed adjustment to many economies in Latin America, and in particular to their agricultural sectors, but also that this process had losers as well as winners and that the losers are in many cases those at the lower tail of the income distribution. For the rural sector this is seen both by looking at what have been the sub-sectors more responsive to the reforms, and by the fact that the proportion of extremely poor in the total

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<sup>6</sup> The Gini index varies between 0 and 1. The most proximate to 1, the most unevenly distributed is the variable, whereas the most closer to 0 means that the closest we are in relation to a perfectly equitable distribution.

<sup>7</sup> This is an increasingly recognised fact in the poverty literature at large: see Timmer (1997).

number of poor has increased in the period. Second, that since the inception of the reforms, Latin America as a whole has not made substantial progress in reducing neither poverty nor inequality.

The challenge is therefore to *understand if and where did the reform effort fail to take into account relevant policy options that would have resulted in better results in terms of welfare of the rural poor*. The starting hypothesis of this paper is that policy design focussed too much on (necessary) macroeconomic adjustment, while failing to look at the meso-level conditions that ultimately determine how the macro-policies translate into incentives faced by poor households. This position is not new. It is now generally acknowledged (even in Washington), that the reforms inspired by the so-called Washington Consensus failed to recognise the importance of institutions and institutional change (Burki and Perry, 1998). What is lacking in the development literature is a closer look at how in practice, in the frame of the reformed macroeconomic policies, the incentives and opportunities for the rural poor have evolved in some specific cases, how households responded to these changes, and how these responses translated into welfare/poverty outcomes.

## **II. A Review of the Meso-Economic and Agricultural Household Model Literatures**

### **2.1. The Meso Level**

In this section we introduce the concept of the “meso-level” as an integrated view of the main two channels (market mechanisms and administrative procedures) through which policy decisions in general, and macro-economic policy variables in particular, trickle down to the micro level, modifying the incentive structure faced by microeconomic agents when they take production, consumption and investment decisions. Such a concept is instrumental in developing a consistent analytical framework to explain how policy and market failures occur, resulting in unintended and undesired responses by microeconomic agents.

We first review previous attempts to make use of similar conceptualisations. We start by critically reviewing the contributions made by the policy-oriented literature in which the meso-economy concept was initially considered. Secondly, we proceed to an abridged review of the insights provided by the New Institutional Economics literature in analysing market and policy failures, particularly focusing on how transaction costs arise as result of these failures, and on the various institutional arrangements which typically emerge to minimise these costs within the rural sector of less-developed countries. Third, we briefly review the empirically oriented literature in which both the meso-economy level and neo-institutionalist concepts have been applied, in an attempt to devise solutions to the heuristic problems encountered in field work research.

### **The meso-economy in the policy-oriented literature**

The mesoeconomy level concept is framed within the traditional macro and micro dichotomy in the economic literature. The concept is just another attempt to bridge the gap between both sorts of analyses. Since the 1960s serious doubts have been raised about the logical consistency of the division of the discipline into two separate fields. In many ways, however, the distinction has been blurred lately. Microeconomic theory has been transformed by an increasing awareness of informational problems, whereas macroeconomics has increasingly acquired formal microfoundations.

In a perfect world of frictionless markets and perfect governments there is no need for a distinct meso-economy analysis. The competitive equilibrium theory, which began with Walras and

culminated with Arrow and Debreu, is based on the assumption of no waste or dissipation of resources. Microeconomic agents are price takers in all markets and are perfectly informed of transaction conditions. All markets are competitive, and factors of production move freely without any hindrance. Capital and labour shift without any friction, and land is allocated according to its optimal use. This is, thus, a world of no risks and zero transaction costs. If we add to this, the Bergson-Samuelson welfare function, a perfect world scenario is completely set.

Assuming this perfectly competitive market and perfect government scenario by default has been the discipline's heuristic strategy for a long time. The design and implementation of policy, as well as the practice of policy analysis, were mostly seen as technical problems. The Bergson-Samuelson model, expressing social welfare as an aggregate function of individual utilities, provided the theoretical rationale for recommending standard policy choices, or far-reaching policy reforms to governments. The second theorem of welfare economics, assuming, at the microeconomic level, firm and consumer optimisation choices based only on resource and technology constraints; and, at the aggregate level, a complete set of competitive and complete markets, underpinned first-best policy proposals. According to this view of economic policy, thus, the role of government is to correct market failures when missing and "thin" markets are encountered, or to correct externalities when they emerge, mostly using budgetary instruments (i.e. taxes or subsidies), the provision of public goods when needed, with the ultimate goals of achieving economic growth and an acceptable distribution of resources (Dixit 1996).

It was Ronald Coase (1960) in his seminal paper entitled "The Problem of Social Cost", who for the first time made the crucial connection between institutions, transaction costs, and neo-classical theory. Coase's approach was to retain the basic tools of microeconomic analysis, while introducing profound changes in the whole neo-classical theoretical framework. To make his argument clear, Coase depicts an economy in which the allocative functions of the markets are achieved with no transaction costs. In this "ideal" economic scenario, resources find their highest valued use as a result of competitive market mechanisms. Coase's goal, however, was not to elaborate on the Walrasian framework, but to emphasise that transaction costs are not zero, thus calling for the need to explain the emergence and evolution of different types of institutional arrangements (e.g. impersonal markets mechanisms, hierarchical organisations such as firms and state bureaucracies, as well as personalised market surrogate institutional arrangements) to deal with transaction costs. Coase theorem is, thus, not a description of reality, but a benchmark that serves to identify the factors which make that reality differ from the ideal world, and to find what causes these mismatches and what are their consequences. His preliminary answer is that market-based transaction costs are part of these factors. If the conditions of his theorem are met, then transactions lead to Pareto-efficient outcomes, so there is no need for public policy interventions.

The real world is not what Coase's theorem ideally depicted, therefore governments do intervene. The results, however, have not always been satisfactory. The structural adjustment programmes (SAPs) that were implemented throughout less-developed countries during the 1980s, as a result of the debt crisis, provided the conditions for the meso-economy level concept to emerge. As mentioned before, this has been one of the most recent attempts to bridge the gap between the traditional split of the discipline into two separate although assumedly interrelated lines of inquiry. This time, however, the rationale was more practical than theoretical, as it responded to the need to address the immediate problems posed by the unsatisfactory performance of SAPs in fostering economic growth and reducing inequitable distributions.

To our knowledge, UNICEF's document "Adjustment with a Human Face", co-authored by Cornia and Stewart (1987), was the first to introduce the meso-economy notion, out of apprehension with the deterioration of human welfare indicators as a result of the 1980s

economic recession particularly in Africa and Latin America. Also, to some extent, a result of SAP policy failures. The document, thus, reveals a strong concern for the distributional effects of the changes introduced by macroeconomic stabilisation policies and structural adjustment programmes. In this sense, their use of the term "meso-economy" basically refers to the analysis of the distributional impacts of macro-economic policy decisions such as levels of taxation and government expenditure (i.e. budgetary allocation decisions), and calls for new social priorities in setting the reform agenda.

In 1990, the World Bank, also troubled with the social effects of SAPs, particularly as implemented during the 1980s in sub-Saharan Africa, produced a document called "Making Adjustment Work for the Poor" (World Bank, 1990) The document identified two main policy ingredients which were deemed missing in the initial SAPs: on the one hand, specific product and factor market reform interventions; and, on the other, the provision of productive and social infrastructure by the government to specifically targeted vulnerable sectors of the population. It is important also to notice that in this document, the meso-economy level, for the first time, was explicitly conceived as the link between "the macro" and "the micro" economy. Product and factor market mechanisms, as well as the institutions underlying these mechanisms, were conceived as the basic channels through which macroeconomic policy decisions transmit their price signals to microeconomic agents, thus influencing their responses and performance.

Moreover, for the first time, the meso-economy level also included in the analysis the effects on household welfare of the provision of economic and social infrastructure by state agencies. It is important to remark here, however, that the incentive structure faced by microeconomic agents was reduced in this document to the price signals emanating from policy changes, thus overlooking the role played by other non-price policy incentives. A point to which we will return below. To our knowledge, no relevant empirical results had been reported from the World Bank's "Social Dimension of Adjustment" case-study research programme launched in 1987, which apparently followed the publishing of the conceptual framework in which the meso-level concept was for the first time portrayed. Therefore, the merits of the framework for empirical analyses have to be given just face value judgement.

Following the World Bank's 1990 document, it took some time for other multilateral and bilateral development organisations to start using -- with some hesitation-- the "meso-economy level" conceptualisation, even though that there was a growing consensus among most agencies on the need for analysing the macro-micro links, and to relate them to policy analysis. In fact, a complete agreement on how to label these links has not been reached yet<sup>8</sup>, and there is even less consensus on what substantive components should be included in the analysis. Thus, as frequently occurs when these disagreements emerge, metaphors tend to replace a thorough conceptualisation<sup>9</sup>. This reveals an insufficient theorisation, and an even lower concern for linking these analytical frameworks to rigorous empirical analyses.

During the 1990s, the persistence of a global economic scenario characterised by volatile growth, persistent high inequality, and unrelenting poverty in much of the less developed world, led to a fundamental shift in thinking about policy reforms. This shift is reflected in the growing reference to the need for achieving increasing equity simultaneously to economic growth and

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<sup>8</sup> Some of the meso-level critics argue, however, that to call this layer an 'economy' in the sense of the 'macro' or 'micro' economy is rather misleading", proposing instead to call these various mediating factors as 'conduit mechanisms' (FAO s/d).

<sup>9</sup> The "meso-level" literature is full of images and metaphors such as "links", "conduit mechanisms", "transmission channels", and so on.

macroeconomic stability. It also meant a renewed interest on market failures and missing markets. This is the intellectual and ideological environment in which ECLAC document called “Beyond the Washington Consensus”, authored by Jose Antonio Ocampo, ECLAC’s Executive Secretary (Ocampo 1998), was written.

In the ECLAC’s document, the growing influence of the New Institutional Economics (NIE)’s concepts and general framework on economic policy thinking is evident. Although the document occasionally employs the meso-economy level terminology, coupled with the structuralist gist which has always been ECLAC's trademark, its focus is clearly on markets and policy failures, as well as on the relations between market structures, public organisations and traditional institutional arrangements. The underlying conceptual framework, however, is eclectic. Transaction costs, a concept rooted in the NIE’s framework, and rent-seeking behaviour, a concept nested in the public choice literature, are now added to the list of policy failures traditionally described in the economic literature, particularly on imperfect competition (i.e. economies of scale, externalities and public goods). After agreeing that a good macroeconomic management is needed to reduce or eliminate market uncertainties, as its World Bank 1990 predecessor, the paper ends up calling for a “second generation” of pro-poor policy reforms. Two main goals should lead the policy agenda, according to this document. First, tackling market failures by increasing the efficiency of market mechanisms; second, addressing government failures by improving the quality of the public sector’s provision of goods and services.

To sum up, there are not only terminological disagreements in the policy-oriented literature emanating from multilateral agencies and donors, but there are also different interpretations on the content of the meso-economy level of analysis. In fact, what these shortcomings reflect is a lack of firmly grounded theoretical underpinnings to the conceptualisation of the meso-level. We, thus, turn to the relevant academic literature, and particularly to the insights provided by the NIE, with the aim of contributing to develop a more consistent and empirically tractable conceptual framework.

### **The NIE contributions to the meso-economy policy level analysis**

It is impossible in such a short survey to do justice to all the insights provided by the different strands of the NIE literature to the meso-economy policy analysis, and particularly to analysis of the roles played by market and policy failures in achieving suboptimal efficiency and welfare results. The interested reader is thus referred to more comprehensive surveys on this literature, and particularly to the contributions of the agrarian organisation literature, both a predecessor and an offspring of the NIE. This literature is focused on the analysis of the multiple institutional arrangements which typically emerge in the rural sectors of less-developed countries as a result of missing markets and public policy failures (Bardhan 1989, 2001; Hoff, Braverman and Stiglitz 1993; Harriss, Hunter and Lewis 1995; Hubbard 1997; Dorward, Kydd and Poulton 1998; Bardhan and Udry 1999; Reja and Talvitie 2000)<sup>10</sup>.

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<sup>10</sup> The agrarian organisation literature focuses on the explanation of institutional arrangements as rational responses to the incentive problems created by asymmetric information and moral hazard in all sorts of transactions between economic agents. The insights provided by the imperfect information paradigm have produced a major breakthrough in our understanding of both markets and surrogate market institutions. In labour markets, for instance, moral hazard problems usually are created by the supervision costs of hired workers when compared to the 'captive' household labour of the family farm (Sen 1966; Eswaran and Kotwal 1986; Carter and Wiebe 1990; Kevane 1996). A vast theoretical literature also links capital and land market imperfections. Risk-sharing models stress that, in the presence of a risk-averse agents who can shirk in the performance of tasks assigned by the principal, share contracts offer insurance and, at the same time, provide incentives for the agent to be diligent (Alston et al 1984). By contrast,

Our previous exploration of the meso-economy concept in the policy-oriented literature led us to identify two main channels through which “macro” policy signals are transmitted to microeconomic agents: private market mechanisms and public administrative procedures. The NIE literature has much to say on both issues. Let us first consider how it deals with the working of markets and the reasons why occasionally market mechanisms fail to convey the intended policy signals to the target populations.

According to Williamson (1985), all economic transactions, either through impersonal markets mechanisms or through hierarchies (i.e. firms, public agencies, grass-roots organisations), consist of transfers of property rights on assets, good, or services. Transactions are regulated by formal or informal rules that determine the conditions under which property rights are transferred, including prices, conditions for payment, and enforcement mechanisms.

Transactions, thus, involve significant costs. Beyond the regular production and marketing costs, they typically include: a) the *ex ante* costs of searching information about the goods themselves and about the partners in the transaction; b) the *in-between* costs of designing and endorsing the agreement; and c) the *ex post* costs of monitoring and enforcing the (implicit or explicit) transfer contract (Burki and Perry 1998). The “transaction costs” concept has been developed to explain a large amount of information, negotiation, and enforcement problems that affect both the internal decision-making processes of microeconomic agents (firms, households) as well as the outcomes of the transactions among these agents, that cannot be explained with the tools of the standard neo-classical analysis (Dixit 1996). The wide-ranging and extremely open scope of the concept is one of its main strengths as well as its major weakness. One of the main criticisms that has been raised on the concept and its related research programme is precisely the vagueness and unmeasurability of the term, and thus the impossibility of falsifying its propositions (Stiglitz 1986; Buckley and Chapman 1997)<sup>11</sup>. To disentangle all these meanings, and to unleash all their potential is one of the objectives of the following sections.

From a meso-economy policy analysis perspective, the most substantive appeal of the NIE’s literature in general and of the transaction cost framework in particular, is that it is centrally concerned with the incentive structures microeconomic agents face when making short- and long-term decisions. Its focus is, thus, on explaining how can (price and non-price) incentives be affected by market and policy failures (Leonard 1993). The important roles assigned in this literature to the problems of asymmetric information, moral hazard, and not well-defined property rights in economic transactions are related not only to how real markets work, but also to the need to design efficient institutions which might help to reduce transaction costs.

By contrast to its analysis of market failures, the insights provided by the transaction cost approach to the analysis of policy failures are less well scrutinised. Coase’s theorem again provides a useful benchmark rationale for the analysis of the emergence and persistence of

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transaction costs models tend to ignore risk preferences and focus on enforcement costs and transaction specific assets. Most models in the NIE tradition, focused on one particular institutional arrangement: sharecropping. Stiglitz (1974) was the first to formalise sharecropping as a compromise between risk-sharing and work incentives. Also, in the rural sector of less-developed countries, capital markets tend to be highly segmented. Access availability of a liquid collateral (land, capital goods) may create a first source of market segmentation. Lack of formal property rights becomes a barrier to access formal credit markets. Access to credit by farmers who can offer a great amount of collateral, allows these farmers to invest in risky but high-yielding crop and asset portfolios.

<sup>11</sup> One of the NIE’s main appeals is that it retains the analytical tools of microeconomic theory, although with an important caveat: to explain microeconomic responses to policy changes, institutions really matter. Markets, according to this framework, always require a set of agreed upon rules (i.e. an underlying institutional framework) to support the economic transactions.

transaction costs in both the policy design and the policy implementation process<sup>12</sup>. As mentioned before, Coase's point is to emphasise that transaction costs are not zero. So, various types of institutional arrangements emerge for controlling the use of resources: formal laws and regulations, firms, and contracts (North 1994; Eggerston 1997). In the idealised hypothetical scenario presented by Coase if property rights are assigned to all participants in the markets, and if they could costlessly make fully specified and fully binding agreements, not only economic transactions would lead to Pareto-efficient outcomes, but state intervention in market mechanisms would not be needed. The role of the state could then be reduced to the provision of "pure" public goods (e.g. national defence and the maintenance of law and order)<sup>13</sup>. Again, Coase's theorem, begs the question: why, then, policy failures emerge and persist?

North (1990b) analysis of transaction costs in the policy process leads to the conclusion that one should expect political markets to be even more beset by transaction costs in private market mechanisms, and therefore to operate even less efficiently. The emphasis, however, is not so much on the political economy rationale behind policy decision-making, but on the effect of information costs on decision-making processes by individual public official decision-makers and by the whole administrative apparatus.

### **Empirical applications and measurement problems**

One of the main criticisms that has been made to the transaction costs paradigm which underlies part of our framework is the "vagueness" of some of its concepts, raising measurement problems and hindering the empirical falsability of its propositions (Stiglitz 1986). Partly in response to this critique, and partly as a result of the increased degree of theoretical consistency achieved, efforts have recently started to undertake empirical analysis of transaction costs. In the remainder of this section we review a few such attempts.

It is true that most authors in the NIE tradition have frequently based their theoretical statements on anecdotal and largely indirect evidence rather than on direct and detailed observations (Staal, Delgado, and Nicholson 1997). Yet, as it is illustrated in this section, various specifications of farm-household models have been used to explore the impact of market and policy failures on the farm-household production, exchange, consumption, and investment decisions in less-developed countries.

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<sup>12</sup> According to Dixit (1996), the policy process refers not only to the policy design or decision-making stage, but also to the implementation stage, which includes not only setting up an administrative agency (a hierarchical organisation in Williamson's terms) but also the subsequent operation of this agency.

<sup>13</sup> Two main other theoretical approaches currently compete to explain policy failures. The public choice or contractarian framework (Buchanan and Tullock 1962), has been traditionally regarded as the standard positive explanation for the prevalence of inefficient policies. According to this framework, the benefits of inefficient policies accrue to special-interest groups which have captured the state as a result of their organisational capacity, while the main costs fall into the disorganised and majoritary sectors of the population. This explanation may be part of the answer. However, it focuses exclusively on the *ex ante* (mainly political or political economy) stage of policymaking, thus is beyond the scope of this paper. We limit ourselves here to the *in between* and *ex post* implementation stages of the policy process, thus assuming economic agents as policy- as well as price-takers. Another strand of literature, that we will not be able to deal with here, is what Dixit (1996) has called "the normative approach", which views the whole process of policy making and implementation as a social welfare maximising "black box", exactly as the neo-classical theory of production and supply viewed the firm as a profit-maximising black box. Stiglitz (1989) --one of the two initial proponents of the Greenwald-Stiglitz theorem which underlies this normative approach-- cautions, however, that policy failures may also emerge, and as a result "first-best" optimal solutions may not materialise.

North frequently quotes the empirical work undertaken with Wallis as a rebuttal of the criticism that transaction costs are un-measurable. Wallis and North (1986), however, never estimated the magnitude of specific market-based transaction costs. Their heuristic strategy was to calculate the overall size of the administrative outsourcing industry in the US, which they reframed as the “transaction sector” (Buckley and Chapman 1997). A similar strategy was also attempted by Vernimmen, Verbeke and van Huylbroek (2000), who applied the transaction costs framework to the analysis of farmers’ decisions to outsource part of their administrative task services in Belgium. They show that even in less developed countries, farmers face an increasing amount of administrative work, not only to cope with traditional market processes but also to cope with governmental regulations. A paper by Hobbs (1997) measured farm-to-market transaction costs as one of the variables influencing farmers' choice of marketing channels in the UK's slaughter cattle market. In this paper, transaction costs were split into the three categories suggested by Williamson: *ex ante* search, *in-between* negotiation, and *ex post* monitoring costs. Also Omamo (1998) analyses farm-to-market transaction costs, as approximated by transport costs, in the choice between intercropping food and cash crops vis-à-vis cash-crop specialisation.

This is not to deny that most transaction costs are difficult to estimate, not only because they cannot be easily recorded in surveys (e.g. the time allocated by a farmer to search for a reasonable price when selling a crop or to negotiate a credit), but also because these costs are neither routinely collected by governments nor by the standard accountability procedures employed by the firms themselves. The total cost of a transaction may involve the different resources –money, time and goods—used by an economic agent in any transaction. Monetary costs are relatively easy to record, yet most transaction costs involve non-recorded time-consuming tasks. Therefore to take account of these involves a cumbersome fieldwork process.

Additional complications for measurement and data collection also arise from the fact that in most agricultural marketing channels the relevant costs are not only those that may be recorded at the farm-gate level but also those which affect other links of the chain. Loader (1996) applied the analysis of contractual arrangements to the marketing of Egyptian potatoes. His aim was to see to what extent the investment in specific assets, the frequency of the transaction, and the risk-aversion of farmers, could explain significant variations in the contract type found at different stages along the commodity chain (quoted by Dorward, Kydd and Poulton 1998).

Staal, Delgado and Nicholson (1997) compared dairy farming markets in two East African countries: Kenya and Ethiopia. They test the possibility to explore the effects of transaction costs by observing differences in marketing costs, the marketing channels used, the costs of inputs (including the capital necessary for entry into dairying), and the prices received for milk and dairy products. Unfortunately, the evidence they provided is largely indirect and anecdotal rather than the result of detail direct observation. The paper shows that it is the existence or not of farmers' organisations what makes a difference in explaining the possibility farmers have to reduce the transaction costs associated with access to assets, distance to markets, commodity specificity (e.g. milk perishability), access to infrastructure and information in the two countries considered. In turn, the existence of farmers' organisations is related to the particular policy interventions each country has pursued.

In a series of papers, which will be further reviewed in the following section, Alain de Janvry and his colleagues at the University of California at Berkeley analysed the effects of transaction costs on farm-household responses to various changes in the policy environment.

In their first papers most of the evidence provided is largely anecdotal, or based on secondary empirical data. In these papers, simulations substitute for first-hand and rigorous data analysis. The opportunity to validate their model with first-hand empirical information came in 1994,

when the Mexican government undertook a national survey of *ejido* (land reform sector villages) farm-households. Equipped with a reliable data set of farm-household assets, budgetary constraints, and multiple income sources, de Janvry and colleagues were now able to provide evidence that due to differential access to assets and markets, specific groups of farm-households face different incentive structures and react differently to policy stimuli.

The policy implication is obvious: farm heterogeneity accounts for heterogeneous responses to allegedly universal policies. The effective farm-gate and household-gate prices farmers face when deciding to sell or buy a commodity, together with the shadow prices created by their endogenous household characteristics, may account for a large part of the unexpected "perverse" response that has been usually reported in the literature. Transaction costs, therefore, have an idiosyncratic component to the household. Yet, market imperfections add to this heterogeneity creating other types of transaction costs.

### **In guise of a (mid-way) conclusion**

As the review of literature shows, the addition of a new "meso-economy" level of analysis to the traditional macro-micro split of the discipline into two related fields is a renewed attempt to fill the analytical gap between the policy decision-making level and its effects at the level of microeconomic agents responses, when both market failures and policy failures are encountered, and unintended results observed. The unsatisfactory performance of the SAPs implemented throughout the less-developed countries during the 1980s in promoting growth and reducing poverty, provided the conditions for the meso-economy level to emerge. The concept thus emerged as a result of the growing consensus among multilateral development agencies on the need to analyse policy reforms and the underlying causes of their failures.

Lacking not only a proper conceptualisation, but also a consistent theoretical framework, it has been difficult to reach an agreement on the various sources of these failures, and on the substance behind the meso-level concept. Is it only referred to the distributional consequences of macroeconomic policy as Cornia and Stewart (1987) suggest? Or is it referred mainly to market mechanisms, and to a lesser extent to the public provision of infrastructure as the World Bank (1990, 1993) documents imply? Or, is it referred to market and policy failures, as Ocampo's (1998) ECLAC document asserts?

Our definition, together with the framework developed in section 3 below, attempts to clarify the concept, assigning to it a well-specified content: both the market mechanisms and administrative procedures through which policy decisions in general, and macro-economic policy variables in particular, trickled down to the micro level. The framework, thus, specifies the mechanisms through which public policy reforms affect the access of microeconomic agents to product and factor markets, as well as to publicly provided goods and services. The incentive structures microeconomic agents face is not limited to price signals, but also includes non-price incentives, and particularly the whole legal and regulatory framework underpinning market mechanisms.

Even if some market failures (as a result of market segmentation, non-competitive markets, public goods, externalities, economies of scale, etc.) have been analysed in the reviewed literature, the issues related to policy-delivery failure have not been sufficiently analysed. Our view is that not only policy decisions may not properly address such market failures, thus failing to minimise market-based transaction costs, but may even distort the incentives faced by microeconomic agents adding up other types of transaction costs to those already existing in the markets. We, thus, propose to examine a large variety of transaction costs that are encountered not only in market mechanisms but in the policy implementation process as well.

It should be clear by now that the mesoeconomy level, at least in our framework, is not a spatial category, whereby the macro relates to “aggregate” national variables, while the micro relates to locally-based firms, and the meso relates to intra-country regional distinctions. We should keep in mind, however, that even country-wide market mechanisms and formal laws may assume different characteristics, and therefore have different impacts, depending on diverse spatially-specific contexts and conditions. Even the effects of nation-wide and cross-sectoral macroeconomic policies trickle-down to microeconomic agents through local market mechanisms and institutions. Thus, the meso-economy level, as a distinct set of policy filters, applies not only to the national level of public policy decisions but to the other layers of state decision-making and policy implementation (i.e. to the national, regional, and local).

This will become more evident as we propose our framework in Section 3. Before doing that, however, we now turn to the review of the household model literature, which is the second ‘leg’ of that framework.

## **2.2. The Micro Level**

The strand of microeconomic literature that has engaged in building models to analyse the decision making taking place within agricultural households can be of great help in predicting how producers and consumers in rural areas may respond to the changing economic incentives created by policy reform. In this section this strand of literature is selectively reviewed, putting particular emphasis on those traits that will feed into the analytical approach to the study of the impact of policy reform on rural households in Latin America that is proposed in Section 3.

The tradition of agricultural household models dates back to the early contribution of Chayanov in the 1920s, and a more recent wave of contributions was triggered by the publication of Chayanov’s work in English (Chayanov 1966), and the concomitant birth of the *new home economics* with the seminal article by Becker (1965)<sup>14</sup>.

The achievements of the early contributions to this new wave culminated in the model developed by Barnum and Squire (1979) for padi framers in the Muda valley in Malaysia, and were excellently reviewed and consolidated in a collective volume edited by Singh, Squire, and Strauss (1986)<sup>15</sup>. The main features of this agricultural household model literature are that it (a) considers the household (not the individual) as the centre of the analysis, and (b) depicts the household as a place where consumption, production, and work-leisure decisions are taken<sup>16</sup>.

In fact the three decisions can be combined into one simultaneous decision about how to allocate time, how much to consume, and how much to produce. Formally, the agricultural household can be seen as maximising a utility function:

$$U = U(X_a, X_m, X_l)$$

subject to a cash income constraint:

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<sup>14</sup> Becker’s approach introduced a range of so-called home or Z goods as the main argument of the household utility function. Such Z goods (which include leisure) are produced within the household making use of purchased X goods and labour. The household therefore makes combined decision which relate to how to allocate time, what to produce, and what to consume.

<sup>15</sup> Such early contributions include Sen (1966), Hymer and Resnick (1969), Jorgenson and Lau (1969), Nakajima (1969), and Yotopoulos and Lau (1974).

<sup>16</sup> Most models in this tradition assume away the problem of the intra-household allocation of resources. We will use the same simplifying assumption in our model in Section 3.

$$p_m X_m = p_a (Q - X_a) - w(L - F)$$

a time constraint:

$$X_l + F = T$$

and a production function constraint:

$$Q = Q(L, A)$$

Where  $X_a$  is an agricultural good and  $X_m$  a market purchased good with, respectively prices  $p_a$  and  $p_m$ ;  $X_l$  is leisure;  $Q$  is the quantity of agricultural good produced by the household ( $Q - X_a$  being the marketed surplus),  $w$  is the wage rate,  $L$  total labour input, and  $F$  total family labour (a positive  $L - F$  thus indicates that the household is hiring in wage labour), and  $A$  is the household fixed quantity of land.

The three constraints can be collapsed into one ‘full income’ constraint:

$$p_a X_a + p_m X_m + wX_l = \pi + wT$$

where

$$\pi = p_a Q(L, A)$$

represents farm profits, and  $T$  is the total stock of household time.

Under the assumptions that markets exist for all relevant goods and factors, and that households are price takers on all markets, this simple model (based on Singh, Squire and Strauss, 1986) allows treating the simultaneous production and consumption/labour decisions separately. Under these conditions the model is therefore usually said to be ‘separable’. This means that one can first solve the producer problem of the household, and then substitute the result of that into the consumption/labour decision to solve the model recursively.

This is not the same, however, as conducting separate analysis for the production according to the traditional theory of the firm, and for consumption following standard demand analysis. This is better explained with an example. In the standard approach, an increase in the price of a normal agricultural good that is produced by the household will cause an increase in the production of that good, and the same result is obtained with a household model of the kind discussed here. On the consumption side, however, the results differ. In traditional demand analysis, the price increase will be followed by a lower level of consumption of that good by the household, as both substitution and income effects will be negative. In a household model, however, a third effect is introduced, the *profit effect*.

The increase in the price of the agricultural good will in this case produce a positive profit effect on the income of the household that produces that good, thus pushing income up. Whether this effect will more than offset the negative substitution and income effect cannot be determined a priori. In sum, the effect on production is the same as in the traditional framework, but the effect on the demand remains to be determined. In this sense, the model relates production and demand, and this relationship is driven by the way the household obtains its income. The relationship goes however only in one direction, i.e. from production to consumption<sup>17</sup>.

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<sup>17</sup> See the introduction of Singh, Squire and Strauss (1986) for a more extensive discussion of the importance of the profit effect. The treatment presented here draws on that discussion.

When separability does not hold, and the production and consumption sides of the model are interlinked, household models are even more useful, albeit less easily tractable, for determining the household response to a price or policy change. As discussed very clearly in Strauss (1986) separability does not hold essentially when one or more prices are endogenous to the household decision making.

Price endogeneity means that the household is not a price-taker on any one market on which it may potentially participate as *both* a buyer or a seller. If the decision of the household to buy or sell a certain commodity (including labour) on a market affects the price that the household faces, then the link between the production and consumption sides of the model described earlier cannot be seen anymore as running in only one direction, and the two decisions must be solved simultaneously (hence non-separability).

This occurs in two basic cases: (a) when one such market is missing; or (b) when markets exist but are imperfect or partly missing, e.g. because of product or factor heterogeneity (the classic example being the heterogeneity between household and hired labour), or because of transaction costs creating different buying and selling prices for the household. In the former case the household has no alternative but to be autarkic on the specific market that is missing<sup>18</sup>. In the latter case, the choice will depend on whether the 'subjective price' for the household falls within the price band created by the market failure, that is on whether the household will position itself on a corner or not.

Household models have been used extensively in the search for an explanation for low or (apparently) 'perverse' farmer responses to changing economic (namely price) incentives, the typical example being a low or negative change in the supply of food staples as a result of a price increase.

Examples are found in the literature of empirical estimation of both separable and non-separable household models. The choice of the model to use in applied work clearly depends on the characteristic of the study area, and cannot therefore be the subject of generalisations. In fact, as stressed by Strauss (1986), the relevant model may be different for different households within the same study area, posing particular challenges to the empirical work.

Most of the early models were of the separable type. Even in these relatively more simple specification, household models clearly show the complexity of appraising *ex ante* the likely response of farmers to changing incentives and the policy implication that poses. It has been mentioned above that the presence of the profit effect can offset the standard price effect. In several cases, as a result, the sign of the response determined through the model cannot be determined *ex ante*, but remains an issue of empirical estimation.

Singh, Squire and Strauss (1986) review the empirical results of the estimation of separable household models in seven countries in Asia and Africa and show how the inclusion of the profit effect in the model leads to significantly different results. Several interesting features emerge by comparing the elasticities with and without the profit effect in their sample. The own-price elasticity of the price of the agricultural commodity (which is produced by the farm household for both own consumption and market sale) is consistently negative if the profit effect is not accounted for. When the profit effect is included the elasticity becomes significantly lower in three cases and changes sign in four.

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<sup>18</sup> Another factor that may lead to non-separability is the presence of risk (Roe and Graham-Tomasi, 1986).

Similarly significant differences are found for all the other estimated elasticities. The profit effect linked to a raise in the agricultural price is so strong as to induce an increase in leisure in all cases (whereas without the profit effect an increase in the labour supply would be predicted). The marketed surplus, on the other hand, is always found to respond positively to the increase in the agricultural price, even in those cases where own consumption increases.

A priori assumptions concerning the farm household response are therefore very difficult to make, even when the separability condition holds. When there is price endogeneity, the task becomes even more problematic, as the complexity of the model specification and estimation increases. Non-separable models are handled by imposing an initial set of “best guess” parameters (usually) obtained from the literature and solved using calibration algorithms (de Janvry, Fafchamps and Sadoulet, 1991; de Janvry, Sadoulet and Davis, 1995; Omamo, 1998a and 1998b).

Household models have been developed in the literature to deal with both the hypothesis of missing markets<sup>19</sup> and of price bands. In recent years the focus has been on price bands linked to the existence of transaction costs. The remainder of this section will focus on these models as they seem of particular relevance to rural areas in Latin America, where the problem is more one of high transaction costs on certain markets rather than one of completely missing (labour or food) markets.

When there are price bands the problem emerges of determining the market status of the household as net seller, net-buyer or self-sufficient. Such problem is solved in these models by either imposing a categorisation of households according to a predetermined criterion (as in de Janvry, Fafchamps, and Sadoulet, 1991), or rendered endogenous, for instance through a selectivity model (as in Goetz, 1992<sup>20</sup>).

The main general question these models address is not different from the main question addressed by the separable models. A new dimension that is however added relates to the inquiry into the relevance of two main factors behind household participation in markets and their response to market stimuli: i.e. transaction costs and access to assets.

The market imperfections more frequently investigated in this literature concern the labour and food markets. Transaction costs are shown to interact with household asset position to determine the degree of market participation and the sign and magnitude of the responses to market signals.

Goetz (1992) shows how fixed transaction costs, assets, access to information all influence farmers decisions on *whether* and *how much* to buy or sell. Interestingly, his results “suggest that the decision to participate in markets and the decision of how much to buy or sell are influenced by different variables” (Goetz, 1992: p. 450). Perhaps more importantly for the discussion here, this study also points to the fact that better information, access to more productive resources, and lower market transaction costs are all significant variables in determining the position of an household as net seller.

What these results mean from a policy perspective, is that price incentives are by no means the only way to increase marketed surplus. In fact, better agricultural prices may only benefit net selling household whenever it is non-price factors that cause some farmer not to participate in

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<sup>19</sup> Examples of models with absent markets include Chayanov (1966), a model with absent labour market included in Strauss (1986), and Hymer and Resnick (1969).

<sup>20</sup> The model developed by Goetz separates the discrete decision on whether to trade from the continuous decision on how much to trade.

markets or to participate as net buyers. In such cases, policies to reduce transaction costs and access to assets are at least as necessary as ‘getting prices right’, as they improve the capacity of these classes of farmers to respond to price incentives.

In a study of the impact of NAFTA on the rural sector in Mexico de Janvry, Sadoulet and Davis (1995) apply a non-separable household model to a typology of six groups of farmers identified on the basis of a combination of their asset position regarding land ownership (household owning more or less than 1.5 ha/adult) and their market participation regime (net-sellers, net buyers or self-sufficient). Market participation position in this study is determined on the basis of the survey data collected, and ascribed to the existence of price bands on the corn market. They use this framework to show how an analysis disaggregated along these lines yields very different result than an aggregate impact analysis.

The signs and magnitude of the impact of NAFTA on rural household incomes vary greatly depending on the side of the market the household is, and on its asset position. The great distributional implications this have would be overlooked by an aggregate analysis. Their first result is that self-sufficient households would not be affected significantly by the large price decline in corn associated with NAFTA. This is not surprising, but the aggregate analysis would not reveal it so clearly. Furthermore, real income effects have opposite signs depending on the side of the market the household is on. Again, this unsurprising result would not be captured in aggregate analysis.

This evidence points to the need for thoroughly assessing the potentially differentiated impact of homogeneous policies and of exploring the possibility of implementing differentiated policy measures. This is what de Janvry and Sadoulet (1997) refer to as “precision policies”, meaning that while well designed macro (or “universal”) policies are essential, their poverty reduction impact will be limited if they are not complemented by policy interventions that tackle “the differentiated causes of poverty” at the micro level.

De Janvry, Sadoulet and Benjamin (1998) look at the labour market in rural Mexico. In their model, similarly to Goetz (1992), the household position on the labour market (buyer, seller, self-sufficient) is determined endogenously by the model. They show that, in the presence of imperfections on the labour market, the width of the price bands is specific to a household characteristics, and in particular to its access to assets (labour skills, migration, land and other productive assets). These characteristics influence the relationship between the household ‘shadow’ wage and the wage it can command on the market, and hence its decisions on how much labour to allocate to on- or off-farm work.

Other things being equal, a household with more access to land will be more likely to hire in labour than a similar household with less land. In a similar fashion, ownership of productive assets (including skilled labour and migration) positively influences the probability of a household hiring in labour. The presence of factors reducing transaction costs (such as market organisations) contribute to increasing the probability of households hiring labour both in or out. The creation of a set of institutions that would reduce transaction costs, by reducing the scope of the price bands on the labour market, would therefore be instrumental to increasing the productivity of existing resources by inducing a more efficient allocation.

One of the most recent contributions to this strand of literature are two companion articles by Omamo on Kenya (Omamo 1998a and 1998b). The aim of these articles is to reconcile economic rationality with the evidence that farmers allocate much of their land to maize (a food staple in the region) despite (a) the possibility of planting cash crops with higher margins (mainly cotton) and (b) the existence of a vibrant market for maize in the region.

The apparent contradiction is explained by Omamo in terms of high transaction costs on the food market, linked to the poor status of rural infrastructures. Once transaction costs (as approximated by transport costs) are taken into account, it becomes rational for rural households not to rely on the market for their food (Omamo, 1998a). The clear policy implication of this findings is that policies that reduce transaction costs would increase specialisation in crops with an higher margin, and increase farmers real income.

Elaborating on Goetz (1992), Key, Sadoulet and de Janvry (2000) concentrate on food and purchased goods 'marketing' decisions of the rural household. Their goal is to estimate supply response and market participation to predict the impact of policy changes on farm-household production, focusing on the role of farm-to-market transactions costs. Interestingly, they introduce the concept of two different types of transaction costs. Proportional transaction costs (PTCs), which include per-unit costs of accessing markets associated with transportation and imperfect information, raise the price effectively paid by a buyer and lower the price effectively received by a seller. Therefore, "PTCs create a price band within which some households find it unprofitable to either sell or buy", and become autarkic. By contrast, fixed transaction costs (FTCs), which include the costs of *ex ante* searching the best price (or trade partner) and *ex post* negotiating and monitoring the deal, are invariant to the quantity traded, but also affect the household's decision to participate in the market.

This model specifies three farm-household types based on market participation: the autarkic or self-sufficient farmers, the semi-commercial sellers (who only sell part of their output), and the semi-commercial buyers, who purchase crops they also produce). The model predicts that the household will switch from autarkic to seller (i.e. participates in the market) when the decision price is sufficiently high to compensate for the fixed transaction costs. Analogously there is a decision price threshold below which buying is better than non participating in the market. Moreover, the model predicts that the supply response (i.e. the production level) is also a function of the market price under proportional and fixed transaction costs.

The paper also develops an empirical approach to estimate supply response. Using data from corn production in Mexico, the tests provide proof that PTCs are important only for seller, whereas FTCs are relevant for both sellers and buyers. The authors draw several policy implications. First, food price policies will have different supply and welfare effects on producer sellers vis-à-vis buyers, whereas self-sufficient farmers will not be affected. Second, policies that reduce transaction costs (e.g. improving the communication infrastructure and marketing channels) are necessary complements to price policies for increasing aggregate supply and in affecting the supply response of specific farm-households.

As a final note to this brief review, it is interesting to refer in passing to another important contribution that, from a distinct perspective, points to the importance of looking at farming households not as a homogeneous category, but as one whose heterogeneous structural characteristics bear crucial implications for policy. Drawing on Roemer (1982) and Yotopoulos and Lau (1974), who for the first time developed a model disaggregating the farm-household between pre-specified categories of small versus large farms, Eswaran and Kotwal (1986) explain within the farm-household model framework the emergence of different forms of farm organisation. In their model, farm households face two main constraints: a) access to credit, which is determined by the amount of land used as collateral; and b) a limited amount of family labour time, which for the farmers with more access to working capital—and thus to owned land—involves hiring more labourers, and therefore dedicating more time to supervision. Different forms of farm organisation, thus, arise as a result of a moral hazard problem and the constraints imposed by initial asset inequality.

What is the main message behind this literature? Very schematically, one can identify three distinct aspects of particular relevant to the discussion in this paper. First, analysing and predicting household responses to economic incentives needs to take into consideration in an integrated manner the way the household takes its production, consumption, and labour allocation decisions. Failure to do so will generate policy prescriptions that are fundamentally flawed. Second, household heterogeneity as it regards access to assets and transaction costs need to be taken into account, as heterogeneous household may differently respond to and be affected by homogeneous policies. Third, transaction costs and access to assets play a key role in determining farm household response to policy and price incentives. Failure to recognise that results in low policy effectiveness or even in policies having an adverse impact on some classes of farmers (often those that are more likely to be among the poor).

### **III. An Integrated Macro-Meso-Micro Analytical Framework**

#### **3.1 Expanding the standard approach**

SAPs have essentially been based on a neo-classical understanding of the functioning of the economy. In such a framework the prescribed macro policies have a beneficial effect on the economy essentially by providing economic stability and an undistorted set of incentives. Markets are assumed to be working perfectly and to perfectly convey the new ‘undistorted’ price signals, reflecting true economic scarcities, to households and firms. Household and firms predictably react to these in accordance with their specific preferences and factor endowments (including skills). Such micro behaviour hence leads to an optimal allocation of resources at the economy-wide level.

This is what we will call the standard model. It is a deliberately and admittedly oversimplified and stylised representation of the view behind the reform programmes. It is used here not to analyse the reality of SAPs, but to help stress our point about the need for a different approach. Particularly in the early years, SAPs have been based to a large extent on a one-dimensional focus on ‘getting the prices’ right, with a clear neglect of other non-price issues. Although the attention devoted to the functioning of institutions (including markets) has certainly been increasing in recent years, this has been incorporated to a very limited extent in the recent reform efforts. In any case, as it has been shown in Section 2.2 above, a comprehensive approach is still lacking both in the academic debate, and at the policy-making level.

In this section the focus is on identifying three main categories of ‘filters’ that intervene between policy formulation and its outcome to alter the result predicted by the standard approach. Such categorisation, it will be argued, is useful for both ex ante policy formulation, and ex post policy analysis. The three levels are represented in graphic form in Figure 1.

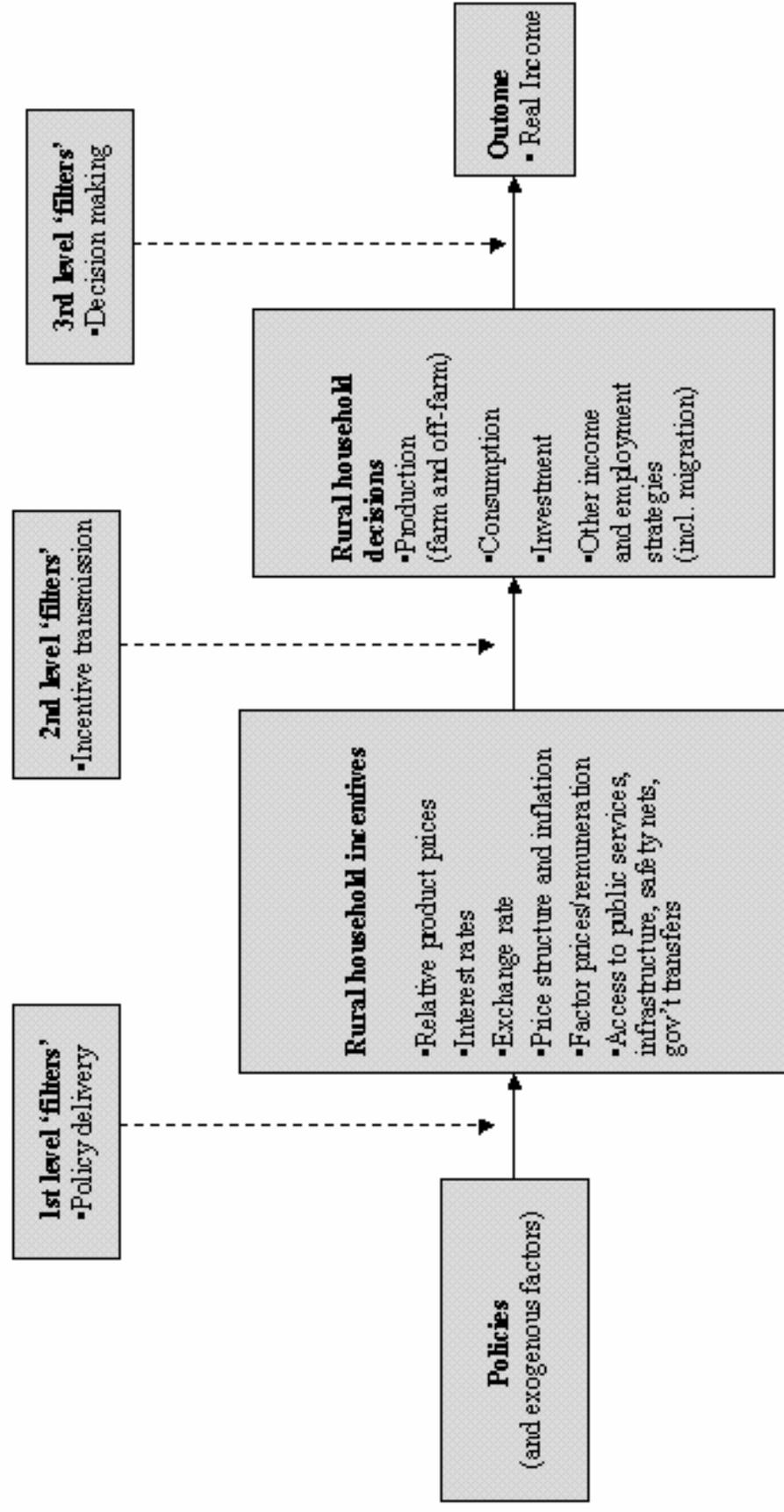
First, there is a set of filters (*‘type-one’* filters in what follows) intervening on what one may call the *policy delivery* level, i.e. the possibility that a given policy measure will not have the desired impact on the incentive it aims at correcting (e.g. a devaluation that only ends up affecting the nominal, not the real, exchange rate). This may be due to either countervailing effects of other policy measures, or to structural characteristics of the economy that are neglected at the policy design stage.

Second, the policy variable is altered in the expected way by the policy, but its *transmission* to some (groups of) household does not quite work as expected (for instance if the real exchange devaluation achieved does not really affect a household because it is isolated from the market for tradable goods). One can identify two broad mechanisms through which policies are transmitted:

the market and administrative channels, or what we referred above as the meso-level. These 'type-two' filters may be operating along both mechanisms. In the same way as households may be isolated from the market for tradables, they may fail to obtain access to publicly provided good and services, because of issues such as e.g. remoteness or excessively cumbersome administrative procedures.

Finally, the changed incentive may be transmitted as intended to the household level, but at the *decision making* level the household response may be different than expected (e.g. when imperfections on a related market, or the household market and/or asset position inhibit the possibility for the household to specialise in tradable goods).

Figure 1- The three levels of ‘filters’ in the ‘policy-chain’?



Such *'type-three'* filters are of particular importance to the approach as they enable capturing the importance of household heterogeneity, as it has emerged in the review of the household model literature above. Some household, despite 'observing' a given change in relative prices to which they would in principle respond, may be prevented to do so due to constraints to their ability to shift resources. Even if connected to, say, the market for tradables, they may lack access to the required credit, or may be forced to continue growing food because of failures on the food market. A household categorisation applied at the right-end side of Figure 1 would allow for capturing such effects. Such a categorisation will however be very specific to the area chosen for the empirical analysis, and would unduly complicate the graphical illustration, so that it is not included in Figure 1.

This simplified conceptualisation is presented here (a) to stress the point about the importance of taking into account the existence of such filters in policy design; and (b) to provide a framework for the empirical analysis of the impact of policy reforms. In Section 3.2 an illustration of how the three-level filters categorisation may be applied to SAP packages is introduced, by means of a few elucidatory examples of relevance to some main features of standard reform packages. This will help clarify how the proposed framework may be put to work in actual policy analysis.

The proposed approach allows analysing two aspects of policy reforms: first, how their impact may be mitigated or distorted as they 'trickle down' to the household level, along the lines just sketched; second, how they do have practical distributional implications that should be borne in due consideration. The latter aspect is often overlooked as SAP measures are often justified in terms of their beneficial effect on resource allocation, through the removal of existing distortions. The impact on different groups of society will however vary, depending on whether they are for instance consumers or producers of certain goods. Although the overall efficiency gain may support the case for such policies as Pareto improving if there is (a potential for) compensation among losers and winners, mechanisms for such compensation are never present (and in fact the presence of such mechanism would probably alter the set of incentives jeopardising the achievement of the expected efficiency gains).

The problem of comparing welfare across different individuals is very often unjustifiably overlooked in the economic debate on the matter. The basic assumption that compensation will happen is on the one hand almost given for granted in the theoretical reasoning (i.e. it is made without fully expounding its implications for the analysis), but on the other hand everyone seems to agree that in practice it will not happen. If poverty reduction is to be a major goal for policy, such distributional aspects cannot be ignored. The standard justification of such policies in terms of welfare improvements seems therefore to suffer serious conceptual flaws, if it translates into policy recommendations that do not explicitly address distributional issues, or foresee the said compensatory mechanisms. The analysis of how such policies impact different groups in society becomes therefore central to making the case for them and for evaluating their actual effect.

As it has been shown in section 2.3, household heterogeneity may be an important factor explaining differential policy responses to and outcomes from homogeneous policy measures as they apply to different social groups. Even assuming perfect policy delivery, different household will be affected differently according to their market and asset position. Case-specific household categorisations seem the only way for satisfactory evaluation of

these issues in the empirical analysis. The proposed framework, particularly through the presence of type-three filters, allows the possibility of introducing household categorisation along these lines in the empirical analysis. This should become clearer in the remainder of this section as illustrations are provided of how the filters may work in practice (section 3.2), and as a simple model is presented to depict more formally the proposed framework (section 3.3).

What this section really aims at, is showing how the macro-micro neo-classical approach expanded along these lines, becomes in fact a macro-meso-micro approach, thus highlighting how the introduction of a meso dimension (transaction costs, imperfect markets, access to assets and markets, household heterogeneity) is key to the understanding of how policy measures translate into outcomes, and is therefore crucial for accurate policy design and implementation. This expanded version of the model may also be fruitfully used in empirical analysis.

### **3.2 The Policy Filters**

In this sub-section we provide an illustration of how the framework developed above may account for a wide range of market and policy failures that are relevant to the design and evaluation of policy reforms. In order to do that, we provide examples of policy and market failures that may be catalogued under each of the three-level filters expounded in the previous section. The discussion will initially focus on how the proposed framework may be applied to an analysis of possible failures intervening at various stages along the real exchange rate devaluation ‘policy chain’ (this being a typical component of SAPs). Examples will also be provided that draw on other policy measures. This will show (a) the diverse variety of phenomena that may be captured within this framework, and (b) how important such filters may be in determining actual policy outcomes.

Exchange rate devaluations provide an excellent example of how filters intervene at various stages and be linked to different factors, and of how all such effects are comfortably captured within this framework. As it has been discussed earlier, many developing countries in Latin America and elsewhere maintained overvalued exchange rates for much of the 1970s and 1980s. This depressed incentives for the exporting sectors, among which agriculture figures prominently.

Devaluations have therefore been a recurrent feature of SAPs, aimed at removing the implicit taxation overvalued exchange rates imposed on the tradable sector, thus inducing a change in the relative price structure and a reallocation of resources between the tradable and non-tradable sectors. This would therefore eliminate a distortion in the incentive structure of the economy and increase the efficiency in resource allocation, as the price structure would now mirror economic scarcity as reflected by world market prices. In general, producers of tradables would be better off following a devaluation, while consumers of importables would be worse off.

Different scenarios can materialise following a devaluation. If everything works as in the policymaker plans, the nominal devaluation will result in a real exchange rate devaluation, and a reallocation of resources towards tradables should follow. But it may also happen that the nominal devaluation is neutralised and does not translate into a real exchange devaluation (a *type-one* filter in the scheme above). If the nominal devaluation does indeed

lead to a real devaluation, the response of the farming sector may still be lower than expected or may be negative for some group of households due to *type-two* and *type-three* filters.

A nominal devaluation will not have its intended (real) effects if it only results in an inflationary process without correcting the external imbalance. This happens when other policies or structural characteristics of the economy exist (e.g. wage indexation, continued fiscal or monetary expansion) that act as countervailing measures on the real exchange rate. If, for instance, there is rigidity in the structure of prices, then a nominal devaluation cannot restore balance. Over time the initial nominal devaluation will be eroded by the increase in prices<sup>21</sup>.

If such factors do not operate, and a real devaluation is achieved, there may still be factors mitigating the effects of an exchange rate devaluation upon relative prices and the allocation of resources between tradables and non-tradables. An example of type-two filter that may intervene, refers to a situation whereas the potential increased earnings of tradable producers are 'taxed' through the monopoly position of traders. Type-three filters materialise when tradable production relies heavily on imported inputs (e.g. agriculture reliance upon imported fertilisers), or when farmers in a certain agro-ecological reasons are not able to shift to tradables due to their particular natural resource endowment. Neglecting an appraisal of the market structure and cost function of farmers will in such cases lead to an a priori overestimation of the possibilities for farmers to reap the benefits of the reform.

Finally, a real devaluation raises the profits of those producing tradables and reduces those of non-tradable producers. In most cases, this means that the poor are on the losers' side unless marginal or subsistence farmers produce tradables or are able to shift to tradable production<sup>22</sup>. These are the typical cases found in much of the household model literature reviewed above. The presence of transaction costs reducing the scope for a shift toward more cash crop production (as for the Sudanese farmers in Omamo, 1998a), and the asset and market position (as in de Janvry, Sadoulet and Davis 1995, study of Mexican farmers) will influence both the sign and magnitude of such effects on different class of producers.

The same type of 'policy-chain' analysis applied above to the exchange rate devaluation example, would apply to any other component of policy reforms. Fiscal adjustment, for instance, is a further main feature present in most SAPs, aimed at reducing the fiscal deficit thus contributing to the stabilisation of the macroeconomy. The beneficial effect of macro-stability on economic incentives, may however be curtailed (through type-one filters) if budget cuts result in an excessive reduction in the government provision of services and infrastructure. This may happen under two different set of circumstances.

First, if the private sector does not step in to fill the vacuum left by the public sector. Second, when the attention given to the reduction of the fiscal deficit is not matched by a similar attention to the implication of the budget cuts on the government capacity to

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<sup>21</sup> In oil exporting countries, such as Venezuela, a real devaluation is also unlikely to have long lasting beneficial effects on the farming sector, as Dutch disease mechanisms can be expected to reverse the devaluation in the medium to long term.

<sup>22</sup> Wage earners will also normally be negatively affected, although there may be wage increases for those working in the tradable production sectors.

continue the supply of those goods and services that are still seen as a domain for direct or indirect government provision.

The resulting shortcomings in the supply of such goods and services, and the inability of government to sustain or undertake new investments in service provision and physical infrastructure may in such cases undermine the ability of households to respond to otherwise favourable changes in the economic environment, such as the increased macro stability linked to fiscal and monetary policies, and the increased opportunities associated with a devaluation.

A typical condition under which type-two filters may be at work, is when formal and informal parallel markets exist. This is typical for instance of the financial markets in developing regions. If that is the case, and there is lack of integration between formal and informal money markets, restrictive monetary policies may have limited effects on rural areas. This may in a way work in favour of the rural sector, that would be less affected than other sectors by the rise in real interest rates, as investment in the rural sector may suffer less than investment in other sectors of the economy that rely more on formal markets for finance.

A similar case of type-two filter is when, in the aftermath of financial liberalisation, credit markets remains segmented due to high transaction costs on both sides of the financial markets (i.e. both the time and resources a credit applicant needs to spend and the costs the banking institution needs to undergo when lending to a disperse clientele - information etc). Policies based only on manipulating the level of the real interest rates, and on financial market regulations may not achieve much in terms of farm household's improved access to formal credit under such circumstances.

Besides transaction costs, domestic market imperfections may be an important factor behind the operation of type-two filters. In the case of trade liberalisation, for instance, the structures of the commodity chain may be such that traders and processors, not farmers, appropriate most of the gains from a tradable price increase. In such cases the price incentives faced by farmers would not be altered significantly by the reform, and their response may be much lower than what could have been expected *a priori*.

In a similar fashion, agricultural produce and input market liberalisation may not generate the hoped for increases in the efficiency of the marketing system. This may happen if concomitant factors limit the profitability of such activities (e.g. remaining policy distortions, excessive government regulations, low commodity prices) so that the stimuli for new private entrants to start marketing activities are low. Particularly in remote areas this may simply lead to the monopoly of the parastatal to be replaced by that of a single local buyer, with no gain for farmers.

Type-three filters intervene when the intended modification in the incentive structure is indeed achieved, and it does reach the households, but these are not in fact able to react in the expected way because their ability to shift resources according to the new set of incentives is limited by the constraints they face in access to assets or to relevant markets. One example of such a filter, is when financial liberalisation, accompanied by the withdrawal of subsidised government credit programmes from rural areas, impacts on rural households that lack access to land or to formal land titles. Even if willing to obtain credit and able to repay it under the new market and policy conditions, such farmers may not be

able to obtain credit on the formal markets due to their lack of collateral. The change in the formal market interest rates and in the overall rural financial system does not therefore really represent a change they are able to respond to.

Household heterogeneity with respect to assets and markets is a key aspect in the operation of this type of filters, and for explaining the differentiated policy outcomes they generate. With respect to, say, the impact of trade liberalisation one may think of households (and/or regions) that may be excluded from the production of tradable goods either because of the particular agro-ecology, or because of little access to markets, as a result of a deficiency of infrastructures and the associated high transport and other transaction costs.

Besides, the poor may suffer disproportionately from the increased price volatility associated with greater openness and reduced government intervention in markets, as they have less access to ways to reallocate resources according to prices changes, less ability to hedge against price risks (e.g. by building up stocks), and may be forced to buy in food particularly during ‘the hungry season’, when prices are higher and their resources lower (see Carney, 1998). Imperfections, transaction costs, or lack of access by the poor to product and credit markets may hence lead to adverse effects of product market liberalisation on them.

Also, land policies intended to favour the poor, such as stimulating the land sale market, may in fact turn out to be detrimental to them when concurrent market failures are present. For instance, if due to various types of market imperfections (e.g. when land is valued as a hedge against risk and uncertainty, because alternative hedging mechanisms are not developed) the market price of land increases above the capitalised value of the stream of profits land can generate, the land sale market may not favour the poor (who may in such cases access land more easily through the land rental market or other tenancy arrangements).

Heterogeneity is also central when analysing fiscal policy reform, and in particular the composition of expenditures and the structure of budget cuts. A typical example is that of a cut in food subsidies. This will harm the poor only to the extent that they were actually benefiting from the subsidies, and that the programme is not replaced by an alternative programme of better targeted subsidies. To the extent that such policies result in higher agricultural and food prices, their effect on rural households will clearly depend on their market position as net buyer or sellers of agricultural (particularly food) products.

Trade liberalisation may also have complex effects through wages, that can only be fully captured if heterogeneity is accounted for. Inducing a shift in resources towards exportable goods, relative to non-tradables and domestically produced tradables previously protected under the import substitution strategy, it will have an effect on the wage earning poor that will essentially depend on the relative labour intensity of the various categories of goods.

### ***3.3 The Meso-Economy, Policy Filters, and the Structure of Incentives: A Simple Model***

The previous sections have shown how a pure neo-classical approach to policy reform fails to take into account relevant variables at various levels in the ‘policy-chain’. In this section a simple formalisation of that conceptual framework is attempted by developing a series of (sequential) relationships that link the policy attempt to influence aggregate variables

(referred to as macro-prices<sup>23</sup>) to how that actually translates into a change in the incentive framework faced by economic agents (rural (farm) households in this case). In doing this we will draw heavily on the three levels of ‘filters’ introduced in Section 3.1 and on the household model literature reviewed in Section 2.3. The underlying idea is that of working towards a more formal and comprehensive view of the meso-economy than what is found in the literature reviewed in Section 2.2 above.

The main idea is simple. In the perfect world of neo-classical theory, where markets clear without any friction or cost, there is – with few exceptions – no need for policies. The interaction of supply and demand determines prices and economic agents respond to that set of prices. At this level one may talk of ‘pure macro-prices’. In the ‘real world’, however policies do exist, and what they aim at doing is influencing agents behaviour through actions that aim at intervening either directly on prices or on non-price aspects that can however be easily translated into price-like incentives for the sake of this analysis (e.g. the result of public-funded research may be conceptualised as a subsidy lowering the price of an input). Pure macro-prices are therefore altered by policy, and become what may be termed ‘effective macro-prices’. The relationship is exemplified in the following equations:

$$P_i^M = f(S_i, D_i)$$

$$P_i^E = g(\alpha_b G_b, S_i, D_i) \text{ with } 0 \leq \alpha \leq 1$$

where  $P^M$  and  $P^E$  are respectively the pure and effective macro-prices on each market  $i$ , including the labour, capital and foreign exchange markets. S and D are aggregate variables representing supply and demand on each market<sup>24</sup>, and G represents a vector of government policies, denoted with  $b$ 's. The parameter  $\alpha$  reflects the fact that policies, as discussed under type-one filters in the preceding sections, may fail to modify the macro-price as desired by policymakers. If  $\alpha$  equals 1 than the policy has a perfect impact (e.g. a 10 percent nominal devaluation achieving 10 percent real devaluation); if  $\alpha = 0$  than the policy does not have any of the expected impact on the price incentive (e.g. a nominal devaluation being completely neutralised and thus not resulting in any effect on the real exchange rate).

A first set of question therefore refers to what affects the value of parameter  $\alpha$  for each specific policy, as this is a first stage at which policy failures, in the sense used in this paper, may intervene. Effective macro prices may differ from pure macro prices (and from pure macro prices with perfectly transmitted policy impact, if  $\alpha$  is smaller than 1). With a similar approach further levels of policy (and market) failures may be investigated. In the ideal frictionless world, all economic agents would face a similar set of prices, as markets do not have temporal nor spatial dimensions. If markets do have these dimensions and the

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<sup>23</sup> This follows a terminology used in a similar manner in FAO (1995).

<sup>24</sup> Price formation on aggregate markets will not be investigated here. In this sense macro-prices are exogenous to our framework. Endogenising them would amount to developing a full-blown CGE approach, which would make the model excessively data demanding. While we are aware of efforts to integrate household models into CGE models (e.g. Lofgren and Robinson, 1999) to account for the general equilibrium effects of household responses, our framework stops short of analysing general equilibrium implications.

functioning of institutions (including markets) matter, as it happens in the ‘real world’, the picture is different.

Different agents may in fact face different incentive structures, as a number of factors intervene in the passage between the formation of macro-prices and the level at which agents make their decisions. In what follows the discussion will focus on the perspective of rural farm households, although the framework may apply to any economic agent. Besides facing different prices, agents may also face different sets of constraints, in the form of, for instance, access to assets. To continue reasoning in terms of how the policies ‘trickle down’ to the household level, one may return to the distinction made above between (a) households not receiving the expected price signal from policy (e.g. because of some degree of isolation from the specific market) – a type-two filter, and (b) households receiving the signal but not responding as expected, e.g. because of either constraints to shifting the allocation of resources or because of imperfections in related markets – a type-three filter.

This may be exemplified by taking the development of the above relationships one step further. One may therefore speak of a third level of prices, which may be termed household-level prices,  $P^H$ , and are composed of the macro-price plus an idiosyncratic component that relates to the household specific conditions. A household may for instance face very high transaction costs in accessing one market (e.g. the food or credit market), or even be completely isolated from other markets (e.g. the tradable markets, or particular segments of the labour market). The household-specific set of prices can therefore be defined as:

$$P_{i,h}^H = h(P_i^E, P_{i,h}^T) \quad [1]$$

where the subscript  $h$  denotes the specific household, and where  $P^T$  is the additional household-specific component.  $P^T$  will therefore depend on issues such as the transaction costs the household faces in the specific market, but also to factors related to the structure of the particular market (such as the way margins are appropriated along a particular commodity chain). The relationship is not simply additive, because  $P^T$  may be formed of a fixed and a proportional component, related to the Fixed and Proportional Transaction Costs (FTCs and PTCs) identified in Key, Sadoulet and de Janvry (2000).

$P^T$  may hence be defined as:

$$P_{i,h}^T = p_{i,h}^V + \bar{p}_{i,h}^F \quad [2]$$

where  $p^V$  is the proportional component and  $\bar{p}^F$  is the fixed component. It should also be noted that policies may in fact exist that have a bearing on the magnitude of  $P^T$ , such as investments in infrastructure that reduce the transaction costs in accessing a particular market, but more on this later.

With the set of incentives defined this way, the stage is ready to return to the farm household decision-making, drawing on the literature outlined in Section 2.3. Following Strauss (1986) the household model introduced in 2.3 may be specified in a slightly different manner. The household utility function may be written as:

$$U(X_1, \dots, X_L)$$

where the  $X_i$ 's denote the household consumption of a commodity  $i$ , with  $L$  being leisure. The household maximises its utility subject to a budget constraint:

$$Y = \sum_{i=1}^L p_i X_i \quad [3]$$

where  $Y$  is the household full-income defined as:

$$Y = p_L T + \sum_{j=1}^R q_j Q_j - \sum_{i=1}^W q_i S_i - p_L L + NF \quad [4]$$

with  $p_L$  being the wage rate,  $T$  being the total household time endowment,  $Q_j$ 's being  $R$  different outputs,  $S_i$ 's being  $W$  variable non-labour inputs,  $L$  total household's labour demand,  $q_i$  and  $q_j$  the prices of outputs and inputs, and  $NF$  exogenous income. If  $K_i$  are fixed inputs, the household production function can be defined as:

$$G(Q_1, \dots, Q_R, S_1, \dots, S_W, L, K_1, \dots, K_Z) = 0$$

Substituting the prices ( $q_i$ 's and  $q_j$ 's as well as  $p_i$ 's) as defined in [1] and [2] into [3] and [4], and omitting for simplicity the household subscript  $h$ , the budget and full-income constraints may now be written as:

$$Y = \sum_{i=1}^L [(p_i^E + p_i^V) X_i + \bar{p}_i^F] \quad \text{budget constraint}$$

$$Y = p_L T + \sum_{j=1}^R [(q_j^E + q_j^V) Q_j + \bar{q}_j^F] - \sum_{i=1}^W [(q_i^E + q_i^V) S_i + \bar{q}_i^F] - p_L L + NF \quad \text{full income constraint}$$

with  $\bar{p}_i^F, \bar{q}_i^F, \bar{q}_j^F$  equal to zero for each  $X_i, S_i, Q_j$  equal to zero.

This is the standard household model<sup>25</sup> augmented with an idiosyncratic household-level price component, and a policy-transmission-failure component (embedded in the  $\alpha$  parameter implicit in the  $p^E$ 's and  $q^E$ 's). What it tells, is that the set of incentives that is relevant to the household decision-making includes a substantial part that is not affected by price-based policy measures. Neglecting that, results in an overestimation of the potential of price based measures. Even if what matters are price changes at the margin, the full-income constraint above suggest (a) that policy induced price changes may need to be very substantial to have a real impact on households facing large idiosyncratic components, and (b) that the discrete changes associated with the fixed components (or by the price bands linked to differences between buying and selling prices) may result in households being isolated from certain price stimuli, at least within a certain range<sup>26</sup>. At the same time, this way of approaching the study of the 'policy-chain' provides a framework for appreciating the relevance of these components, both at the policy design and at the policy analysis stages.

Two other aspects concur to determine the way homogeneous policies may impact households in heterogeneous ways: their assets and market position, and their access to goods and services provided by the state. These apply in this framework exactly as in the standard household model framework. Households that are net buyers of a good or service that becomes more expensive will be worse-off as a result, and vice-versa for net sellers. Similarly, resource switching may be constrained by the existence of price-bands or constrained access to assets, just as in the household model reviewed in Section 2.3.

Type-two filters intervene when the change in a specific macro-price induce by a policy is not observed by the household because transaction costs or other filters (including administrative procedures, when the relevant policy variable is, say, the public provision of a service) are such that the household is isolated from that market. Type-three filters occur when the household is not isolated, but cannot react to the observed price change due to failures in other markets or lack of access to 'complementary' markets or assets required to perform the resource reallocation.

What this kind of framework adds to existing approaches is that (a) it provides a way of identifying critical links in the 'policy chain' where policies may 'get diluted' or neutralised (hence also providing guidance for policy inasmuch as policies exist that may have an impact on those links); (b) it allows the analysis of failures along both the market and the administrative mechanisms through which policy changes are transmitted to the household-level; (c) it brings together into one framework approaches ranging from macro-policy analysis, to commodity chain analysis, to micro-level household modelling; (d) it is a starting point to analyse in a quantitative manner the transaction costs and other 'filters'

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<sup>25</sup> To keep the notations simple, imperfections in the labour market and heterogeneity between family and hired labour have not been introduced in this specification, and the labour remuneration component is simply  $P_L$ . They would most likely be relevant in any empirical analysis, but have not been introduced here, as they do not affect the substance of the argument nor the structure of the model, at this level of generality.

<sup>26</sup> Similarly to the market participation regime issues investigated by de Janvry and colleagues in some of the papers quoted in Section 2.

that intervene between the macro and micro levels, not in a residual manner (as transaction costs are usually imputed by the NIE literature) but through a process of actual (if tentative) measurement of the specific segments of such ‘filters’. Again, this may help identify policy relevant issues that are lost if such segments are all consolidated into one variable (let alone if they are outright ignored).

#### **IV. Research Suggestions and Policy Implications**

The generation of policy reform that started in the 1980s in Latin America and elsewhere in the developing world, to which this paper has referred with the general term of Structural Adjustment Programmes (SAPs), was by and large founded, at least in the early stages, on the conviction that “getting the prices right” would induce rapid growth. Economic growth, it was also assumed, would trickle down to the poor who would respond by adjusting their production and consumption patterns to their redefined incentive structures. But policy reforms fell short of achieving their stated objectives, and even if substantial ‘adjustments’ were achieved, the agricultural sector response has been slower than predicted. Can therefore SAP-type reforms be relied upon to reduce poverty while inducing growth, or need they be complemented by other policy interventions?

The increasing awareness with policy reformers of the persistently high levels of poverty and inequality (the latter particularly high in Latin America), led to a radical change in the policy agenda during the mid-1990s. Well-designed macro-economic policy reforms, it was acknowledged, had underperformed due to *inter alia* market failures limiting supply response. Another possible explanation is that policies had fallen short of expectations because of ill-design or implementation problems, the latter two linked to administrative flaws of the public sector.

Thus, the debate shifted to trying to explain how can the adverse impacts of adjustment on low income vulnerable groups be mitigated and the favourable ones enhanced, and on how to accelerate and facilitate adjustment. Additional questions pertain to how to tackle the effects of what this paper as referred to as the meso-economic conditions impacting on the efficiency of the factor and product markets, and on the efficiency of the provision of goods and services by the state. How can an economic growth strategy be devised that provides high elasticity of poverty reduction with respect to growth?

Our task in this paper was to develop an analytical framework which could provide some hints of how to find the answers to such questions through empirical country and locally-specific case studies. Based on the framework developed in the paper, in the next two sections we provide: a) clues as per how three different research strategies may be developed; b) some policy implications.

##### **4.1 Suggestions for empirical analysis**

One of the main objectives of this paper has been to develop an analytical framework able to generate empirically testable propositions capable of assisting policy-makers in identifying the causes of policy reform failures, and hinting solutions to them. Both insufficient theorisation and information deficiencies have been among the factors behind the unsatisfactory results of some of the reform programmes.

The analytical framework proposed in this paper is an attempt to overcome both types of limitations. It attempts to bridge the gap between traditional macroeconomic and microeconomic analyses, by focusing on the different types of filters mediating the effects of policy reforms as they modify the incentive structures faced by different types of rural households. Adding complexity along these lines to the traditional macro-micro neo-classical approach to policy analysis requires careful attention so that the added complexity does not go beyond what is tractable in empirical analyses.

Data requirements might become easily unmanageable. Besides there are undeniable measurement problems in some of the factors that need to be accounted for<sup>27</sup>. Therefore a proper mix of quantitative and qualitative data should be brought into the analysis. A balance needs to be struck between the amount and quality of data.

The analytical framework is open to different kinds of research strategies, each one presenting its own advantages and disadvantages. Depending on which dimension of the analysis is necessary to stress to solve specific research questions, or even depending on the conditions of a specific research project (e.g. time, budget, availability of previous data, skills), it is possible to hinge on three analytically distinguishable research designs: one stressing the time dimension, another emphasising the spatial dimension, and yet another highlighting sectoral differences between commodities (and commodity chains).

A first possible research strategy is to analyse how the magnitude of the different filters changes over-time and to relate that to the changes in policies and other exogenous conditions. As with any longitudinal study, the main constraint becomes the choice of benchmark data. In other words, how do we construct base-line scenarios for identifying how was the incentive structure *ex ante* policy reforms. If the relevant data are not available, how do we proceed? Filter one in the framework calls for analysing the degree of implementation and consistency of policy reforms. There are, however, many possible complications for arriving at definite answers as to the exact causes of observed changes in policy results. The occurrence of external shocks, other than policy reforms, is just one of these factors. At the local level of analysis, if previous case studies can be identified where quality data on past market failures (including transaction costs) are available, this type of analysis can be accomplished by drawing on the existing case-studies and updating the available information. If previous data are not readily available, this research strategy becomes much more demanding in terms of data collection and time needed.

An alternative (although sometimes complementary) strategy, could be that of focusing on cross-country, or even sub-national, rather than over time differences. Similar rural households in different localities within a country, or across countries, could be analysed to observe how the relevance of the three filters vary with the specific conditions each group of rural household faces. From the point of view of the policy implications of the results, this research strategy faces other types of challenges. Case-studies cannot be representative of a large population from a statistical perspective, because they usually cover a few cases, or --particularly in within country cross-regional comparisons-- a relatively small

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<sup>27</sup> The scarcity of reliable empirical evidence, for instance on transaction costs, has not happened by chance, but because of the intrinsic difficulty of attributing values to the frequently unobserved components of some of these costs.

geographic (and economic) area. Unless reliable information is achieved about the initial (national and supranational) conditions and the specific characteristics of the policies implemented, results derived from cross-country and sub-national cross-local comparisons, particular those based on aggregated data analyses, cannot be conclusive, but only indicative of wider trends. A major rationale for these cross-country and cross-local (e.g. village or district) case studies, however, particularly when analysing meso-economic variables, is that the results of policy reforms to a large extent depend on institutional variables, that typically differ among countries and even among localities within a specific country.

Still another strategy may focus on more in-depth analyses of the different types of markets and commodity chains particular types of rural households are engaged in. One example would be comparing farmers engaged in a specific type of production for the domestic (national and/or regional and/or village) market as opposed to farmers oriented towards export markets, as one may look at export markets as involving an extra layer of transaction costs not faced by producers for the domestic market. In an analogous manner the analysis may be conducted comparing ‘similar’ farm households across countries, to elicit for instance how a different policy environment will have an impact on how these variables work in similar agro-ecological zones and for producers engaged in similar agricultural activities (thus also controlling for some exogenous factors such as world market conditions).

An interesting line of inquiry to be pursued within the above ones, would refer to the different role played by proportional as opposed to fixed transaction costs, and in general to what kind of transaction costs and other ‘filters’ may be more important and have what effect under what circumstances. An interesting aspect of such type of analysis would relate to the complementarity between different types of transaction costs and ‘filters’ (e.g. how different classes of transaction costs interact within the same market or across markets).

In all these research strategies, the analysis of the transaction costs related to the bureaucratic procedures in accessing the public provision of good and services provides a rather innovative type of concern. In the framework, administrative transaction costs within the policy chain are assimilated to the other market-based transaction costs, and can therefore be empirically analysed in a similar fashion as other more ‘conventional’ cost categories. At the micro-level, the analysis could follow the blue-print of productivity analysis, by estimating production function that include explicitly measured transaction costs components, so as to compare efficiency differentials among producers in terms of observed transaction costs as well as other inputs.

#### ***4.2 Policy implications***

The framework presented in this paper has been instrumental in clarifying different levels at which the policy stimuli generated at the policy-making level may be diverted, mitigated, or discontinued along what has been termed the ‘policy chain’. In particular a three-level set of filters has been conceptualised. In addition to that, the framework provides a way of taking into consideration how each household may face different incentive structures as a result of household heterogeneity with respect to access to markets, assets, and publicly provided goods and services.

The above considerations have implications relevant to both the efficiency and the equity consequences of policy reforms. On the one hand, the reallocation of resources to their most productive uses that policies aimed at may not be achieved. On the other, even in a fast growth scenario, some groups in the society may be losing from the reform. If such groups happen to be the poor and vulnerable, this clearly raises reasons for concern. In sum, if one of the objectives of policy reform is to reduce poverty, the various sources of policy and market failure, and of household heterogeneity among the poor should be key at the policy design stages. The framework presented can help policy makers in analysing such complex issues and coming up with more nuanced reform strategies than in first-generation SAPs.

In what follows the discussion will focus on the policy implications that stem directly from the framework as presented in this paper. The main point we want to convey is that although the proposed conceptualisation and the related framework do not certainly offer a new set of policy instruments, they can contribute to achieving better results essentially through greater accuracy in the way existing policies are co-ordinated, designed and implemented.

The approach taken in this paper points to the importance of integrating meso- and micro-level variables into policy-making at all levels, including the macro. More importantly, the proposed analytical framework spells out a practical way (a) to take into account the interactions among the relevant variables at the various level, and (b) to evaluate how these variable operate in a specific context (e.g. through an analysis of the kind suggested in the preceding section).

Reverting to the three-level filters developed above, may help clarifying the main message. Type-one filters point to the lack of coherence among policies, and to the failures arising from a neglect of certain structural characteristics of the economy, as they emerge particularly at the policy design stage. In part these may be due to a lack of understanding of the economic relationships (i.e. to deficiencies in economic theory). Perhaps more importantly for policymakers, however, these shortcomings may be due to lack of institutional and implementation capacity on the part of the state.

Type-one filters may also be related to the influence of exogenous factors in influencing domestic policy outcomes. As economies become more open, this assumes ever greater importance in analysing policy impact particularly at the aggregate level, as the weight of external factors (e.g. global and regional trade rules, international environmental agreements, volatility in international financial flows and commodity prices) increases. The capacity of domestic policies to have a real impact may hence be diminished by the concurrent operation of factors beyond their control.

A varied set of policy implication relates to the existence of type-two filters, i.e. those filters that prevent particular group in the society to 'observe' particular changes in the relative price structure induced by policy measures or to access publicly provided goods and services. These refer essentially to the overcoming of the market and policy failures created by various types of market-based and 'administrative' transaction costs.

The type of policies such filters point to are the standard policies called into play in the literature on transaction costs and informational problems: infrastructure, transport and communications, human capital, marketing information, market regulations, a sound legal

framework for market transactions etc. One additional element that the approach presented here stresses with respect to the standard ‘institutional’ recipe is the need for policy design to minimise bureaucratic or administrative transaction costs that arise for instance through excessively cumbersome procedures for accessing public programmes.

Type-three filters are particularly important when looking at the distributional effect of policies, but their importance is not limited to that. As far as poor households are unable to respond to and benefit from reform because of, say, lack of assets, then there is a clear justification for improving access to assets or for outright asset redistribution. A detailed analysis of such aspects of household heterogeneity may therefore be key to accurate design and appreciation of the likely efficiency effects of, in this example, redistributive policies.

Idiosyncratic household transaction costs can be identified that relate to: (a) access to markets; (b) access to assets; (c) access to publicly-provided infrastructure and services. Similarly, policies may be devised to reduce these transaction costs: (a) asset redistribution; (b) infrastructure building; (c) market promotion; (d) budget priorities in the provision of "public goods".

Discussions on each one of these measures, and many more than are not recalled here, are common in the literature, so we will not elaborate on them. The levels at which this paper attempts to make a contribution to the debate are different. First, it aims at connecting such micro-level features to the macro-level policy debate, something that is often neglected among both (national and international) policymakers and academics. Second, it aims at providing a framework to analyse such linkages, both *ex ante* (in policy design), and *ex post* (i.e. in policy analysis). Third, it wants to stress the need for finely tuned measures to accompany economy- and sector- wide development programmes. We join de Janvry and Sadoulet’s (1997) call for more emphasis on ‘precision policies’ to accompany ‘universal policies’.

The wealth of policy implication that may result from the application of this framework to empirical case studies is therefore vast. This paper is just a first attempt to open wider perspectives.

## ANNEX 1

**Table 1a: Percentage of Persons Living in Poverty and Absolute Poverty in Latin America, 1980-94\***

	Poverty			Absolute Poverty		
	Total	Urban	Rural	Total	Urban	Rural
1980	35	25	54	15	9	28
1990	41	35	58	18	12	34
1994	38	32	56	16	11	34
1997	36	30	54	15	10	31
1999/e	38	32	56	16	11	33

**Table 1b: Millions of Persons Living in Poverty and Absolute Poverty in Latin America, 1980-94\***

	Poverty			Absolute Poverty		
	Total	Urban	Rural	Total	Urban	Rural
1980	135.9	62.9	73.0	62.4	22.5	39.9
1990	197.2	120.8	76.4	91.9	45.4	46.5
1994	209.3	135.4	73.9	98.3	51.9	46.4

\* 19 countries in the region

/e Estimates based on observed changes in macroeconomic indicators

Source: ECLAC data as quoted in Ruben G. Echeverría (1998), and ECLAC (2000).

Notes: The poverty line is defined as that level of income beneath which a person cannot meet daily nutritional requirements and other basic needs (hygiene, clothing, education and transport). The absolute poverty line is defined in terms of income insufficient to meet the minimum daily nutritional requirements. Poverty indicators include those living below the absolute poverty line.

**Table 2 – Poverty in Latin America and the Caribbean – World Bank data**

**Population living below \$1.08 per day at 1993 PPP**

	Headcount index (%)					Number of poor (millions)				
	1987	1990	1993	1996	1998	1987	1990	1993	1996	1998
<b>LAC</b>	15.33	16.80	15.31	15.63	15.57	63.66	73.76	70.69	75.99	78.16
<b>World</b>	28.31	28.95	28.15	24.53	23.96	1183.19	1276.41	1304.29	1190.58	1198.88

**Population living below \$2.15 per day at 1993 PPP**

	Headcount index (%)					Number of poor (millions)				
	1987	1990	1993	1996	1998	1987	1990	1993	1996	1998
<b>LAC</b>	35.54	38.09	35.07	37.00	36.44	147.56	167.21	162.20	179.82	182.86
<b>World</b>	58.22	58.77	58.59	57.75	57.60	1796.61	1918.84	2020.54	2096.53	2168.91

Source: Chen and Ravallion (2000)

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