



Commodity Chain Analysis

Impact Analysis Using Market Prices

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See also the Value Chain Analysis software

The FAO-VCA software tool carries out value-chain analyses for agricultural and rural development policies. By storing relevant data it can calculate flows of physical outputs and inputs, flows of aggregated costs, value-added and net benefits. In addition, it allows users to directly compare different hypothetical scenarios. [FAO-VCA Software Tool»](#) [Value Chain Analysis for Policy Making: Methodological Guidelines for a Quantitative Approach»](#)

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1 SUMMARY

This module provides a presentation of impact analysis using markets prices. It belongs to a set of modules which discuss how to carry out the commodity chain analysis (CCA) through a step-by-step procedure.

The module starts by a presentation of the principles of impact analysis. There are three stages of calculation:

- direct effects,
- indirect effects and
- total effects.

This module next describes two kinds of empirical estimation. It then tries to compare economic policies on the basis of economic analysis, thereby finishing by the analysis of impact assessment of the chain.

2 INTRODUCTION

This module¹ deals with the impact analysis within the CCA and shows the analytical tools to evaluate the impact using market prices.

To find relevant materials in these areas, the reader can follow the links to other EASYPol modules or the references². This module belongs to a set of modules which discuss how to carry out the commodity chain analysis (CCA) through a step-by-step procedure. It is introduced through module EASYPol 043: [Commodity Chain Analysis. Constructing the Commodity Chain: Functional Analysis and Flow Chart](#) which presents CCA as a framework. Users are recommended to read the module EASYPol 044: [Commodity Chain Analysis: Financial Analysis](#) beforehand so as to understand the principles of financial analysis.

Objectives: This module shows analytical tools which can be used to evaluate the impact of a commodity chain. The impact analysis lays the basis for the analysis of economic policies. From this we can see how commodity chain analysis can be used to illuminate issues of interest at a national level.

¹ This module is based on a translation from French of FAO's Training Materials for Agricultural Planning, No. 35, *Note de méthodologie générale sur l'analyse de filière: Utilisation de l'analyse de filière pour l'analyse économique des politiques*, by Pierre Fabre, 1994 (initially translated into English by Anne M. Thomson, 1998).

² EASYPol hyperlinks are shown in blue, as follows :

- training paths are shown in **underlined bold font**;
- other EASYPOL modules or complementary EASYPol materials are in **underlined bold italics**;
- links to the glossary are in **bold**; and
- external links are in *italics*

This module can be used in different contexts such as:

- reference material for policy analysts in carrying out their on-the-job tasks,
- in academic courses.

Targeted audience: This module is intended for a wide audience, ranging from policy analysts and decision makers, to development practitioners, training institutions, and media. It is of particular relevance to senior and mid level officials and professional officers in ministries of agriculture, livestock, forestry, rural development, and cooperatives, including line departments and training institutes/units. It should also be of particular interest to senior executives of parastatals, financial institutions, and NGOs/CBOs. Suitably adapted, it may also be used as a reader in undergraduate courses in development.

Required background : To understand the content of this module, basic elements of micro-economics and a basic knowledge on agriculture commodity sector trade functioning are required. But no specific technical background, beyond reasonable language skills, is required for this module.

It is anticipated that individuals with a degree in economics, and agricultural or rural development related areas, and those with several years of experience in agricultural policy analysis or development planning and implementation, at a mid to senior level position, should have little difficulty in grasping the module's content.

3 PRINCIPLES OF IMPACT ANALYSIS

Impact analysis consists of the analysis of the upstream induced effects of the productive activities of the chain, as a result of the demand for intermediate inputs from the rest of the economy. These knock-on effects result in flows of income to labour and capital, and can have consequences for the country's foreign exchange bill as a result of importing intermediate inputs. Thus the commodity chain can be viewed as an integral part of the national economy, and its impact on growth and income can be analyzed in terms of the chain's contribution to developmental policy objectives.

The following principle is the basis for impact analysis using market prices:

All prices can ultimately be decomposed into an element of income distribution (returns to a factor of production) and an element of foreign exchange costs.

This calculation, and the analysis of its two component parts, lays the basis for the analysis of economic policies. From this we can see how CCA can be used to illustrate issues of interest at a national level.

Although the above statement is phrased in terms of actual prices, the discussion below will be in terms of total value of production, as calculated in the consolidated production-trading account. This facilitates us in making the link between the financial

analysis discussed above and impact analysis, and if the analysis is carried out rigorously, it will give identical results.

Once the consolidated accounts of the chain under consideration have been constructed, there are three stages of impact analysis:

- the calculation of direct effects
- the calculation of indirect effects
- the calculation of total effects

3.1 Direct effects

To calculate these, the analyst must extract those entries from the consolidated production-trading account of the chain which refer to direct distribution of income to institutional sectors or agents. These comprise:

- distributed income which can be directly read from the trading account, as follows³:
 - personnel remuneration
 - financial charges
 - taxes assigned to products, taxes linked to activities
 - trading profits
- plus the amount of import taxes and custom duties which are included in the value of intermediate inputs directly imported by the agents in the chain⁴ and which appear in the inputs column of the consolidated production account;
- minus the amount of subsidies or insurance payments included in the supply column in the consolidated trading account.

Box 1. Direct and indirect taxes

Direct taxes:

Compulsory transfers of money from individuals or enterprises to the public authorities which are levied on their income or wealth, and are independent of their level of turn-over or expenditure.

Indirect taxes:

These can be assessed on the volume or market value of goods and services produced (taxes levied on products) or on other activities without reference to a specific product.

³If figures are for net profit, this would also include depreciation.

⁴ These can be identified from the production account of the agent concerned (or from the data sources from which the account is derived).

To analyze direct effects on domestic growth, we can subdivide value added as follows:

$$VA_{direct} = Y - (II_{dom} + II_{cif})$$

Where:

VA_{direct} = Value added as shown in the production account + taxes and customs duties on imported II.

Y = Value of overall production in the chain, as measured in the consolidated account.

II_{dom} = Total value of intermediate inputs from outside the chain aggregated for all agents in the chain.

II_{cif} = Foreign exchange costs of intermediate inputs imported by agents in the chain, including all transport costs to the port of entry into the country, insurance and sundry expenditures included. This term can also be denoted as $Imports_{direct}$.

This equation can be rewritten:

$$Y = Imports_{direct} + II_{dom\ direct} + VA_{direct}$$

Looking at the impact on foreign exchange, the direct effects can be calculated as the net balance between the earnings (Y_{export} that part of the output of the chain exported) and costs in foreign exchange:

$$Net\ increase\ in\ foreign\ exchange = Y_{export} - II_{cif}$$

The direct effects on income distribution (the impact on consumption and savings) are calculated as follows:

$$Income\ distributed_{direct} = VA_{direct} + Trading\ subsidies_{direct}$$

These can be divided up by institutional sector:

- Personnel remuneration + handling of imported intermediate inputs + Social security payments.
- Financial charges + insurance charges.
- Taxes levied on products + taxes and duties on imported intermediate inputs - trading subsidies.
- The sum of profits of all the agents in the chain.

Box 2. Trading subsidies

Direct trading subsidies consist of current transfers from the public authorities without a corresponding flow of goods. These are a common economic policy measure used to influence prices or to improve remuneration to the factors of production.

In this context we are only concerned with subsidies received by all the agents in the chain in respect of their activities linked to the production or transformation of the output of the chain.

3.2 Indirect effects

As with the direct effects, the indirect effects of the operation of the chain on other agents in the economy are measured in terms of the impact on growth, net foreign exchange gains and income distribution. This is done by ascending the chain of production.

At the first level, domestic intermediate inputs, Π_{dom} , which by definition are produced in the country, are broken down into their primary components.

Each of these domestic intermediate inputs is decomposed in the same way as the direct effects discussed above. The value of the domestic intermediate inputs (first level) is broken down into:

- domestic intermediate inputs (second level);
- imported intermediate inputs (second level);
- value added.

Then, in turn, the new intermediate inputs (second level) are broken down into:

- domestic intermediate inputs (third level);
- imported intermediate inputs (third level);
- value added;

and so forth.

As the different levels of production are successively decomposed, the amount of the various intermediate inputs will become negligible: their value can then be broken down into two items:

- an item of indirect imports, the sum of intermediate inputs, imported at different stages of the production of the intermediate inputs used in the chain;
- an item of indirect value added, the sum of the value added distributed at the same stages of production. At each stage, value added is broken down into the various components of income, e.g. salaries and costs, taxes and duties,

gross profits. This gives an overall breakdown of indirect value added into the different components of income.

In theory, the number of levels included could be infinite. In practice, particularly in developing countries where production structures are often very weakly integrated, convergence on these two items is rapid and it is generally sufficient to go to the second level, and very exceptionally to the third to reach a satisfactory level of precision.

A mathematical expression of this process of calculation is given in annex 1. In practice, we can add up the components of foreign exchange cost and value added to give:

$$II_{dom} = Imports_{indirect} + VA_{indirect}$$

The indirect effects comprise:

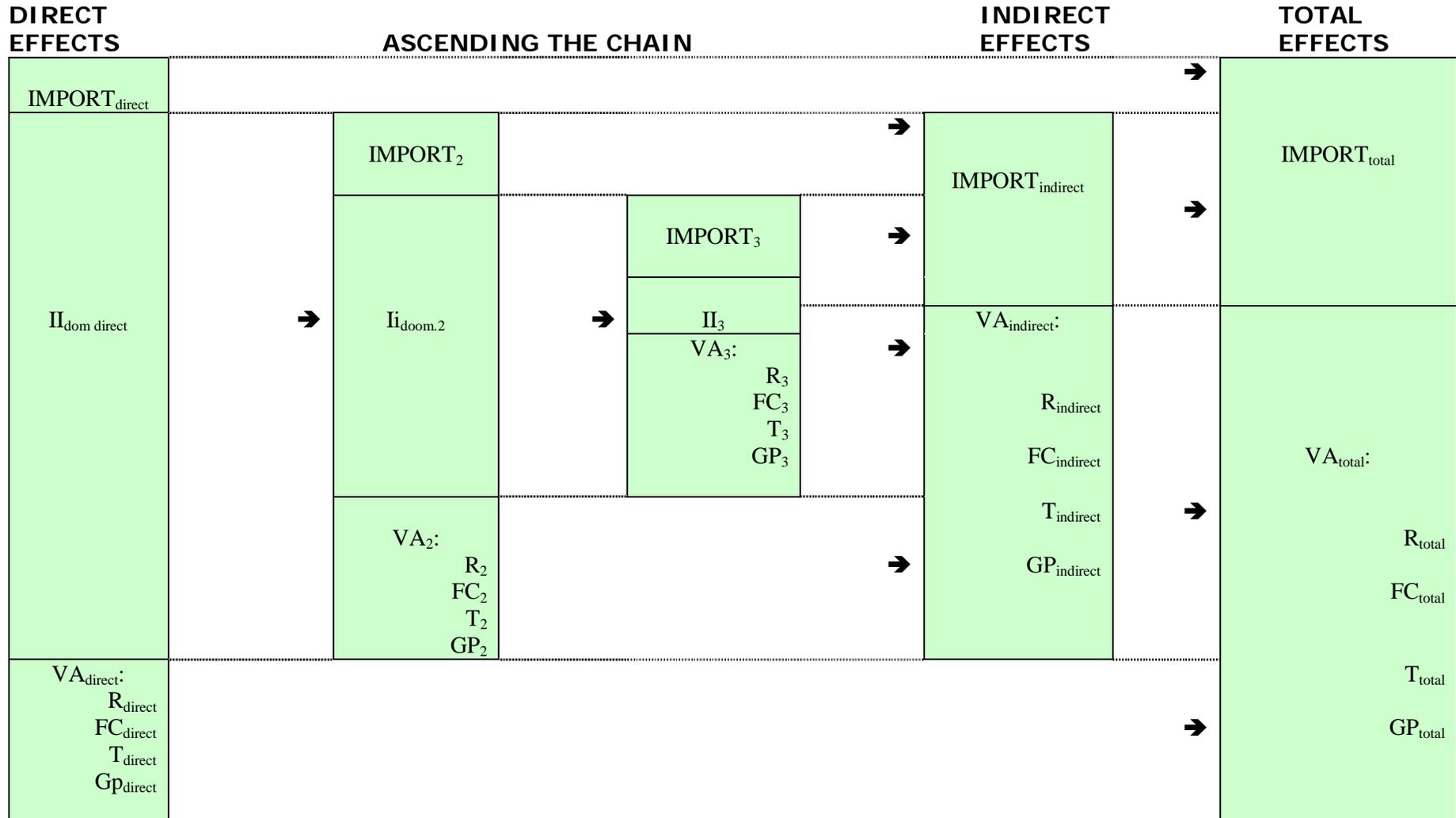
- the total amount of foreign exchange expenditure resulting from the induced supply of intermediate inputs necessary for the operation of the chain;
- the sum of value added created in the production of these goods and services supplied directly and indirectly to the agents of the chain.

This value added corresponds to the overall distribution of income to the institutional sectors as follows:

- Personnel remuneration + handling of imported intermediate inputs + Social security payments.
- Financial charges + insurance charges.
- Taxes levied on products + taxes and duties on imported intermediate inputs - trading subsidies.
- The sum of profits of all the agents in the chain.

The activity part of these agents in the chain corresponds to the production of direct and indirect imported intermediate inputs.

CALCULATION OF OVERALL IMPACT



3.3 Total effects

This last stage of the calculation consists of adding together the direct and indirect effects:

$$Total\ effects = direct\ effects + indirect\ effects$$

i.e.:

$$Imports_{total} = Imports_{direct} + Imports_{indirect}$$

and:

$$VA_{total} = VA_{direct} + VA_{indirect}$$

Using this, we can show:

$$Y = Imports_{direct} + II_{dom} + VA_{direct}$$

i.e.:

$$Y = Imports_{direct} + [Imports_{indirect} + VA_{indirect}] + VA_{direct}$$

Hence:

$$Y = Import_{total} + VA_{total}$$

In a similar fashion to the decomposition undertaken for direct and indirect effects, total value added can be expressed as income distributed to the different institutional sectors:

- Personnel remuneration + handling of imported intermediate inputs + Social security payments.
- Financial charges + insurance charges.
- Taxes levied on products + taxes and duties on imported intermediate inputs - trading subsidies.
- The sum of profits of all the agents in the chain.

By using the total components the analyst can arrive at a comprehensive description of the economic consequences of the operation of the commodity chain in the context of a specific set of economic policies.

3.4 Value added and income distribution

It is often assumed in impact analysis that total value added equals the amount of income distributed, but this is not necessarily so. It will only be true if income derives solely from value added created. However, every time a production agent receives a

subsidy, income distributed is greater than the value added created in the production process.

It is easy to understand the mechanism which leads to this discrepancy between the value added and income distributed if we look at the trading account. We enter value added and trading subsidies on the Supply side of the account. On the Utilization side, these resources are broken down into personnel remuneration, financial charges, indirect taxes and trading profits, i.e. distributed income.

Income distributed to institutional sectors other than the government	=	Value added created	+	Trading subsidies net of taxes
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This clearly shows that the distribution of income to certain agents can be increased by the transfer of taxes or subsidies from other agents.

The government both taxes and subsidies so the income distributed to institutional sectors for the productive activity of the chain is equal in total to value added plus subsidies less the amount of taxes collected.

An interesting example occurs when production agents create a negative value added in an operation. The value of production of this operation is thus less than that of the intermediate inputs used. Any direct distribution of income is thus only possible through transfers coming from either the State⁵ or from the productive agent himself who can draw down his own funds or borrow. If there is a distribution of income to any other agent in this case, it is made possible by a transfer from other agents (the government, NGOs, the agent himself) at the expense of their own impoverishment or indebtedness.

4 EMPIRICAL ESTIMATION

In practice, empirical impact assessment can be undertaken in two ways:

- by manually ascending the production chain;
- statistically by using the total coefficients for the various branches of the chain and/or an input-output table for import content.

The two methods do not exclude one another⁶, and frequently both are used, where ascending the chain manually gives a more reliable result for the most important domestic intermediate inputs and the use of an Input-Output table gives quicker results for the other items.

⁵Or private non-profit making institutions, such as NGOs (Non-governmental organisations).

⁶It is equally useful to underline that neither one is more "representative" of impact analysis, contrary to the widely held idea that the use of an input-output table is necessary for the calculation of total impact.

4.1 Ascending the chain manually

By carefully reading the production-trading accounts of the successive upstream suppliers the analyst can calculate the relevant indirect effects (imports, composition of value added, including customs duties, trading subsidies) on a pro rata basis for the items in the chain under analysis. The procedure is similar to that given in Annex 1.

The main part of the work lies in the collection of data and the construction of the accounts. The principal sources of information for this are the enterprises themselves, the fiscal authorities and economic information centres. Access to the actual accounts of the agents themselves is not always easy and frequently we have to use the accounts of similar businesses or accounts developed for specific case studies.

However, it is important to stress that this task of manually ascending the chain should only be undertaken for those domestic intermediate inputs which are of a sufficient magnitude to justify the work involved in this procedure. The less relative importance of the intermediate inputs, the more sense it makes to use proxy accounts as the impact on the overall results will be slight. This should not be seen as a compromise, but a procedure justified by the rapid convergence which occurs when ascending the chain.

4.2 The use of total coefficients

Where national accounts exist, they can be used to break down the quantities of intermediate inputs into their indirect components. These contain coefficients which give, in percentages, the average content for imports and VA for each production unit in a branch. The calculation itself is simplified because the analyst only has to multiply each item in the consolidated production account by the total coefficient for the corresponding branch to obtain the breakdown of this item into imports_{total} and VA_{total}.

$$Imports_{indirect} = \sum_i (II_i \times Coeff Imports_{total i})$$

$$Va_{indirect} = \sum_i (II_i \times Coeff Va_{total i})$$

These total coefficients come from:

- the Input-Output table for import content produced by the national accounts office. Further information on the necessary inversions to obtain the total coefficients can be found in standard reference works on Input-Output tables;
- sectoral or branch studies based on production accounts and supply-utilisation accounts produced by the national accounts office;
- existing studies on sub-branches or particular products, which contain calculations derived from ascending production chains.

5 COMPARING ECONOMIC POLICIES

It is very difficult to judge a policy in isolation, on the basis of economic analysis. It is only in relation to other alternative policies that the advantages and disadvantages of specific combinations of policy measures can be assessed.

Everything else being equal, the net advantage of policy A over policy B can be measured simply as follows:

$$\text{Net advantage}_{\text{policy A over B}} = \text{Impact}_{\text{policy A}} - \text{Impact}_{\text{policy B}}$$

Thus, for the impact on growth:

$$\Delta VA_{A/B} = VA_{\text{policy A}} - VA_{\text{policy B}}$$

and for the impact on foreign exchange:

$$\Delta \text{Imports}_{A/B} = \text{Imports}_{\text{policy A}} - \text{Imports}_{\text{policy B}}$$

Similarly the same definitions hold for distributed income, for example in the case of farmer income:

$$\Delta GP_{A/B} = GP_{\text{policy A}} - GP_{\text{policy B}}$$

where GP represents total gross profits of all the farmers concerned, directly or indirectly, in the chain.

The policies under comparison may have differing economic implications, for example on prices or the evolution of salary scales, and technical implications, in terms of the use of factors of production by agents. These, strictly speaking, are exogenous to the impact calculation, but their consequences for flows of goods and services, in both volume and value terms, should be taken into account.

The comparison of two situations resulting from alternative policy measures must be undertaken with care. If the economic impact of two different policy measures results in the same volume of production for the domestic final market at the same price, then,

$$Y_{\text{policy A}} = Y_{\text{policy B}}$$

It is easy to show that, in this case:

$$\Delta VA = - \Delta \text{Imports}$$

The variation in value added is equal, but of opposite sign, to the variation in foreign exchange balance.

But policies more usually affect both the volume of final domestic demand and/or the price of the product. In this case, the impact of the policy adopted is measured by the

following equalities:

- where there is a change in the price of the final product delivered to the domestic market:

$$\Delta VA + \text{Consumer Benefit} = - \Delta Imports$$

- where there is a change in the level of final domestic demand:

$$\Delta VA_{total} = \Delta Demand - \Delta Imports_{total}$$

Box 3. Consumer benefit

This refers to the effect on consumer income of a fall or rise in price.

It should not be confused with the concept of "consumer surplus" as used in neo-classical economic theory which takes into account variations in the value and quantities consumed in relation to their equilibrium level of supply and demand.

6 ANALYSIS

The analysis of impact assessment can be undertaken using three major types of data: absolute data, comparative data and criteria.

Absolute data derive from the initial result of the impact assessment: measures such as the net flow of foreign exchange, the amount of value added created, the net flows of income to the various institutional sectors and to agents. These are valid for the baseline set of policies operating during the period under consideration⁷.

Finally, criteria are indicators constructed to enable the analyst to judge in an aggregated way the structure of wealth creation, the resources used, the resulting economic costs and benefits and their distribution. Such criteria allow to compare easily between policies and commodity chains, and even between countries. For this reason, they are particularly useful in policy analysis.

The criteria presented below do not form an exhaustive list. They have been included as the most useful indicators of policy impact, particularly when considering the objectives of development strategy⁸.

⁷ Comparative data arise from comparing two situations corresponding to different economic policies, as can be seen in EASYPol Module 044: [Commodity Chain Analysis: Financial Analysis](#).

⁸ It is even possible, for particular policy measures for which the specific cost is known to calculate an indicator of profitability (of a cost-benefit ratio type, or a recovery period).

Those presented in boxes are the most commonly used. The others give information on more narrowly defined issues.

The recommended calculations break down the value of final production of the chain into:

- total imports;
- total value added, broken down in turn by recipient.

6.1 The impact on economic growth

By definition, the amount of total value added, VA_{total} , measures the contribution of the commodity chain to Gross Domestic (or National) Product.

Tables or histograms can be derived to indicate the major agents in the chain who create value added, those who create very little value added, even those for whom value added is negative.

The comparison of value added, $\sum VA_{total\ A/B}$, is the major indicator used in the evaluation of alternative policies. However, other criteria can help the analyst present a more complete picture.

The rate of integration with the economy is an indicator of the extent to which the chain depends on domestic production, or its degree of linkage with the domestic economy.

$$\text{The rate of integration with the economy} = \frac{VA_{total}}{Y}$$

Although the interpretation of this statistic is subjective, we can say that a rate below 50% shows an outward-oriented chain, that is, one heavily dependent on imports, and thus with little linkage (with the rest of the economy, possibly) limiting its developmental impact. A rate above 90% shows a chain the activities of which basically depend on domestic resources. As a rule of thumb, a chain with a rate of integration of over 70% can be considered to have good linkage with national economic activity. However, the analyst must take into consideration factors such as the country's level of economic development and the particular chain studied. If the domestic chain is the first very limited stage of an international chain, where the country only controls a segment of primary production, says a cocoa bean producer, the rate of integration might be high, but this chain would not be a good basis for promoting development.

The **average capital coefficient** is an indicator of the importance of fixed capital consumed in the creation of value added:

$$\text{Capital coefficient} = \frac{\sum \text{Depreciation}}{VA_{total}} = \frac{\text{Depreciation}_{total}}{VA_{total}}$$

This criterion is often difficult to handle because total depreciation is seldom known, and generally the analyst will have to use depreciation figures only for those agents directly involved in the chain. It may help to estimate the current weight (gap) of investment and drive to future investment needs in a growth scenario. To use this indicator on a comparative basis, requires detailed knowledge of the national economy and the various branches of the chains concerned.

Nonetheless, this is one of the few indicators which takes into account the importance and duration of fixed capital. Its inverse is the economic return to a monetary unit of capital consumed measured in terms of in value added.

Another criterion which is very useful is the importance of the chain in the national economy, as measured by the ratio of total value added to either GNP or GDP.

$$\text{Economic importance} = \frac{VA_{include}}{PIB}$$

This criteria can be calculated with an internal view : $VA_{include\ intérieure}/PIB$, or from a national view point: $VA_{include\ nationale}/PNB$

6.2 The impact on foreign exchange

The sum of foreign exchange spent, $Imports_{total}$, measures the overall impact of the chain on foreign exchange. In the case of export chains, or chains exporting a part of their product, it is the net balance in foreign exchange which measures the contribution of the chain to the balance of payments.

$$\text{Net balance in foreign exchange} = \text{net imports} = Y_{exported} - Imports_{total}$$

Here again the comparison between alternative policies is shown as a gain or a loss in additional foreign exchange:

$$\Delta Imports_{A/B} = Imports_{total\ net\ A} - Imports_{total\ net\ B}$$

For a more detailed examination, the impact on foreign exchange can be studied at three levels:

- **The impact on the balance of trade: BT**

This is determined by the net balance of goods and services exchanged as a result of the activity of the chain:

$$BT = P_{exported} - Import_{total}$$

The only expenditures considered ($Imports_{total}$) are those linked to the import of goods and services, including intermediate inputs.

- **The impact on the Balance on Current Account : BCA**

From the net amount of the balance of trade, are subtracted the salaries paid to expatriate personnel⁹ as well as trading profits repatriated to foreign owned companies¹⁰.

$$BCA = BT - \text{Salaries}_{\text{expatriate}} - \text{Net Trading Profits}_{\text{foreign companies}}$$

- **Impact on the Balance of Payments: BP**

This takes into account financial movements resulting from international grants and loans received by agents in the chain.

$$BP = BCA - \text{Trading subsidies}_{\text{foreign}} - \text{financial charges}_{\text{foreign}}$$

In practice, because of the short-term nature of policy analysis, this essentially means taking into account interest paid to overseas banks by agents of the chain. However, where possible, medium term items such as repayments of capital abroad or the receipt of loans or gifts of equipment coming from overseas should be indicated in the analysis.

The **Efficiency Ratio of Foreign Exchange Expenditures** is an indicator showing the total amount of net gain in foreign exchange, per unit of foreign exchange spent in the production process of the chain.

$$\text{Efficiency of foreign exchange expenditures} = \frac{\text{Net foreign exchange flow}}{\text{Imports}_{\text{total}}} = \frac{Y_{\text{exported}} - \text{Import}_{\text{total}}}{\text{Imports}_{\text{total}}}$$

A negative efficiency ratio of foreign exchange expenditure means that the chain exports none of its output, or that the portion exported is less than the overall foreign exchange cost of operation of the chain. If the ratio is positive, the ratio indicates the net profit in foreign exchange of each unit of foreign exchange spent.

6.3 Income distribution to domestic agents

Any flows of income distributed come either from the creation of new wealth (value added) or from transfers between agents (subsidies). How agents are categorised for analysis will depend on the objectives of the study. The following are the usual options:

- for the agents of the chain:
 - the trading profit of each agent could be identified, and agents categorised by socio-economic type;

⁹Or that part of their salaries repatriated to their country of origin.

¹⁰Or that part of profits actually repatriated to the country of origin.

- alternatively, profits could be identified according to type of enterprise: modern sector businesses, trading enterprises, family farms, public or private enterprises, market regulatory bodies;
- for other institutional sectors:
 - modern sector salaried workers, rural casual workers, other forms of temporary workers, both inside and outside of the region;
 - financial flows destined to the private sector, to development banks or to insurance companies.

All these data can be used for a regional impact analysis.

6.4 The impact on the government budget

It is useful to show separately:

- **the revenue and expenditure of the government budget: taxes and duties collected on all products and activities, trading subsidies granted;**
- **the receipts, expenditures or trading profits of public or parastatal organisations which are not automatically included in the budget.**

The sum of all these movements gives the net impact of the chain on government finances. It shows, all things considered, the direction of net flows from government to the chain - is the chain a drain on or a support to government?

$$Government\ budget_{total} = \Sigma Taxes - \Sigma Subsidies + \Sigma Profits_{public\ sector}$$

i.e.:

$$Government\ budget_{total} = Taxes_{total} - Subsidies_{total} + Profits_{public\ sector}$$

A number of indicators can be used to clarify this often controversial issue over the justification for state subsidies.

The **Direct Rate of Taxation/Subsidy** measures the nominal level of transfer, i.e. measured in terms of direct effects:

$$Direct\ rate\ of\ taxation = \frac{Government\ budget_{direct}}{VA_{direct}}$$

This rate could also be called the nominal rate of taxation.

The **Effective Rate of Taxation/Subsidy** includes indirect transfers between the government and economic agents:

$$\text{Effective rate of taxation} = \frac{\text{Government budget}_{total}}{VA_{total}}$$

These two indicators measure the tax or subsidy content of the value added created. A rate of 0.10 means that 10% of the value added created is captured by the government. A positive rate indicates taxation, a negative rate, subsidy.

If it seems more appropriate, the analyst can replace the figure for value added in the denominator by the figure for total turnover in the chain (value of production). The tax rate is then given per unit of monetary output.

Finally, the **real government cost coefficient** relates the total government budget to the nominal cost of direct subsidies given:

$$\text{Real government cost coefficient} = \frac{\text{Government budget}_{total}}{\sum \text{Subsidies}_{direct}}$$

This indicator shows the real impact on the government's finances of each monetary unit given in direct subsidy to agents in the chain.

- **If the ratio is negative, this shows that, overall, the state subsidizes the chain:**
 - if it is less than -1: these direct subsidies have been increased by other subsidies derived from induced activities; the direct intervention of the state in the chain leads to other indirect financial support;
 - if it lies between -1 and 0: the coefficient shows the proportion of the direct subsidy which is not recovered through taxes and duties arising from the activity of the chain;
- **If the ratio is positive, this shows that, overall, the state gains money from all the direct and indirect activities of the chain taken together: it measures, in some sense, the return per monetary unit "invested" in the chain.**

7 CONCLUSION

This module focuses on impact analysis using market prices. It belongs to a set of modules which discuss how to carry out the commodity chain analysis (CCA) through a step-by-step procedure and shows analytical tools which can be used to evaluate impact analysis. The calculation and the analysis of market prices (in its two components parts: element of income distribution/ element of foreign exchange costs) lays the basis for the analysis of economic policies.

8 READERS' NOTES

8.1 Time requirements

The delivery of this introductory module may be suitable for any audience of skilled staff requiring to be introduced on Commodity Chain. In most cases, it may be presented in a one hour and a half session.

8.2 Frequently asked questions

Frequently asked questions are e.g. the following:

- **Who decides what is *in* and *out* the commodity chain?**
- **What is the difference between the commodity chain analysis and value chain analysis?**

8.3 EASYPol links

This module belongs to a set of modules about the Commodity Chain Analysis.

- [Commodity Chain Analysis. Constructing the Commodity Chain: Functional Analysis and Flow Chart](#), EASYPol Module 043
- [Commodity Chain Analysis: Financial Analysis](#), EASYPol Module 044
- [Commodity Chain Analysis: Impact Analysis Using Shadow Prices](#), EASYPol Module 046

See two case studies using the Commodity Chain Analysis are reported in the EASYPol module:

- [Case Study on Commodity Chain Analysis: Irrigated Rice Chain of the Niger's Office \(Mali\): Financial and Economic Account](#), EASYPol Module 047
- [Commodity Chain Case Study: Analysis of the Suburban Horticulture Sub-Chain of Bamako \(Mali\)](#), EASYPol Module 048

See all VCA material on EASYPol resource package: [Value Chain Analysis](#)

9 FURTHER READINGS

There is virtually no Anglophone literature which deals directly with CCA. It is however, discussed in the context of constructing Policy Analysis Matrices, though there is little on financial analysis or even impact analysis.

Audette, R., Larivière, S., Martin, F., 1994. *Analyse de filière dans le secteur agro-alimentaire: guide de réalisation d'une étude filière*, Rapport préliminaire ACIDI - Eco. rurale inc.

Bockel, L., 1996. *Analyse de la sous-filière maraîchage péri-urbain de Bamako*, Document de travail, Document de formation pour la Planification Agricole, Division de l'Assistance aux Politiques (TCAS), FAO.

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Durufle G., Fabre P., Yung J. M., *Les effets sociaux et économiques des projets de développement rural: manuel d'évaluation*, Ministère de la Coopération, Documentation française.

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Mauget, R., 2002. *Agri-Food Chain Analysis*. ESSEC Business School, Paris, France.