Taxonomy of Causes, Impacts and Policy Responses to the Food Price Crisis in the Andean Region

by

José Cuesta
Fidel Jaramillo

Inter-American Development Bank

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Abstract[1]

This paper analyzes the causes, effects and policy alternatives associated with the recent international food price crisis in the Andean region. Additionally, the document makes a first approach to the policy options utilized to confront the crisis, discussing the mix of policies and their potential effectiveness, using a qualitative methodology based in part on schemes proposed in Manzano and Stein (2008), and Malarín (2008). A final section underscores various messages common to the countries of the region. Specifically, the report concludes that this crisis offers a great opportunity for transforming its uncertainties and costs into a stimulus for maturing an infrastrulus of prevention and reduction of vulnerabilities in the Andean economies.

Keywords: Food crisis, Distributive impact, Simulation, Compensatory policies, Andean region.
JEL Classification: O20, O18, I30

1. Introduction

Enormous uncertainties currently exist in regard to the extent and repercussions of the international food price crisis. Recent Food and Agriculture Organization (FAO) estimates speak of over 850 million people suffering hunger whose expectations of overcoming this situation have been set back by increases in the prices of basic foods. In addition, there are many other households that could join the hungry as a result of higher food prices. Even though the recent high-level summit held in early 2008 in Rome and sponsored by FAO increased the commitment of rich nations and international donors to contribute a total of US$18 billion, this amount is still very much below that organization's estimates of the US$30 billion annual cost of eliminating hunger.

In this context, this document attempts to analyze the causes, effects and policy alternatives in Latin America and the Caribbean in relation to the international food price crisis. The study concentrates on understanding the orders of magnitude of the crisis in the Andean countries (Bolivia, Colombia, Ecuador, Peru, and Venezuela), describing in Section 2 the international crisis through stylized facts and their concretization in the Andean countries. Section 3 provides a first approach to the repercussions of the crisis on the external and productive sectors, especially agriculture. This section also presents the distributive aspects of the crisis by means of a simple simulation exercise which isolates the direct and short-term effect of the strong but unequal increase in certain food prices on consumers and producers in each country. Section 4 presents and compares the policy options selected in each country to tackle the crisis, grouping them into three blocks of measures: macroeconomic policies, compensatory social policies, and supply-side policies. The document analyzes the potential effectiveness of each policy in each country, using a qualitative analysis of expected impacts on a series of desirable properties of interventions. Section 5 presents the conclusions, underscoring various messages common to the Andean countries irrespective of the repercussions of the crisis, its impacts and the policies adopted.

2. Current Food Price Crisis in the World and the Andean Countries

There is now a general consensus that food prices have risen due to the coincidence of various causes related to supply and demand on a global scale. These factors are the higher price of energy, especially oil; increased demand (in both quantity and variety) for food by countries such

as China and India; restrictions on supply following natural disasters associated with climate change;[2] and diversion of agricultural production, particularly corn, from food to bio-fuels. There is less consensus, however, on the implications of speculative practices on futures markets in agricultural commodities. The proportion of total production traded on these markets is relatively small, although growing, and part of the transactions on these markets consists of legitimate operations to protect against future risks (IFPRI, 2008a). Moreover, there does not seem to be a consensus on how long the crisis can be expected to last, mixing factors which a priori seem short term (such as natural disasters) with others seen as structural (such as growing demand in China and India or high energy prices).

Food prices has risen to record levels for the last 50 years, with a strong acceleration in the last two years in the context of an already growing trend of nominal prices coinciding with the change of millennium, as shown in Figure 1 below. In other words, the acceleration of food prices during the last two years has been especially pronounced, following on the upward trend in previous years. The foods especially affected include wheat, corn, rice, soy, sugar and beef.

As important as this general acceleration in nominal prices may be, the situation in real terms is very different. The aggregate level of food prices is now lower than in 1957 in real terms, but as seen in Figure 1 the trend of the last two years is also upward (although more moderately than in nominal terms). It is interesting to note that international food prices are 3.5 times higher than food prices 50 years ago (even though world consumer prices between 1969 and 2007 increased 72 times worldwide—compared to only six times in the United States—according to information from the Monetary Fund); in contrast, in real terms the current price level is only slightly more than that of 50 years ago.

Although the price increase in the last two years is comparable in nominal terms with the energy crisis of 1973, in real terms that event was much more abrupt than the current crisis. Although the data are not presented here, the events of 2008 confirm that these conclusions are also valid for the foods mentioned above, except wheat, whose current nominal rise exceeds even 1973. These figures also indicate that major energy and food price crises go hand in hand. This phenomenon makes the case of the Andean countries especially interesting since they are net producers and exporters of oil and energy, which places them in an initially advantageous

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[2] In the Andean region alone there have been ten episodes of flooding and extreme temperatures - in Bolivia, Colombia, Ecuador and Peru - which caused substantial losses of crops in three of these countries. According to FAO, these episodes generate food insecurity in Ecuador and Bolivia.

position for dealing with a food price crisis when compared to other Latin American and Caribbean countries. How solid that position is—and how it varies from country to country—are discussed below.

Figure 1. Increase in the International Food Price Index
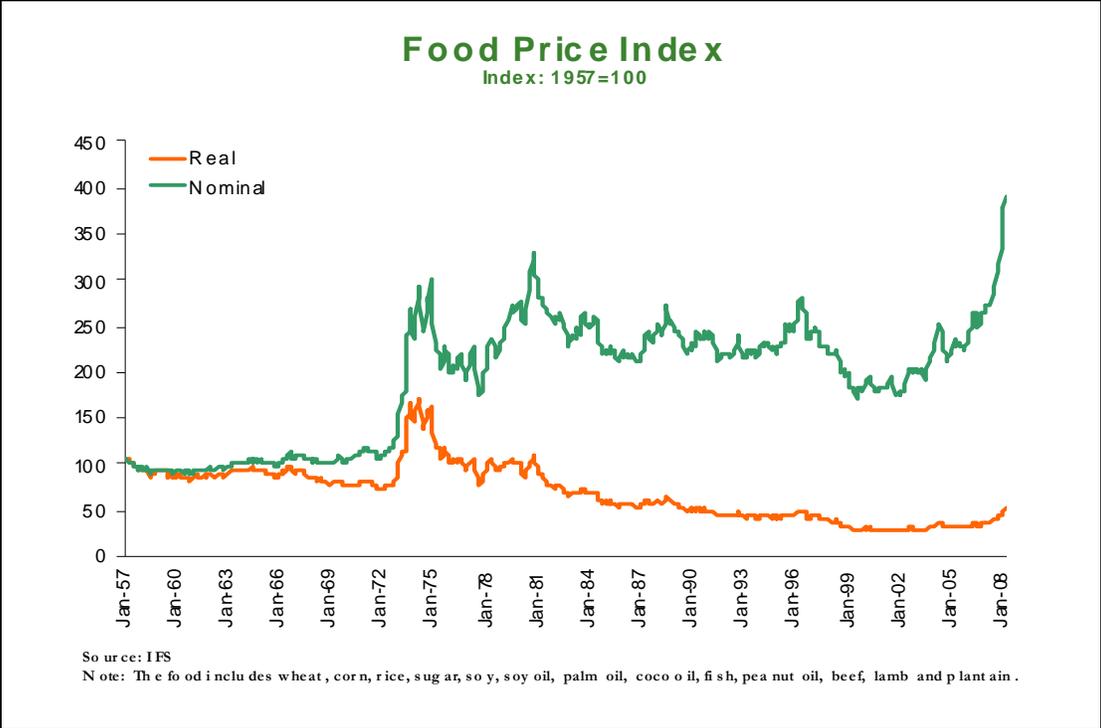
Among the Andean countries, Bolivia has seen annual food inflation more than double between 2006 and 2007 from 6.8 percent to 19.8 percent. Venezuela, which already had double-digit food inflation, has also suffered from strong inflationary pressures. Although food inflation in Peru increased from 1.7 percent to 6 percent in this period, the figure is still low in comparison with the other Andean countries. Colombia and Ecuador recorded the lowest inflationary impact of food products. Inflationary pressures continued in the first quarter of 2008. This trend for the Andean countries is mixed in relation to food inflation in other countries of Latin America and the Caribbean: in Venezuela and Bolivia the increases are higher or very much higher than the regional average, but more moderate in Colombia, Ecuador and Peru.

Figure 2. Comparison of Price Increases in Latin America and the Caribbean
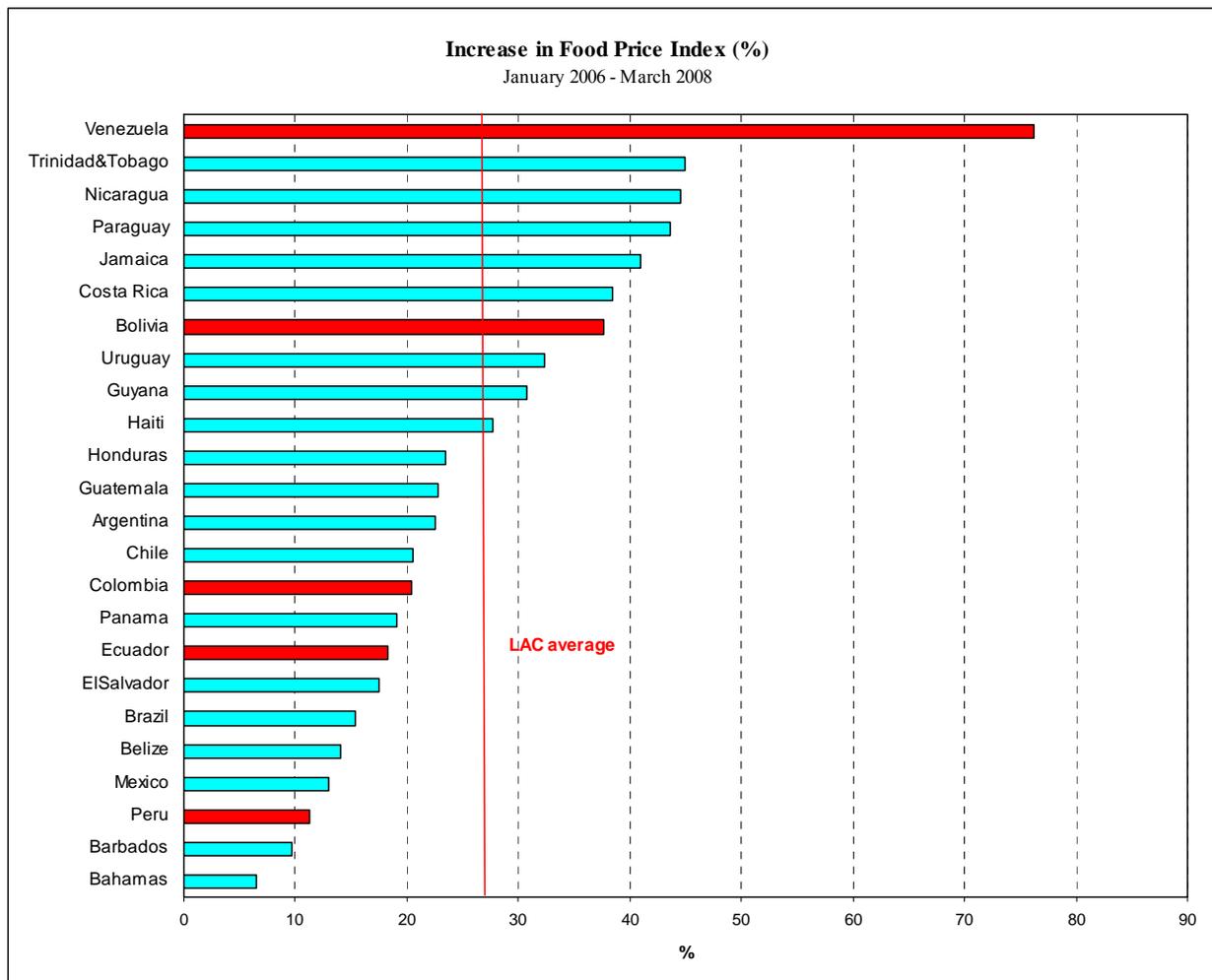
Increase in Food Price Index (%)

January 2006 - March 2008

Source: IDB calculations based on data from national statistical agencies and central banks.

The consequences of this price increase on the general price level are substantial in the Andean region, but there is no homogeneous or general impact. Figure 3 shows different orders of magnitude for the price increase in each Andean country. Part of the explanation is that food represents different weightings in each national basic basket. It is precisely in the countries where food has greater weight in the basic basket—Bolivia and Peru—where inflation increased most rapidly (49.1 percent and 47.5 percent, respectively). The comparable figure was 25.1 percent in Ecuador, 25.6 percent in Venezuela and 29.5 percent in Colombia.[3] However, the change in the general price index cannot be attributed exclusively to the trend in food prices.

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[3] In each country's basic basket the weightings of wheat, corn, rice, soy, sugar and beef represent 21.7 percent, 7.3 percent, 7.6 percent, 15.5 percent and 5.6 percent in Bolivia, Colombia, Ecuador, Peru and Venezuela, respectively, according to information from their national statistical agencies.

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Structural and short-term factors in each country, as well as the menu of different types of policies and interventions, explain another part of the inflation increase in each country. In countries such as Bolivia and Peru (and, to a lesser extent, Ecuador), where the rise in food prices was greater, the range of change of the year-on-year rate of prices was also wider.

Figure 3. General Price Index 2004-2008

Andean countries: Inflation, 2004-2008

(Consumer Price Index, Change. % 12 months)
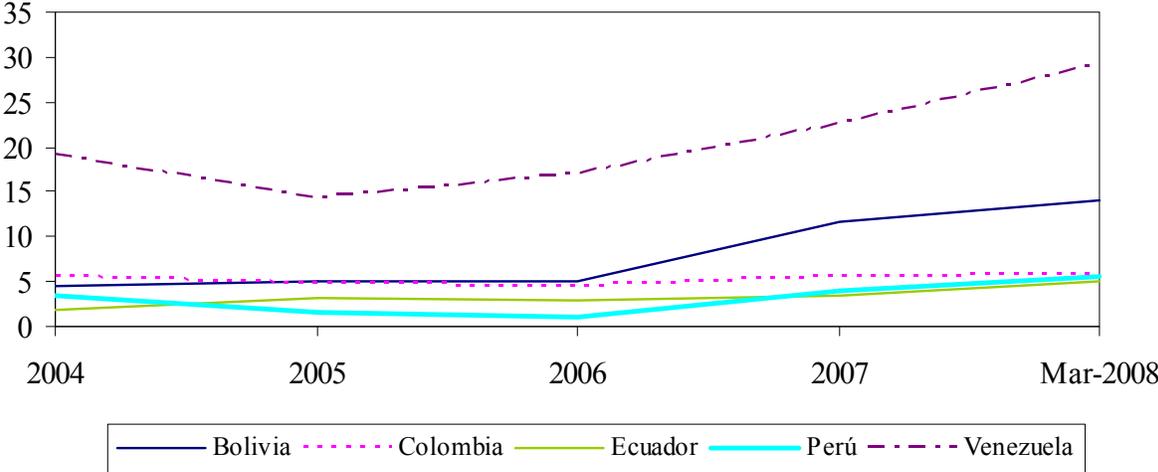
Source: IDB calculations based on data from national statistical agencies and central banks.

3. A First Approach to the Impacts of the Food Price Crisis on the Andean Countries

This section presents a first approach to the macroeconomic and distributive impacts of the food price crisis in the Andean region. Two sets of simulations were made which estimate the impact on the balance of trade and poverty levels in each country. Table 1 summarizes the methodology used, reporting the assumptions, transmission mechanisms, main results obtained from the simulations, and the key observations derived. As in any simulation exercise, the accuracy of the results of some of the simplifications should be viewed with caution. Specifically, the simulations capture a first effect, or first round effect, before any reaction, strategy or change in the trend of the agents takes place. However, it is reasonable to assume that in the short term neither agricultural production (subject to foreign trade) nor substitution of food for non-food production is substantial (as will be seen later). Consequently, these impacts can be considered as

the maximum and immediate effects of the crisis, rather than the long-term effects, which will be determined by, among other things, by implementation or non-implementation of longer-term policies (see Section 4).

**Table 1. Simulations of the Macroeconomic and Distributive Impacts
of Price Increases in the Andean Countries**

Simulation	What is simulated?	Assumptions	Observations
Simulation on trade balance	How the trade balance changes on increasing the price of food which is imported or exported by each national economy, with no change in the volumes of exports or imports.	(1) There are no changes in the trend of exports or imports, that is, no substitution, specialization or diversification (2) Effects of the international price increase is simulated for six foods (wheat, corn, rice, soy, sugar and beef), and for these six foods and oil jointly between 2006 and March 2008. (3) A perfect pass-through of international prices is assumed with respect to each country's imports and exports.	(1) The effect reported is a first round impact or ceiling before policies or strategies are implemented. (2) Comparing the same increase in international prices for the same products gives results that are strictly comparable, although the simulated price increase is not strictly that observed in each country.
Distributive simulation	The effect of rising food prices on the rate, gap and severity of total and extreme poverty for each Andean country; and the cost of closing the new poverty gap attributable to the crisis.	(1) There are no changes in household behavior, whether consumers or net producers, or with respect to their patterns of work, accumulation or consumption. (2) The observed effects of price increases of all foods are estimated as observed in each country between January 2006 and March 2008. (3) The price increase implies an increase in the cost of the basic food basket which is used to estimate the poverty line which is the reference for calculating the various dimensions of poverty. (4) A net household producer of food is where agricultural income is higher than food spending. (5) The benefit of net food producers is calculated on the assumption that all net household food producers sell all their surplus to the market, and so benefit directly from the price increase.	(1) An estimate is made of a first round effect, ceiling, of increasing prices before any new measure or change in behavior of the agents takes place. (2) There is an effect on consumers and another, of opposite sign, on net food producers, both are income effects because substitution is not permitted between food or between food and non-food. (3) The effect to a certain extent overestimates the real first round effect because not all net food producers sell their surplus to the market. However, the information from the household surveys does not always permit a precise identification of the destination of the surplus.

Source: Authors' compilation based on consultation with the Integration and Trade Division of the Inter-American Development Bank and on Robles et al. (2008)

In the first case, the effect of the food price increase on the external accounts will depend on various factors. In particular, the countries that are net food importers will be negatively affected while net exporters will benefit. However, the magnitude of the impact will depend on

whether food has a favorable effect on their terms of trade. In this respect, the Andean countries have experienced a growing trend in their terms of trade, because they are net exporters of oil and products, metals and/or minerals, whose prices have increased more than those of food over the last two years. However, the improvement in terms of trade in 2007 was less than in the previous year for all the Andean countries. For example, in Bolivia the terms of trade increased by 15 percent in 2006 and only 3.5 percent in 2007, while in Venezuela the improvement in the terms of trade was cut by half in the same period. A final factor to take into account is the capacity of agricultural supply to respond rapidly to price changes. Andean food production has not been very sensitive to price changes, stagnating since 2006, a situation that could be related to factors including but not limited to the international increase in fertilizer prices, technological restrictions, flooding and/or institutional factors.

Four Andean countries recorded a surplus in their food trade balance.[4] In Ecuador food represented 27 percent of total exports but only 7 percent of imports. This suggests that Ecuador will probably benefit from the food price increase, and in fact its food trade surplus has shown an upward trend in recent years. At the other extreme, Venezuela is a food importer. Its food exports are limited, so the existing food trade deficit will tend to worsen, assuming other factors remain constant. The net result will be more uncertain for Bolivia, Colombia and Peru. While food accounts for about 15 percent of total exports and approximately 9 percent of total imports in these three countries, over half of those imports are cereals, and oil and fat products and oilseeds, whose prices have significantly increased.

The exact composition of each country's most important agricultural exports and imports will determine the final predictable effect on the trade balance. With the exception of Bolivia, the other Andean countries export agricultural products, most of whose international prices are now lagging in relation to the significant increase in the price of cereals and oilseeds. According to FAO data, the nominal international price of cereals rose 88 percent between March 2007 and 2008, while the price of oils and fats rose 107 percent. The prices of sugar and coffee increased 26 percent and 34 percent, respectively. Lastly the price of fruit, such as plantain, rose 22 percent.

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[4] Ecuador recorded the highest food trade surplus (6.3 percent of GDP in 2006), followed by Bolivia and Peru (3 percent and 2 percent of GDP, respectively). In the case of Bolivia, there is a downward trend in the food trade surplus, which fell from 4.5 percent of GDP in 2004 to 3.0 percent in 2006. Venezuela was the only net importer in the Andean region, with a sustained food trade deficit of around 1.2 percent of GDP. Source: Authors' preparation based on data from UNCTAD and World Development Indicators.

The simulations confirm these expectations up to a point. In all cases there is a deterioration of the trade balance: net imports exceed net exports after the price increase of the six foods. This impact is fairly moderate, however, representing less than one percentage point of GDP. Not all these foodstuffs have the same importance in the imports and exports of the Andean countries, and some of them are in fact net exporters. This result differs from that produced by a similar exercise for the Central American and Caribbean countries (see Levy, 2008). Lastly, when including the oil price increase, the trade situation improves substantially in countries such as Ecuador and Venezuela, again assuming that there are no changes in import and export volumes, only in their value. Only in the case of Peru does inclusion of higher oil prices worsen the net effect of the price increase, as shown in Table 2.

Table 2. Net Impact of International Food Price Increases in Andean Countries

	Net Impact % GDP	
Country	**6 Food products**	**6 Food products + Oil**
Peru	-0.68	-1.24
Bolivia	-0.67	-0.26
Colombia	-0.62	1.04
Ecuador	-0.45	5.59
Venezuela	-0.26	11.47

Source: IDB staff.

In regard to distributive effects, the exercise simulated the effect that a food price increase (such as that reported between January 2006 and March 2008) would have had on the different dimensions of poverty in 2006 and in the last year prior to 2006 for which a household income and expenditure survey is available. An increase in food prices represents a reduction in purchasing power, which can also be described as an increase in a country's poverty line. Individuals will fall below this poverty line (some not poor before the crisis fall below the total poverty line, while others fall below the extreme poverty line). Considering the price increase for the six foods reported in Section 2 (wheat, corn, rice, soy, sugar and beef, and their weighting in each country's basic basket), the poverty line increases by an equivalent percentage. Robles et al. (2008) describe the methodology in more detail. This trend requires measuring a new poverty line based on:

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$$\text{EPL\_new} = \text{EPL} * (1 + \pi\_\text{food}) \qquad (1)$$

$$\text{MPL\_new} = \text{EPL\_new} + (\text{MPL-EPL}) \qquad (2)$$

where EPL is the extreme poverty line, $\pi\_$food is the increase in food prices in each country, and MPL is the moderate poverty line. The value of the basic food basket is changed while the rest of the basket remains constant. It should be clarified that these estimates do not consider the possible additional consequences (or "second round") of compensatory interventions or of individual crisis management strategies. As will be seen below, the nature and design of the policy responses, their scope, duration and costs will determine how much of the initial distributive effect is reversed (or expanded). The effects of some of these individual strategies can be especially negative if they lead to a reduction in the quantity and quality of food consumption (child malnutrition and its future effects); an increase in the labor supply of women and children (problems with organization of childcare, or child labor, reduction of school attendance); reduction and postponement of needed medical treatment (illness, mortality); and sale of productive goods (reduction of capacity to generate income). These longer-term life-cycle and even intergenerational impacts are not included in the simulations.

Not surprisingly, the most significant simulated impact on the incidence of poverty takes place where food prices increase most and food consumption represents a higher percentage of household expenditure (see Annex 1). In our simulations, this happens in the case of Bolivia.[5] According to Figure 4, the incidence of poverty in Bolivia would increase by 6.9 percentage points in the terms considered in the simulation exercise; in Colombia by 3.3 points, in Peru 3.2 and Ecuador 2.7. This implies in broad strokes that the relation between poverty reduction and food price increase in the Andean region is around 0.2. In other words, for every 10 percent increase in the food price index, an immediate direct effect of two percentage point increase in the poverty rate can be expected. However, this figure is only a reference because there is not necessarily a linear relation between higher prices and more poverty. Other considerations, such as the possibility of producing and consuming food inside the household, selling food to markets, or the price differences between rural and urban areas, could also affect the final impact on the rate of poverty.

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[5] Venezuela was not considered in the simulations because we do not have official information to construct/replicate poverty lines in the surveys available in that country.

The increase in extreme poverty (not shown here) in the four countries is higher than the estimated increase in terms of total poverty. Two inferences can be drawn from this finding. First, a considerable proportion of households that were already poor prior to the food price increase enter the ranks of the extremely poor. Second, these households outnumber the initially non-poor households that became poor after the food price increase.

Figure 4.
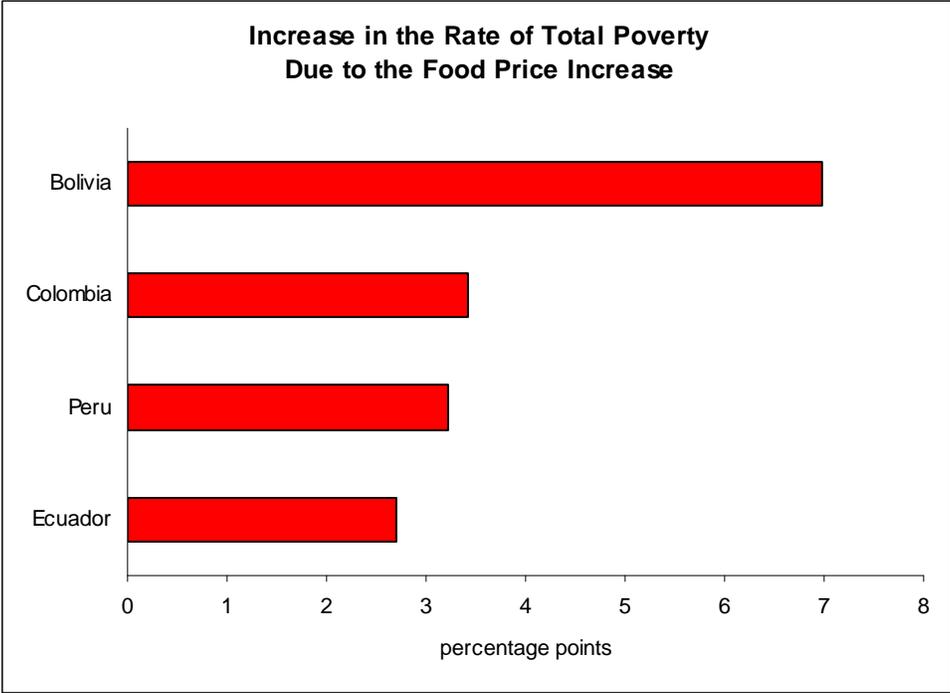
Source: IDB staff based on national income and expenditure surveys

Figure 5.

Effects on the Gap and Severity of Poverty Due to the Food Price Increase
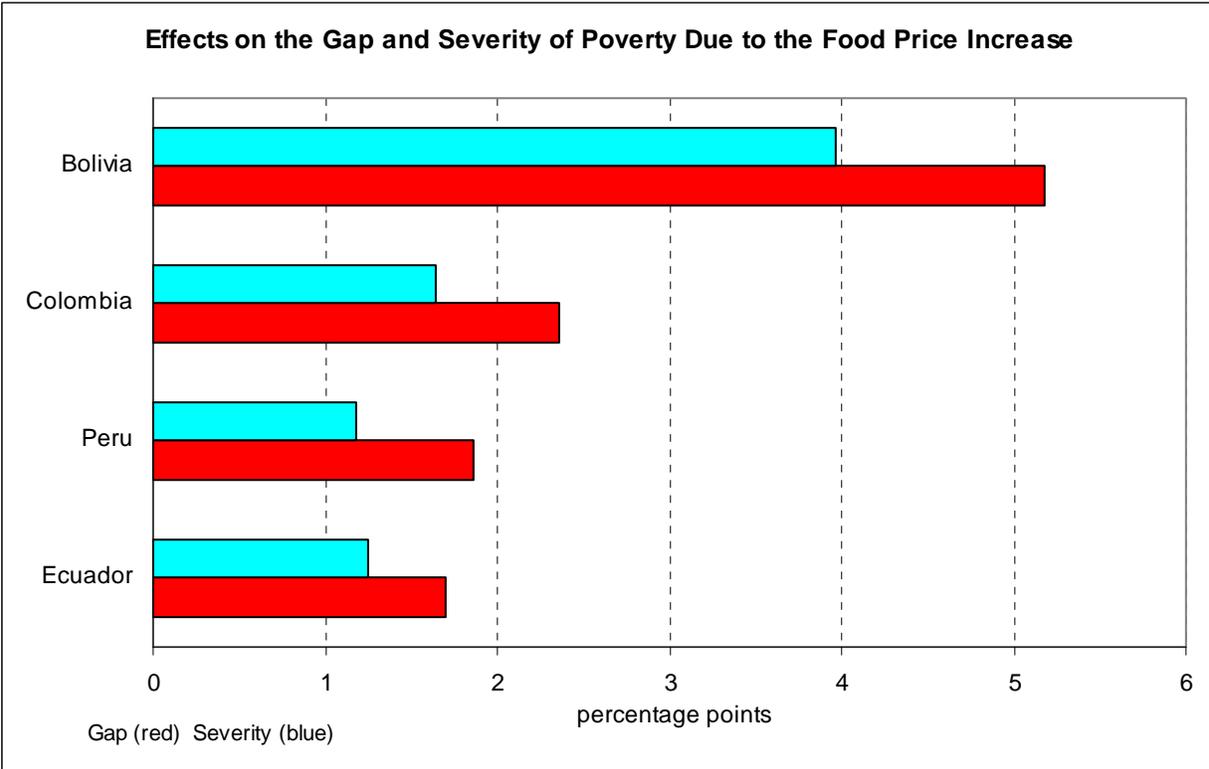
Source: IDB staff based on national income and expenditure surveys.

Our simulations also confirm (see Figure 5) that the impact of the increase in national prices worsens the gap and severity of poverty in each country, with both increasing more in countries where the impact of the price increase is greater. In other words, the increase in total and extreme poverty is accompanied by the fact that households which fall below these lines are, on average, now further away from overcoming this situation than poor households were before the crisis.

How much further? The following simulations measure the cost of reversing the worsening of the total poverty gap in each country after the food price increase. As Figure 6 shows, this cost fluctuates between 0.14 percent of total household income in Peru (the country with the lowest relative food price increase) and 2 percent of total household income in Bolivia (the country with the highest increase in relative food prices). These direct increases in poverty are higher in rural areas in the case of Colombia and Peru, very similar in urban and rural areas in Ecuador, and notably higher in urban areas in Bolivia (see Figure 7). In the latter country, although average household food spending as a percentage of total household is higher in rural

than in urban areas, less than 10 percent of urban households produce food, so the great majority are net buyers of foods whose prices have risen sharply. In contrast, the great majority of poor rural households (between 60 and 80 percent) are net food producers, so the food price rises in the markets affect a lower proportion of their consumption (see Annex 1). For the rest of the countries, whether it is the urban or rural areas which receive a greater impact on poverty is determined by the percentage of food expenditure of urban and rural households "close" to their respective poverty lines. If food expenditure represents a higher percentage of total expenditure among urban households close to the urban poverty line than in rural households in a similar situation, higher prices can be expected to have more impact in urban areas. This is the case in Colombia, but the opposite occurs in Ecuador.

Figure 6.
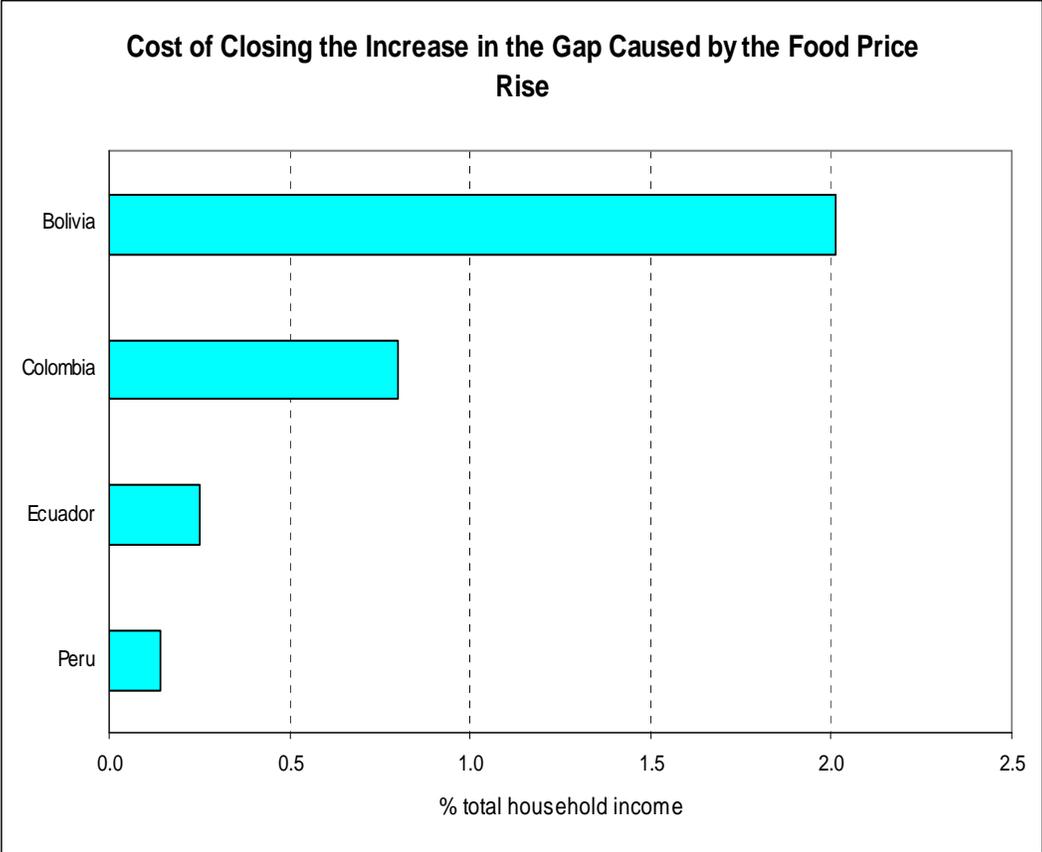
Source: IDB staff based on national income and expenditure surveys

Figure 7.
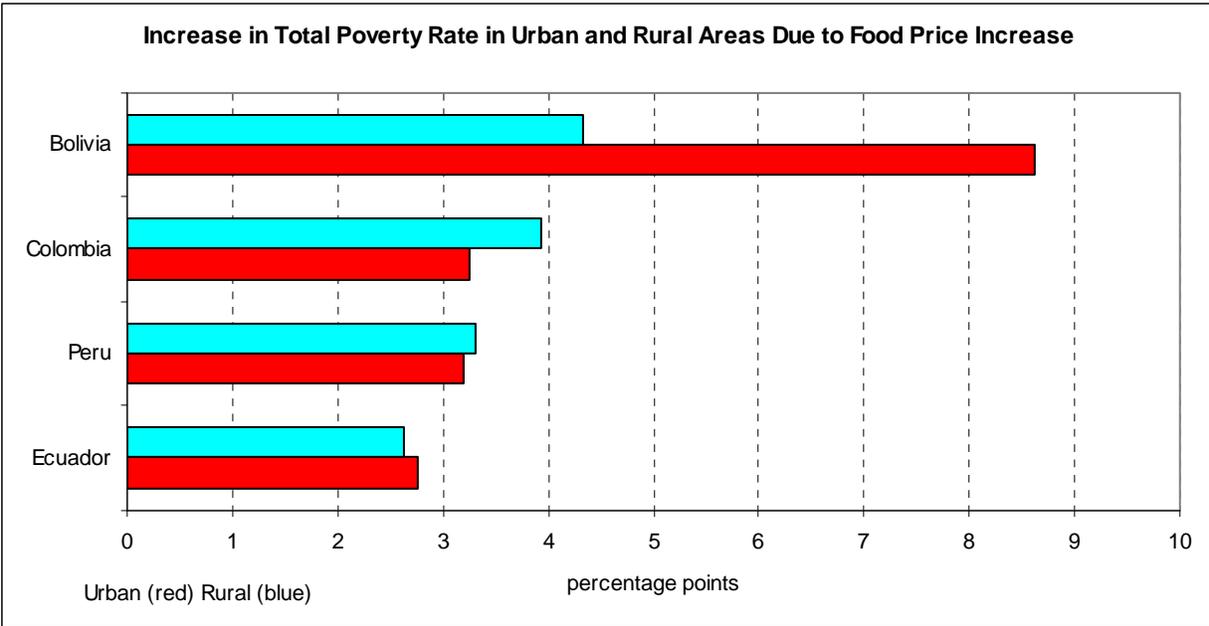
Source: IDB staff based on national income and expenditure surveys

Finally, the aggregate affect on consumer purchasing power will be mitigated to the extent that households are capable of producing food for sale. In Bolivia, 27 percent of households are net food producers (47 percent of the poor), while in Peru around 11 percent are (16 percent of the poor). In an intermediate position, between 11 percent and 17 percent of households in Ecuador and Colombia, respectively, are net food producers. In other Latin American and Caribbean countries, that figure ranges from 1 percent to 25 percent of households. The aggregate affect of considering the increase in income of some households implies estimating a new labor income for agricultural workers, assuming that this increases in line with the observed food price increase. The new household income per capita on which the impact on the new poverty lines, estimated by equations (1) (2), will be determined on the basis of:

$$PCY\_new = [AY * (1+\pi\_food) + (Y - AY)] / N \qquad (3)$$

where *PCY* is household income per capita, *AY* is agricultural income, *Y* is total household income, and *N* is the total number of household members. See Robles et al (2008) for more details.

As shown in Figure 8, the effect of loss of purchasing power is greater than the effect of higher income, as the price increase results in a loss for the majority of net food consumer households and the benefits for net food producers reach only a minority of households.

Figure 8.
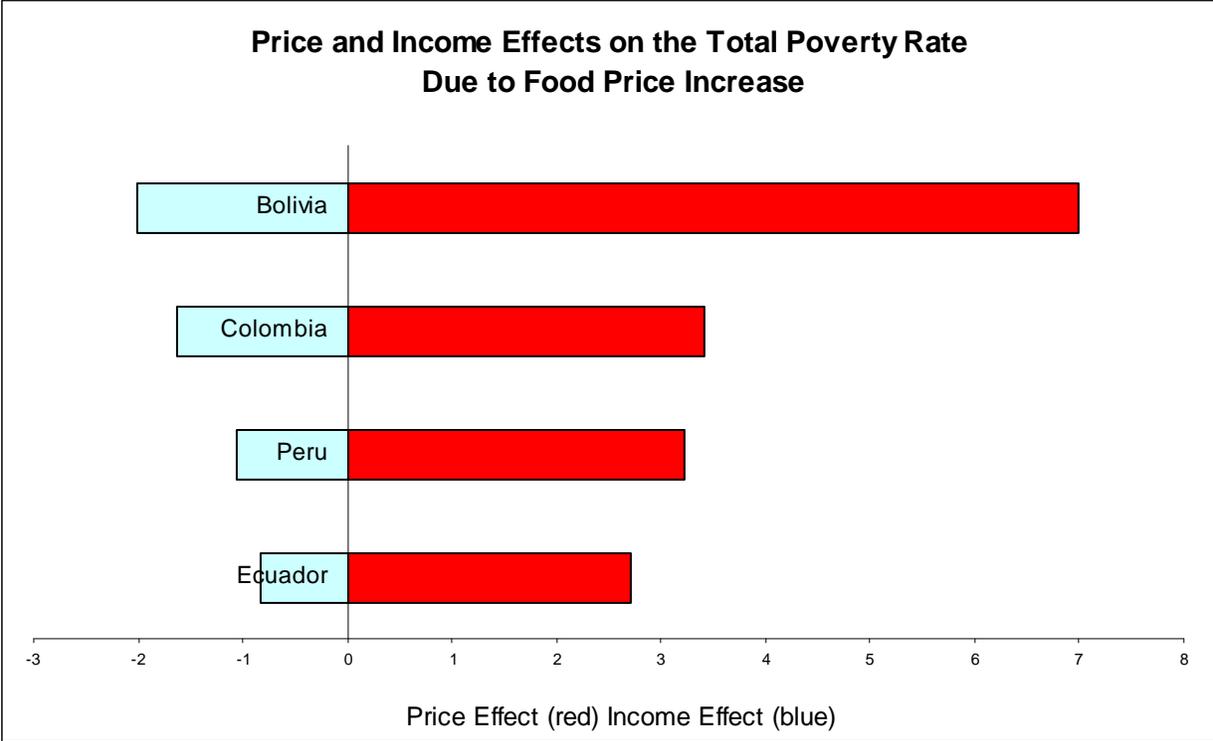
Source: IDB staff based on national income and expenditure surveys.

4. Policies to Confront the Food Price Crisis in the Andean Region

The current food price crisis has so far led to increasing recognition by governments, donors and societies in general of the importance of investing in agriculture; the need to increase food production and provide assistance to small-scale producers to increase their productivity; and the need to invest in and improve existing systems of social protection and security in order to mitigate the effects of the most vulnerable sectors affected by the price crisis. This new general consensus was agreed upon at the FAO-sponsored Food Summit in Rome in June 2008 (IFPRI, 2008a).

This consensus, however, left out other important points on which there is less clarity or general commitment (IFPRI, 2008b). These include elimination of trade barriers, especially those

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that restrict exports; limitations on the use of grains, and oil and fat products for production of biofuels;[6] and the way in which policies will be coordinated and implemented.

Part of this lack of clarity is explained by the interests of various power groups in each country, and by limitations on existing diagnoses. Analytically at least, obtaining consensus on the measures that mitigate or prevent these crises in the future requires not only a determination of the causes of the food price crisis, but also and *above all* a determination of the importance of each of these causes and their interrelations. The analyses made to date by FAO, the Inter-American Bank, World Bank, Monetary Fund, and IFPRI, among others, agree on various causes. Demand factors include higher energy prices, increase in subsidized production of biofuels, population and income growth, and urbanization, while supply factors include restrictions on land and water use, lack of investment in rural infrastructure and agricultural innovation, lack of access to agricultural inputs, and natural disasters. None of these analyses, however, discuss the relative importance of these factors or provide a detailed account of their interrelations. As a result, there is no clear consensus on what to do, how to do it or who should do what at international level. So it is not surprising that, at the country level, this lack of clarity has resulted in a variety of policies and interventions. In the Andean case, these responses display some similarities but also, more importantly, a series of differences that do not necessarily correspond to differences in the impact of the crisis.

Table 3 summarizes the interventions to date by the five Andean countries. These interventions are grouped into three policy categories: macroeconomic (monetary, fiscal and exchange); social compensation; and agricultural supply promotion.

The Andean countries have adopted a great variety of macroeconomic policies because, among other reasons, their monetary and exchange regimes are different. In the case of dollarized Ecuador, monetary policy is inflexible for dealing with this type of shock; in this episode, however, Ecuador has been the least affected country. In contrast, Colombia and Peru, which implement inflation targeting, opted for contractive monetary policies through higher interest rates, open-market operations and, in the case of Peru, increases in the bank reserve requirement. In addition, their local currencies appreciated against the dollar in 2007. In contrast,

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[6] IFPRI (2008a) estimates that elimination of export barriers could reduce international price increases by 30 percent and contribute to stabilizing fluctuations in grain prices and improving the efficiency of agricultural production. These types of biofuels could represent an estimated 30 percent of the increase in grain prices between 2000 and 2007 and 40 percent of the increase in the price of corn in those years.

Bolivia uses the exchange rate as a nominal anchor, so the effectiveness of its monetary instruments is reduced by the absence of predefined inflation targets. In Venezuela exchange controls and interest rate caps and floors also limit monetary policy. However, both countries have adopted a contractionary monetary policy, especially through open-market operations (and higher bank reserve requirements in the case of Venezuela). Also in Bolivia the exchange rate has appreciated against the dollar. On fiscal policy, three Andean countries—Bolivia, Ecuador and Venezuela—opted for expansionary policies in 2007. In Peru, contractionary fiscal policy complemented the action of monetary policy to contain inflationary pressures, while in Colombia no change in fiscal policy was identified. The result has been a serious deterioration of the fiscal balance and inflation control in Venezuela and Bolivia, moderate deterioration in Ecuador, no substantial change in Colombia, and an improved fiscal balance and deterioration of inflation in Peru.

Among the compensatory social interventions, no country seems to have *additionally* used its social protection systems to tackle the crisis, especially use of conditional monetary transfers, nutrition programs or mass intervention programs (in Venezuela) specifically for that purpose. Bolivia, Colombia and Peru have plans to implement or expand their programs in the near future, but two potential deficiencies have to be taken into consideration as those programs are expanded. First, they do not reach all who need them, and second, they also reach those who need them less than others. In Ecuador, for example, the intermediate distribution quintile has traditionally received 25 percent of the benefits (Cuesta and Ponce, 2007). Moreover, in Colombia only the conditional transfer system is indexed, and it is not yet adjusted annually. In other countries such as Peru, the scope of conditional transfers is only rural, although there are plans to expand them to urban areas. In Bolivia, conditional transfers are not targeted at households but to the community, and the system has not yet been implemented. Ecuador has not adopted conditional transfers. (See Annex 2.)

This said, a conditional cash transfer (CCT) program based on a good technical design, solid targeting and effective implementation represents an appropriate if not measure in many countries, although not a sufficient one, for responding to this crisis or to other emergencies. In fact, responses centered on CCTs offer a clear strategy irrespective of the nature of the particular crisis. They combat the risk of inter-generational transmission of poverty and have demonstrated positive effects in Latin America and the Caribbean on early child development (Macours,

Schady and Vakis, 2008), nutrition and health, and generation of human capital among the most vulnerable.[7]

All the Andean countries have nutrition programs in the schools and/or emergency labor programs. However, there are no reports that these have been intensified or expanded to confront the food price crisis. Moreover, these programs lack mechanisms to reverse potential effects, such as deterioration of nutrition among children who leave school to join the agricultural labor force (higher opportunity cost among poor food producing households), or to compensate for changes in demand for employment produced by relative price changes (between levels of specialization or geographical areas, for example).

With respect to supply-side policies, the Andean countries have implemented various policies to soften the impact of food price increases. In Bolivia, the government authorized until May of 2008 the duty-free import of key foodstuffs, such as rice, wheat, wheat-derived products, corn, soy oil, and meat. In addition, exports of cereals and meat products were prohibited. In Ecuador, the government increased the wheat flour subsidy, introduced in October 2008, from US$10 to US$14.3 per 50 kilos. Duties on wheat and wheat flour imports were eliminated, and the price of bread was fixed. In Peru, the government eliminated duties on imports of basic foodstuffs,[8] reduced the selective fuel tax, and set up a program to distribute food to the poorest sectors. In addition, the Peruvian government is currently evaluating the possibility of implementing a food stabilization fund. In Colombia and Venezuela no specific measures have been taken to deal with the food price crisis, although Venezuela has donated US$100 million to other countries in the region to contribute to their food security.

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[7] Recent reviews of this literature can be found in Sadoulet et al. (2004), Glassman, Gaarder and Todd (2006), de Janvry et al. (2006), and Bouillon and Tejerina (2007).
[8] Duties were cut from 9 percent to 0 for products including certain beef cuts, fish and shellfish, milk products, sweet corn and some wheat flour products. On another group of products, duties were cut from 17 percent to 9 percent (other beef cuts, fresh and prepared fruits, vegetables and pulses). In a third group, mainly meat products, duties fell from 20 percent to 17 percent.

Table 3. Measures Implemented to Tackle the Food Crisis in the Andean Countries

Country	Macroeconomic Policy			Compensatory Social			Supply-side stimulus
	Monetary	Fiscal	Monetary and exchange regime	Indexed CCT	Nutrition programs?	Others	
Bolivia	Contractive	Expansionary	Nominal exchange rate anchor, crawling peg regime	No, there is no CCT, although they are working on a community-based CCT (not household) with no plans for indexing.	School meals, Zero Malnutrition Program	Dignity income (CT for over-60s). Temporary employment programs Pro-Pais; emergency employment PLANE II; intensive dignified employment of workforce (EDIMO) in planning phase	(1) Reduction of import tariffs (first diesel, and all others after). (2) Restrictions on exports (chicken, wheat, corn, vegetable oils and fats). (3) Support for agricultural production creating a state company, EMAPA, for purchase and sale and marketing of inputs and products such as wheat, rice, corn or soy (under the new productive food security and sovereignty program 2008 - US$58 million in 2008).
Colombia	Contractive	No change	Inflation targeting, flexible exchange rate	Families in Action program (urban and rural). Indexable, although it has not been annual	School meals	Community households, family compensation fund, non-contributive pensions. There are no employment programs	No specific measures have been taken to control food price rises.
Ecuador	n.a,	Expansionary	Dollarization	Human Development Bond (urban and rural). Not indexed.	School meals program, Aliméntate Ecuador, PANN 2000, Children's Development Fund		(1) Fixing of prices of rice, milk, corn and bananas. (2) Direct marketing through the National Development Bank to bakeries and direct sale of rice. (3) Rice imports to guarantee supply and restriction of exports to neighboring countries (Colombia and Peru). (4) Increasing the subsidy for the human development bond (voucher) has been considered. (5) Policy to recover agricultural production with

Country							
							reference to the poverty map expected.
Peru	Contractive	Contractive	Inflation targeting, flexible exchange rate regime	Juntos program (rural). Not indexed	School breakfasts, glass of milk, people's cafeterias, food distribution to communities (new) and food distribution to children (Foncodes, CRECER, PACFO)	A Trabajar Urbano, A Trabajar Rural programs	(1) Reduction of duties on various foods and fuel consumption tax. (2) Temporary food distribution program to 100,000 poor families in Lima. (3) The National Council of Agrofood Security and Supply was set up with the objective of monitoring supply and prices of key agricultural products and guiding decision-making on promotion of the national agrofood supply.
Venezuela	Contractive	Expansionary	Maximum and minimum interest rates (use of reserve requirement and OMO), exchange control	No.	Missions Mercal (food distribution in poor barrios), Vuelvan Caras (food production). Food program in Bolivarian and regular schools (PAMI)	Missions: Barrio Mothers (monetary); Negra Hipólita (children), Ribas (education), Barrio Adentro and Milagro (health)	(1) Subsidies are maintained on the domestic price of gasoline and energy, along with exchange and price controls. (2) Subsidies on sale of food and other basic products in poor barrios through "missions." (3) There are no other specific direct measures. (4) Donation of US$100 million to Bolivia, Cuba and Nicaragua to contribute to food security. (5) Maintain the PetroCaribe initiative to support oil-importing countries.

Source: Authors' compilation.

An obvious question is how effective have these policies or interventions been in mitigating the effects of the crisis. This can be answered by analyzing the predictable consequences of the interventions. For example, in the case of compensatory policies, Levy (2008) suggests that CCTs are preferable to non-targeted subsidies in the context of a food price crisis because they (i) directly increase the purchasing power of the poor; (ii) allow households to adapt to relative price changes; (iii) do not reduce the income of poor food sellers; (iv) diversify diet and prevent a decrease in food spending; and (v) limit the extent of the support because these policies have clear exit strategies and are clearly presented as such.[9]

Another more systematic way of comparing the interventions is to analyze their consequences for a series of dimensions of special interest, as suggested by Manzano and Stein (2008) and Malarín (2008).[10] The dimensions or criteria analyzed in these two works relate to the degree of targeting and scope of the measures (coverage), final cost (cost), degree of distortion (efficiency) and reversibility (political economy). Although the comparison does not apply a quantitative method which makes it possible to estimate a precise order of magnitude in each of these dimensions, the comparison shown in Table 4 at least permits a detailed physiognomy of the potential effects of the interventions implemented in relation to social compensation and supply-side policies:

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[9] An example of implementation of these policies is the Mexican government's announcement of implementation of a 120-peso bond (approximately US$12) for beneficiary families of certain social programs (mainly the *Oportunidades* conditional transfer program). The bond will last seven months and be an additional benefit not integrated with any of the current benefits from other programs. The bond will be implemented from July 2008 and has been clearly "marketed" as an entirely temporary response part of a permanent support strategy for the most vulnerable.

[10] Similar discussions on the advantages and disadvantages of different policies can be found in World Bank (2008).

Table 4. Physiognomy of the Potential Effects of Interventions to Tackle the Crisis

Policies	Who implemented them?	Coverage	Fiscal Cost	Level of Distortion	Reversibility
Compensatory Social Policies					
Expansion CCTs	Impending implantation in BO; urban expansion planned in PE; expansion process in CO continues	Low / Medium (if targeted)	Medium / Low	Low (positive incentives: accumulation human capital)	Difficult
Expansion Nutrition Programs	None (no new programs or changes in existing ones planned)	Low / Medium (if targeted)	Medium / Low	Low (incentives for school permanence and performance)	Difficult
Supply-side Policies					
Price Policies					
Price controls	EC	Broad	Medium / High	High	Difficult
Tariff reduction	BO, PE	Broad	Low	Low	Easy
Contingent tariffs	…	Broad	Low	Low	Easy
Performance requirements	…	Broad	Low	Medium	Difficult
State trading companies	BO, EC, PE	Broad	Medium /High	High	Difficult
Restrictions on exports	BO	Broad	None	High	Easy
Export tax	…	Broad	Low (Positive)	High	Easy
Sanitary or technical requirements		Broad	None	High	Difficult
Food distribution	PE (temporary)	Low (targeted)	Medium / Low	Medium / High	Difficult
Fiscal transfers					
Direct or implicit transfers to consumers (price subsidies, checks to taxpayers, etc)	VE	Broad	Medium / High	High	Difficult
Transfers to producers based on cultivated area, production, historical rights, use of inputs, total agricultural income, use of technology.	None	Low (targeted at certain producers)	Medium / High	High	Difficult
Agricultural Services					
Provision of public goods such as technical innovation, health and food safety, collective infrastructure, promotion and marketing, public storage, agricultural education, information systems.	Planned in EC and in PE	High (targeted at all the sector)	Medium / high	Null (positive, increasing sectoral productivity and competitiveness)	Difficult (although it is desirable that they are not reversed but strengthened)

Source: Authors' compilation.

Based on this review of the physiognomy of interventions and their effects in each country, it is possible to characterize the package of interventions adopted. To do this we consider how closely the measures taken approximate a package of interventions that may be considered "desirable," that is: (i) they have broad or targeted coverage of the poorest sectors; (ii) they have a low or even positive fiscal cost; (iii) they have low levels of distortion or generate positive incentives; and (iv) they are easily reversible after completing their mission. On the other hand, a set of interventions is "undesirable" to the extent that it has the opposite effects. There is also the possibility that the same package could contain measures with both desirable and undesirable characteristics. Table 5 below shows this characterization of the packages of measures country by country. An important point here is that not necessarily all these actions were generated in direct response to the food price crisis, since some were planned previously. In any event, the table clearly shows that each country combines a mix of policies in which expected positive impacts predominate and others where the opposite is expected. The predominant effect of other policies, such as the establishment or use of public trading companies, will depend on their design, mandate and implementation.

Table 5. Policy Mix to Tackle the Crisis, Country by Country

	Policies where desirable impacts predominate	Policies where undesirable impacts predominate	Policies with mix of impacts (difficult to predict)
Bolivia	Expansion CCT Tariff reduction	Restrictions on exports	Trading company
Colombia	Expansion CCT		
Ecuador	Agricultural Support Services	Price controls	Trading company
Peru	Expansion CCT Tariff reduction		Trading company
Venezuela		Price subsidies	

Source: Authors' compilation.

Another way of approaching the effectiveness of interventions in relation to the food price crisis examines the sequence and implementation of the proposed policy mix. IFPRI (2008a) emphasizes the need to separate short-term measures, which they term an "emergency package," from long-term measures, or packages of long-term measures. Explicitly, there is recognition that different actors must assume different responsibilities, and that the scope of certain measures is necessarily national while others measures have to be international and

require a degree of international inter-institutional coordination. Even though IFPRI (2008a) does not discuss the costs of these policies or their feasibility (questions of political economy which facilitate or impede their execution), it is interesting to ask how the current interventions of the Andean countries perform in relation to these packages of short and long-term measures. Table 6 reports the result of this exercise. The table shows three key results: one, the dynamism with which the countries have adopted interventions such as those proposed by IFPRI is heterogeneous, with Peru as the most active country and Colombia the least. Two, only the social compensation dimension is in a strong position in all countries to act more or less immediately against the crisis. Three, the efforts on short-term policies have been much stronger than on long-term policies. This contrast involves, among other factors, with the size of the crisis and the ease or cost of implementing these interventions.

Table No. 6. Temporary Dimension of the Measures Adopted in the Andean Countries

Emergency Package	Countries
1. Expand emergency and humanitarian assistance responses	Peru: food distribution
2. Eliminate barriers to exports	Peru and, partially Bolivia (cut tariffs but introduced barriers to exports)
3. Promote 'rapid' food production programs in strategic areas*	Planned in Ecuador and Peru
4. Change bio-fuels policies based on corn and fats	None (does not apply in practice to these countries)
Long-term Package	
5. Transmit confidence to the markets with anti-speculation regulations, public food storage, strengthening of import finance.	None
6. Invest in social protection	Expansions planned in Bolivia, Peru and Colombia. In Ecuador and Venezuela, their different systems already implemented are large scale.
7. Scale up investments which result in sustainable growth of agriculture **	Planned in Peru and Ecuador (but more detail is needed to characterize the strategy)
8. Complete the Doha Trade Round	Colombia and Peru most interested in bilateral agreements. Support of Bolivia, Ecuador and Venezuela improbable.

Source: Authors' compilation and IFPRI (2008a).
Notes: (*) Short-term measures to create incentives for agricultural growth through access to seeds, fertilizers, credit for small producers, carefully subsidizing and targeting these inputs, along with electricity and water, and development of market access programs for subsistence producers.
(**) Includes investments in infrastructure, services, research, technology, which go not only to the agricultural level but more collectively cover productive chains, involving the private sector in areas such as food processing and sale, for example.

5. Conclusions

It is extremely difficult to predict when a crisis will end while it is still taking place. The current food price crisis is no exception. Even though there is consensus on what factors are causing the crisis, there is less agreement on how to confront it: specifically, how to obtain a balance of short- and long-term interventions on the one hand, and, on the other hand, how to achieve in practice another balance between cautious macroeconomic measures, effective compensatory social policies, and a lasting supply-side stimulus without disastrous distortions. The data reviewed and the analysis of simulations in this work suggest that in the Andean countries the magnitude of the crisis and the trade and distributive effect are very significant, although less than in Central America and the Caribbean. As a result, "patchwork" policies will result in costly and poorly effective interventions. In this context, considering a temporary crisis as a permanent shock could be a less costly error than considering a structural change as transitory. To the extent that the crisis offers an opportunity for continuing the structural reforms needed to improve agricultural productivity, and guaranteeing timely and adequate compensation for the most vulnerable, the most correct strategic response in a period of high uncertainty could be to treat this or any other emerging crisis as "permanent." The most obvious illustration of this proposition is the process of strengthening social programs around solid CCTs. In the context of the food price crisis, improvements can be made to these programs such as: extending them to areas or beneficiaries who do not currently receive benefits (whether they become eligible because of the crisis or because they were eligible before the crisis but did not enjoy the benefits); index benefits to the food price increase or to the total loss of purchasing power (because of inflation of food and other goods and services); establish automatic alarm formulas (on certain thresholds in key indicators which are easy to track). How complicated or simple it is to implement these responses (for example, distinguishing between producer households and net food consumers) and how effectively the government can transmit the temporary nature of the intervention (that is, it is not a new social entitlement) will determine the effectiveness of this intervention.

Curiously, no country seems to have adopted a complete set of desirable policies with respect to broad coverage and/or targeting of the most vulnerable; low fiscal cost; high effectiveness and reversibility if necessary. However, some countries seem to have adopted one or more responses aimed at achieving some of these criteria, but these responses are mixed with

others which could have undesirable effects such as increased trade restrictions or general price subsidies. The effect of other strategies, such as establishment of state agencies for promotion of agricultural production, is difficult to predict because they are not known in great detail. Similarly, the effect of the strategies of Colombia and Venezuela is not clear, as these countries have not taken direct measures against the crisis. A fundamental point here has to do with the fact that even the countries that seem to have taken (or not taken) measures against the crisis had been planning or initiating these reforms prior to the crisis. This means that, in contrast to the previous reflection, it is not easy to use major long-term interventions to respond to possible short-term changes. It also means that the design of these interventions must introduce certain elements of flexibility (for example, the possibility of emergency indexing of a benefit) and/or consider different contexts to be tackled by the intervention over time. No intervention can be totally guaranteed against all eventualities, but different scenarios need to be considered for intervention in the future.

In contrast, and this is easier to predict, short-term or indiscriminate measures will result in expensive, unsustainable and ineffective exercises. Exclusively compensatory social measures will only address one dimension of the problem, but not its productive or macroeconomic side. A combination of responsible and cautious macro-policies, on the one hand, and measures that effectively support agricultural diversification and competitiveness (needed a long time before this crisis), on the other hand, must accompany efforts to expand a social protection system that is really effective in dealing with this and future crises. To do this, the crisis should be treated as an opportunity that requires continuing implementation of wide-ranging social and productive reforms, rather than as a passing shock which requires exclusively short-term measures. These actions involve in turn recognition beyond mere words that the responsibility for mitigating the crisis is not exclusive to each individual country, but must also involve the international community as a whole, above all in relation to a trade policy which produces distortions and asymmetries favorable to the large producing countries.

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Annex 1. Statistical Annex

Table A1. Percentage of Food Expenditure in Total Household Expenditure

Decile	Bolivia	Colombia	Ecuador	Peru
1	72	73	59	69
2	69	64	56	66
3	66	62	54	63
4	63	58	51	58
5	61	55	47	55
6	57	52	44	52
7	53	50	40	48
8	50	45	33	45
9	44	42	25	40
10	31	31	14	27
Poor	61	59	55	60
Non-Poor	40	48	30	39
Urban	44	50	30	38
Rural	67	64	47	63

Source: Authors' preparation based on national income and expenditure surveys.

Table A2. Percentage of Net Food Producing Households

Decile	Bolivia	Colombia	Ecuador	Peru
1	70	16	23	19
2	50	17	13	18
3	34	19	14	20
4	31	20	11	16
5	22	22	11	14
6	15	17	11	12
7	18	17	7	11
8	12	11	7	8
9	10	10	5	5
10	7	10	5	2
Poor	47	17	17	16
Not poor	16	15	8	9
Urban	7	18	3	6
Rural	77	9	26	23

Source: Authors' preparation based on national income and expenditure surveys.

Annex 2. Conditional Transfer Programs in the Andean Countries

Country	CCT Programs	Selection Criteria	Beneficiaries	Benefits
Bolivia	Communities in Action	Geographical targeting	Communities, not households	To be implemented
Colombia	Families in Action	Conditionality on nutrition, education and health. Socioeconomic level (Sisbén score); at least one child aged 7 to 17.	1.6 million households.	Equivalent to US$10-US$20 monthly (less than 10% of monthly household income). 86% of beneficiaries are poor. Distribution of beneficiaries: 56% urban, 44% rural. Planned expansion.
Ecuador	Human Development Bond	No effective conditionalities. Socioeconomic level (Sisbén score). Transfer depends on the number of children, elderly or incapacitated in the household.	Approximately one million households.	Important transfer: US$30 monthly (recently doubled from US$15).
Peru	Juntos program	Conditionalities on nutrition, health, education and identification. Prioritized geographically in rural communities with extreme poverty	370,000 rural households.	Important transfer: 100 new soles per month, more or less 25% average household consumption. Planned expansion to urban areas.
Venezuela	N/A	N/A	N/A	N/A

Source: IDB Social Protection and Health Division.