More than food on the table: Agriculture's true contribution to the economy

Rafael Trejos, Joaquin Arias and Oswaldo Segura

Abstract

Agriculture is something more than crops and food: nowadays all countries regard it as a strategic asset. Agriculture's performance and its contribution to our countries' economic development has traditionally been undervalued, since it is measured using information about harvests and the sale of raw materials, mainly crops and livestock. As a result, the backward and forward linkages with agro-industry, the services and trade sectors and, in general, the rest of the economy, are undervalued. The aim of this study was to develop a methodology to estimate agriculture's true contribution to economic development for 11 countries in the Americas. This methodology empirically addresses the concept of extended agriculture; calculates agricultural linkages; and simulates the impact of agriculture on the countries' overall economic activity.

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Agriculture is something more than crops and food: nowadays all countries regard it as a strategic asset. However, the importance attached to it in political circles and among decision-makers varies. In some countries, its political importance is declining and the support it receives is limited, while in others, especially in the most developed countries, around $350 billion are invested in government subsidies to support their farmers (OECD). The underestimation of the value of agriculture is a concern that has been clearly expressed by the Ministers of Agriculture of the Americas and it is essential to view agriculture in a new light in order to reposition it at the policymaking level. This concern was addressed by the Interagency Group on Rural Development (ECLAC, FAO, GTZ, IICA, IDB, IFAD, USAID and World Bank), at a meeting held in 1992 in Cuba. Agriculture is not an isolated sector, but is interconnected with other sectors of the economy and contributes to growth through: the absorption of labor, mainly unskilled and rural labor; the generation of foreign exchange; the use and conservation of natural resources; the generation of investment capital; and, the generation of strong linkages, for example with trade, financial services, transportation and storage, among others. It is necessary to recognize the stabilizing role of agriculture on rural livelihoods and food

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security. Although food production has always been regarded as an essential requirement its role in bringing stability to rural livelihoods and in the sustainability of the rural territories is not clearly perceived. Furthermore, the multi-functionality of agriculture involves the economic and the non-economic dimensions of agriculture. The systems linked to agriculture, especially the environment, place increasing demands each day both on rural and urban inhabitants (protection of water sources, recreational areas, etc.). In specific terms, much of the debate on agriculture's contribution to the development of countries ignores issues such as agriculture's role in the conservation of natural resources and the environment; the treatment of certain problems of a global character (climate change, biodiversity, desertification and others) and the development of social capital and the preservation of community life. Any attempt to properly measure agriculture's contribution and define its role in economic development should therefore consider all these aspects.

Agriculture's performance and its contribution to our countries' economic development has traditionally been undervalued, since it is measured using information about harvests and the sale of raw materials, mainly crops and livestock. As a result, the backward and forward linkages with agro-industry, the services and trade sectors and, in general, the rest of the economy, are undervalued. Thus, the value added generated by these linkages throughout the economy does not appear in the basic agricultural statistics of most countries. To properly measure agriculture's performance and contribution, account must be taken of its effects on the distribution of income among rural and urban households, wage earners and owners. These aspects are essential to evaluate its impact

on poverty alleviation strategies and, in particular, on the livelihoods of rural populations. Furthermore, a true measurement of agriculture's contribution should not overlook its role in meeting the growing demand for environmental goods and services from urban centers. As an economic bridge between rural and urban areas, agriculture provides food, employment and natural resource services to urban dwellers. In a globalized world, a country's food security can only be assured if rural livelihoods are strengthened.

The aim of this study was to develop a methodology to estimate agriculture's true contribution to our countries' economic development, highlighting agriculture's contribution to the livelihoods of rural dwellers. This methodology empirically addresses the concept of agriculture and agrifood, which includes in the measurement of agricultural aggregates, those sectors that are linked by their requirement for agricultural inputs, such as the food processing sector and the agro-industrial sector; some authors have used "wider agriculture," "extended agriculture," "agro-based sectors," and other similar terms, when referring to the same concept. We calculate agricultural linkages and simulate the impact of agriculture on the countries' overall economic activity.

Method

In order to develop and validate the methodology to measure agriculture's true contribution to economic development, it was first necessary to establish the data requirements and select the countries to be studied. Thus eleven Social Accounting Matrices (SAM) were calculated. The study then proceeded to calculate the percentages of the productive sectors' share of the gross domestic product (GDP), complementing this with an estimate of the relative share of "agriculture and agrifood." Then the destination

(use) of agricultural production was analyzed, along with the payments made by this sector, placing special emphasis on compensation to the factors of production (factor payments). The next step was to calculate a socioeconomic model known as SAM Multipliers (Defourny and Thorbecke; Sadoulet and Janvry; and Ferri and Uriel). These multipliers facilitate the analysis of the possible effects of external injections (through increased demand for exports, foreign investment, transfers and external donations, among others) on the economy of the countries studied. Finally, simulations were carried out for some of the most important agricultural sectors for groups of countries.which facilitates analysis of the possible effects of external injections (through increased demand for exports, foreign investment, transfers and external donations, among others) on the economy of the countries studied. This analysis provides a direct measurement of the linkages between agriculture and the rest of the economy. Finally, simulations were carried out for some of the most important agricultural sectors for groups of countries.

A Social Accounting Matrix (SAM) is a database in matrix format that consistently represents all monetary flows of goods, services and income formation between all the agents of an economy within a reference period (Ferri and Uriel). A SAM reflects these relationships as well as broader linkages, making it possible to examine the structural links between production, consumption, trade and the accumulation and distribution of income. Furthermore, they can be used to develop socioeconomic models that simulate the impact of public policies and of other exogenous changes on the economy as a whole. As databases, SAM have been widely used to study trade policy, income distribution, fiscal policy, external impacts and structural adjustment issues

(Aristy-Escuder.; Arnault; Claus; Defourny and Thorbecke; Golan and Vogel; Holst; Maki and Ingar; Subramanian and Sadoulet; Thiel and Piaoslo; Winters, Janvry, Sadoulet, and Stamoulis). The information used to create the SAMs for 10 of the countries in the study (Argentina, Brazil, Canada, Chile, Colombia, Mexico, Peru, Uruguay, the United States, Venezuela) was obtained from the GTAP database (Global Trade Analysis Project, Purdue University) (Dimaranan and McDougall). For Costa Rica, the study used a SAM developed by IICA, including 41 different sectors of the economy.

Results

The results are presented in three sections. The first figure obtained was agriculture and agrifood's contribution to gross domestic product, then agriculture's linkages were estimated. Finally, using the multiplier model, external impacts on the economies were simulated. Linkages were analyzed to determine both the effects on other production processes and on the generation and use of income.

"Agriculture and agrifood" vs. primary agriculture

Table 1 shows the contribution of primary agriculture and "agriculture and agrifood" to GDP. For the 10 countries with the GTAP database the primary agricultural sector is defined as agriculture, forestry, and fisheries (Chapters 1- 4 of the CPC and 5 of the ISIC) and "agriculture and agrifood" is defined as the primary sector plus processed foods and manufactures derived either from this sector or from agro-industry (Chapters 21-25 of the CPC and Chapters 17- 22 of the ISIC). For Costa Rica, the primary agricultural sector

consists of the first 9 lines of the SAM for 1997, and for agriculture and agrifood lines 10 to 23 are added.

Traditional measurements of agriculture's contribution to GDP suggest that it is declining and that, on average, it is equivalent to less than 10%. Measured in this way, table 1 shows that the Agricultural GDP (AgGDP) of the countries included in the study was just fewer than 7% in 1997, except for Costa Rica (11.34%) and Colombia (8.00%).

If agriculture's contribution is calculated using the extended approach that takes into account its interdependence with the food and agro-industry sector, the figures are usually higher than those of official statistics. Measured in this way, AgGDP ranges from 8.10% in the case of the USA to 34.80% in the case of Uruguay. This new indicator suggests that agriculture and agrifood's true contribution to GDP is considerably greater, ranging from three times more (in the case of Costa Rica) to a maximum of 11.6 times for the USA. This means that, except in the USA, Canada and Venezuela, where the percentage is lower, in the countries studied agriculture and agrifood contributed around 30% of GDP during 1997. This is much higher than reported by official statistics (7%). Note that the greater the level of diversification of a country's economic structure, the greater the weight of the food and manufactured products that transform the inputs of primary agriculture, particularly in the cases of the USA., Canada, Argentina and Brazil.

Agricultural linkages

As an economy develops and becomes more diversified, the primary agricultural sector loses relative weight in terms of GDP, but develops strong linkages with the rest of the economy. This can be confirmed by using the SAM to examine the important linkages

that exist between agriculture and the rest of the economy. The extent of these linkages may be identified by analyzing the use of agricultural production (its destination). If a substantial part of agriculture is intended for intermediate uses (i.e. food processing) we should expect strong linkages between industries. The destination of agricultural output is studied by analyzing the transactions between each of the different national accounts, starting with the equation: $Q = D + I + C + X + G–M$, were Q is gross output; D is intermediate demand; I is investment; C is private household consumption; X is exports; G is government consumption; and, M is imports. The economy was divided into 5 sectors: 1) the Primary Sector, made up of agriculture, forestry, and fisheries (Chapters 1-4 of the CPC and 5 of the ISIC) for the 10 GTAP countries, for Costa Rica the first 9 lines of the SAM; 2) Processed Food that includes chapters 21-25 of the CPC classification; for Costa Rica, lines 10 - 16 and 18 of the SAM; 3) Agro-industry: chapters 17- 22 of the ISIC; for Costa Rica, lines 17 and 19 -23 of the SAM; 4) Natural Resources: Chapters 10-14 of the ISIC; for Costa Rica, there is no desegregation for this sector; 5) Rest of the Economy: Chapters 23-99 of the ISIC; for Costa Rica lines 24-41.

Analysis of the destination of the countries' agricultural output is shown in table 2. Costa Rica is excluded from the total due to the fact that its data comes from a different source and the consolidation must be done thoroughly, but the small size of its economy does not alter the total results. Table 2 shows that agriculture is an important source of inputs for other productive activities: intermediate demand for agricultural commodities absorbs 74% of primary agricultural output. In other words, ¾ of agricultural production is used as input for other industries/sectors. A comparison of this

percentage with the percentage of output from other sectors of the economy that is used as input (43%), confirms the hypothesis that agriculture's linkages with the rest of the economy are not only important but usually underestimated. Agricultural production is also a major contributor to private consumption and exports, at least in higher percentages than other sectors of the economy. In fact, the agricultural sector's real importance to national production lies in its capacity to generate intermediate goods. A similar situation, but on a smaller scale, is evident in the processed food and agro-industrial sectors, where 48.8% of domestic output goes to intermediate demand and, if these percentages are weighted, the result for agriculture and agrifood is 54.3%.

Final consumption of primary agricultural products absorbs high percentages of total agricultural output in Venezuela, Mexico and Peru (>35%). Exports absorb high percentages in Colombia, Canada and Costa Rica – as much as 43.3% in the latter. Although taken together the countries studied do not require large percentages of agricultural imports to complete the aggregate supply, Mexico, Peru, and Venezuela recorded a deficit, as the value of their imports is greater than that of their exports. In the case of Mexico and Peru, the deficit is less than 2% of national output; and in the case of Venezuela, it is 8%.

In general, the above-mentioned structure of the destination of agricultural production does not vary from country to country. However, Canada, and to a greater extent Costa Rica, stand out as economies that are more "open" to foreign trade, since their exports and imports, for all sectors, as a proportion of the gross output, are higher than the rest of the countries. Chile and Venezuela show higher than average levels of

investment in the extended agricultural sector. Finally, Venezuela's export structure is different due to the importance of its oil sector, which means that the natural resources sector accounts for a large proportion of the country's exports.

It is equally important to obtain an idea of agriculture's linkages with the generation and use of income. To examine these linkages the costs incurred by agriculture are studied. As in the previous case, the cost structure may be analyzed for each sector by country, using data from the SAMs and beginning with the: Q = II + Lc + Lnc + K + T + I, where: Q: gross output; II: intermediate inputs; Lc: remuneration to skilled labor; Lnc: remuneration to unskilled labor; K: remuneration to capital; T: land rents; and, I: indirect business tax.

Table 3 shows the results obtained for the aggregate of the countries. This shows that intermediate procurement represents, on average, 47% of the costs incurred by the primary agricultural sector for the countries in the study (excluding Costa Rica). However, if the extended agricultural sector is considered, intermediate procurement represents 55.8% of this sector's costs, both as an average and for each country. Meanwhile, intermediate input procurement by the food and agro-industrial sectors is equivalent to 58 cents for every dollar of production. Another interesting result has to do with the beneficiaries of the payments made by primary agriculture. Although most of the countries do not break this information down by urban or rural considerations (except in the SAM for Costa Rica), we can assume that most of the remuneration for skilled and unskilled labor, land and capital stays in the regions where the primary agricultural product is produced. At least 53 cents of every dollar generated by primary agriculture

remains in rural areas (the figure rises to 70 cents when the USA and Canada are omitted from the sample).

An analysis of the costs suggests that, on average, barely 1% of the costs of the primary sector of agriculture involve payments for skilled labor, while the percentage for unskilled labor is 19%. In the case of agriculture and agrifood, the percentage for skilled labor is 3.5% and 14.8% for unskilled labor. This confirms the link between agricultural production and unskilled labor, and the fact that the link with skilled labor increases as we move from primary to agriculture and agrifood.

The analysis of agricultural linkages, both through the study of the destination of production and production costs, highlights the importance of agriculture in these countries as a source of inputs for other industries, a source of foreign exchange and an important generator of value added. It is also argued here that the income generated by agriculture remains in the rural areas and plays an important role in creating sustainable rural livelihoods.

Multiplier effects

For all countries, the SAM is divided into six accounts: 1) Activities or Production Account; 2) Commodities Account; 3) Factor Accounts (includes Labor and Capital Remunerations Accounts); (4) Institutional Account (disaggregated into different socioeconomic groups: households, companies and government); (5) Capital Account; and, (6) Rest of the World Account.). The capital, governmental and external sectors were chosen as exogenous accounts. The multiplier model made it possible to explore the

impact of various exogenous changes on local supply, income, its distribution among households, the structure of institutional expenditure and capital flight.

Tables for each country with the SAM multipliers can be requested from the authors. The analysis of multipliers shows that each additional unit demanded from the primary sector produces strong impact on other sectors, generating a multiplier effect on the total output of the economy. This effect ranges from 3.076 additional units in Canada, to as many as 5.495 in Argentina. If we compare the multipliers for agriculture with those for other sectors of the economy for the 11 countries, we see that the multipliers for agriculture are similar to those for other sectors. This contradicts the accepted wisdom that agriculture has fewer effects than other activities, especially the industrial sectors. It was also estimated that every additional unit produced in the primary agricultural sector, significantly increased production in the food sector (from 0.16 in Canada to 0.73 in Argentina) as well as in the agro-industrial sector (from 0.10 in Canada to 0.56 in Argentina).

Every additional unit of primary agricultural production demanded also has a very positive effect on factor payments (labor, capital and land): from US$ 1.421 in Canada, to US$ 3.34 in Argentina. Except for Canada and Brazil, unskilled labor remuneration is higher in the agricultural sector than in other sectors of the economy, ranging from US$ 0.58 in Peru up to US $ 1.30 in Argentina. Every additional dollar of demand for primary agricultural production generates an increase in household incomes, ranging from US$ 1.42 in Canada to US$ 3.34 in Argentina. This statistic is extremely important, given that agriculture generates more household income than other industries. In the case of Peru,

the multiplier effect of agro-industry is slightly higher than that of the primary agricultural sector. Analysis of the multipliers also reveals that every dollar of government funds transferred to household incomes generates another US$ 1.50. Of this, 78 cents is in the form of capital remuneration, 4 cents in land rents and 68 cents in the form of labor remuneration (47 and 21 cents for unskilled and skilled labor, respectively). The industries that benefit most from increased demand vary from country to country, but those that benefit most from government transfers of income to households are commerce and sales (multiplier of 0.41), real estate and rents (0.17), administrative services provided by the state (0.16) and foods produced from fish, vegetables and fruits (0.15).

Simulations and policy analysis

The analysis of multipliers by means of the SAMs makes it possible to generate simulations that provide the criteria for identifying key sectors of the economy. They identify not only those with greater production linkages but also those that generate more value added and have better effects on the distribution of income between rural and urban households. A series of simulations were performed for the countries included in the study to demonstrate the usefulness of the instrument.

A first simulation is based on an analysis of the effects generated in the countries by a growth in exports of the extended agricultural sector (including the primary, food and agroindustry subsectors). Such an increase is considered exogenous, i.e. due to a hypothetical increase in demand for products on the part of the leading importers or by any other factor that produces a 10% growth in exports of agriculture and agrifood. Table 4 shows that this impact generates an initial boost to the economy, ranging from

$95 million in Venezuela to nearly $11,600 million in the United States. This amount varies according to structure and value of each country's exports. If we consider the effect that this shock will have on the economy, taking into account the fact that the agricultural sector has strong production chains and is very closely linked to the rest of the economy, we find the total impact on the economy ranges from 0.23% growth for Venezuela to 2.72% for Uruguay. In other words, the total impact of the initial shock, which is traditionally used to measure the effects on the agricultural sector, is multiplied by 2.6 times for Canada and by up to 5.7 times for Argentina.

The simulation also makes it possible to predict the effects on the generation of household or family income. In this case, the increase ranges from 0.20% in Venezuela to 2.52% in Uruguay, a pattern very similar to that for the overall effect on the economy. One obvious result, which is also consistent with what we have discussed so far, is that the factor of production that benefits most in all the countries is land, showing increases of more than 4% in the case of Uruguay and Canada. A common denominator in all the countries studied is that the increase in unskilled labor remuneration is greater than for skilled labor. This difference is greatest in Peru, where the increase in unskilled labor remuneration is almost double that for skilled labor. Furthermore, it is interesting to note that the increase in capital profits follows a similar pattern to that of labor, since this increase is situated between the growth rate for skilled and unskilled labor in the majority of the countries, except for Brazil and Peru, where the increase in capital profits is greater than unskilled labor remuneration.

The results of a simulated 10% increase in exports for the oil-seed sectors of Brazil, Canada, Uruguay and the United States suggest that the impact would be similar in all three countries: 0.03-0.05% growth in total output. Households would also benefit, with increases in income of 0.03-0.05%. However, the factor of production remuneration generated by the growth in production varies from country to country. For example, the figure for land retribution is largest for Canada (0.71%) and smallest for Uruguay (0.14%). This suggests that land is a bigger constraint in Canada than in Uruguay, as far as a possible growth in exports is concerned.

Simulating a 10% increase in demand for the corn, barley, oats and other sector confirmed just how important this sector is for Argentina. A US$141 million increase in demand in Argentina would generate 0.60% more throughout the agricultural primary sector and 0.14% in all the economy. In other words, each dollar invested would produce another US$5.4 of value.

The impact of a 10% increase in the demand for coffee varies considerably in the cases of Brazil, Colombia, Peru and Costa Rica. For Brazil, a US$274 million increase in exports would cause the country's total production to grow by US$1139 million and households would receive US$600 million more in income. A US$41 million increase in the coffee sector in Peru has a spillover effect of only US$55 million on the country's economy as a whole.

Simulations were also conducted for the vegetable, fruit and nuts sector of Argentina, Chile, Colombia, Mexico, Uruguay and Costa Rica. The effect of a 10% growth in the exports of this sector is similar in all the countries barring Costa Rica: the

initial injection produces a fourfold increase in total economic output, while for Costa Rica, the increase is twofold. Nor are there marked differences between the countries with regard to the generation of household income. Of all the sectors analyzed, this turned out to be the one whose results were most similar for all the countries studied.

Simulation of a change in investment

This simulation considers the effects of increased investment in agriculture and agrifood for all the countries (table 5). The increase amounts to US$ 100 million and is distributed between the primary, food, and agroindustry subsectors, in line with the SAM structure. This increase represents nearly 50% of the sum invested in the sector in 1997. The initial boost to the economy resulting from an infusion of investment in agriculture varies from country to country. The sum of $100 million generates an impact ranging from 0.01% in the United States up to 3.22% for Uruguay. The overall effect on the economy of these countries depends on their structure and on the value of their agricultural investments. Given the strong linkages that exist with the rest of the economy, the effect of this capital injection is multiplied by 2.5 times in the case of Canada up to 5.5 times in Argentina.

With regard to the generation of household incomes, the pattern is virtually the same as the overall effect on the economy, ranging from nearly 0.03% in the United States to around 11.8% for Uruguay. An analysis of the effects on factors of production remuneration reveals that the biggest increase in all the countries is for land, with very significant percentages in the case of Uruguay where land rents increase by almost 30%.

Similarly, the results of the simulation reveal a greater increase in payments made to unskilled labor vis à vis skilled labor, except in the case of Argentina. It is interesting to note that in Argentina, Chile, Peru, and Uruguay there is a major impact on natural resource remunerations, with very significant percentages that are almost as high as land rents, ranging from 3% in Argentina to 25% in Uruguay.

Conclusions

The study has clearly demonstrated the importance of the value added of the agricultural production chain to the domestic economies of all the countries in the Americas, thus correcting the traditional skewed view of agriculture's contribution and its potential for economic development. The study validated the methodology in 11 countries and highlighted the role of agriculture as a supplier of inputs, a generator of value added and foreign exchange earnings, and an important factor in the redistribution of income.

When analyzing agriculture's true contribution to our countries' economic development, the analytical framework of SAM multipliers makes it possible to factor in considerations related to the generation and use of income, since it provides policymakers with indicators of the effects on labor, capital, land, and household incomes. This information is important when negotiating development strategies, since it makes it possible to identify sectors that not only have a significant multiplier effect on production, but that can also have important effects on the distribution of the income and the value added generated.

The application of these methods to measure agriculture's true contribution to the economy gives us a better understanding of its importance to development. This, in turn,

makes it possible to improve decisions regarding investments and policy-making for agriculture, so that they contribute more effectively to development and poverty reduction. Future stages of the study will include other dimensions that are important for rural economies, particularly the natural resources sector, through the so-called "Green Accounting" (already in progress); the specification of regional accounts; and a better specification of promising activities such as the agro-tourism. In addition, an analytical framework will be developed to detect other contributions that are harder to quantify, related to social, cultural and environmental dimensions.

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Table 1. Gross Domestic Product and Agricultural Value Added in US$ Thousand Millions and as a Percentage, for 1997

	GDP (1)	AgGDP[1] (2)	AgGDP/GDP (3)	Agriculture and Agrifood GDP[2] (4)	Agriculture and Agrifood GDP/GDP (5)	Ratio Agriculture and Agrifood GDP/AgGDP (6) = (4) / (2)
Argentina	326	14.9	4.60%	104.9	32.20%	7
Brazil	789.7	34	4.30%	206.9	26.20%	6.1
Canada	631.1	11.5	1.80%	96.5	15.30%	8.4
Chile	76.1	4.3	5.60%	24.4	32.10%	5.7
Colombia	94.6	7.6	8.00%	30.4	32.10%	4
Mexico	388.8	17.9	4.60%	95.2	24.50%	5.3
Peru	64.9	4.3	6.60%	20.6	31.80%	4.8
Uruguay	19.1	1.2	6.20%	6.6	34.80%	5.6
United States	7.945.2	55.4	0.70%	644.9	8.10%	11.6
Venezuela	83.7	3.4	4.00%	17.2	20.50%	5.1
Costa Rica	22	2.5	11.30%	7.2	32.50%	2.9

[1] Includes: agriculture. forestry and fishing (chapters 01 to 04 of the CPC and 05 of the ISIC)

[2] Includes: primary sector plus food and manufactured goods derived from this sector (chapters 21 to 25 of the CPC and 17 to 22 of the ISIC)

[3] For Costa Rica, the primary sector consists of the first 9 lines of the SAM97; for agriculture and agrifood, 10 through 23 are added.

Table 2. Gross Output by Destination (Use) for 10 Countries in the Americas (in Percentages, by Sector)

Sector	D	I	C	X	G	M	Q
Total Agriculture and Agrifood	54.3	2.1	43.1	9.3	1.7	10.4	100.0
Primary	73.8	1.1	19.6	11.5	0.5	6.5	100.0
Food and Agroindustry	48.8	0.0	49.7	8.7	2.0	11.5	100.0
Natural Resources	109.5	0.1	0.2	25.8	0.1	35.8	100.0
Rest economy	43.1	11.4	37.0	6.7	9.5	7.7	100.0
Total	45.5	10.0	37.4	7.3	8.3	8.4	100.0

Notes: Q: gross output; D: intermediate demand; I: investment; C: private household consumption; X: exports; G: government consumption; and, M: imports. The results are weighted averages of the all countries, but Costa Rica

Table 3. Cost of the Gross Output for 10 Countries in the Americas (in Percentages, by Sector)

Sector	II	L_c	L_{nc}	K	T	I	II
Total Agriculture and Agrifood	55.8	3.5	14.8	17.9	2.8	5.2	100
Primary	46.7	0.9	18.7	20.1	12.7	0.9	100
Food and Agroindustry	58.3	4.3	13.7	17.3	0	6.4	100
Natural Resources	33.8	3.4	10.8	26.1	19.5	6.4	100
Rest economy	38.3	14.1	20.2	22.2	0	5.1	100
Total	40.7	12.5	19.3	21.7	0.6	5.2	100

Notes: Q: gross output ; II: Intermediate Inputs; Lc: remuneration to skilled labor; Lnc: remuneration to unskilled labor; K: remuneration to capital; T: land rents; I: indirect business tax. The results are weighted averages of all countries included in the study, but Costa Rica.

Table 4. Effect of a 10% Increase in Agriculture and Agrifood Exports by Country, in US$ Million an Percentage of Growth by Item

Item	Arg	Bra	Can	Chl	Col	USA	Mex	Per	Ury	Ven
Initial injection into the	1.480	1.978	5.332	655	522	11.585	1.833	278	229	95
economy (1)[1]	0.27	0.13	0.48	0.48	0.31	0.08	0.27	0.26	0.74	0.06
Tot. effect on the econ. (2)	1.55	0.71	1.26	0.02	1.19	0.34	0.86	0.94	2.72	0.23
Ratio (1) / (2)	5.7	5.4	2.6	3.4	3.9	4.2	3.2	3.7	3.7	3.7
Effect on Household										
income	1.51	0.67	1.13	1.48	1.17	0.31	0.83	0.95	2.52	0.20
Factor payments (%)										
Land	2.99	1.54	4.60	3.61	3.09	2.13	1.86	1.92	4.06	0.57
Unskilled Labor	1.55	0.64	1.22	1.65	1.26	0.32	0.93	0.93	2.76	0.24
Skilled labor	1.22	0.52	1.00	1.13	0.86	0.27	0.60	0.57	2.18	0.18
Capital	1.46	0.71	1.07	1.37	1.07	0.32	0.79	0.97	2.36	0.19
Natural Resources	1.07	0.76	1.11	2.19	0.65	0.34	0.45	1.09	3.70	0.08

[1] Datum in US$ million and as a percentage change

Table 5. Effect of a US$100 Million Increase in Investment by Country, as a Percentage of Growth by Item

Item	Arg	Bra	Can	Chl	Col	USA	Mex	Per	Uru	Ven
Initial injection into the economy	0.18	0.07	0.09	0.73	0.59	0.01	0.15	0.93	3.22	0.66
Total effect on the economy	1.00	0.34	0.23	2.41	2.24	0.03	0.48	3.37	11.74	2.42
Total effect/ Initial injection	5.5	5.2	2.5	3.3	3.8	3.8	3.2	3.6	3.6	3.6
Effect on household income	1.02	0.34	0.21	2.24	2.17	0.02	0.49	3.56	11.78	2.14
Factor payments										
Land	1.07	0.87	0.36	5.56	5.38	0.03	1.75	7.03	27.82	6.42
Unskilled Labor	0.80	0.32	0.23	2.50	2.35	0.03	0.62	3.46	13.39	2.61
Skilled labor	0.94	0.26	0.20	1.69	1.64	0.02	0.32	2.11	9.34	1.87
Capital	0.76	0.36	0.19	2.07	2.01	0.02	0.42	3.66	10.34	1.97
Natural Resources	1.02	0.39	0.13	3.36	1.22	0.02	0.32	4.00	24.66	0.84