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## **THE RHODESIAN JOURNAL OF ECONOMICS**

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# THE RHODESIAN JOURNAL OF ECONOMICS

## **Educational Development in Rhodesia**

R. C. Bone

Professor Bone is Director of the Institute of Education at the University College of Rhodesia.

## **Major Institutional Requirements for Successful Economic Development.**

S. J. Pejovich

Dr. Pejovich is Associate Professor in Economics at the University of Texas.

## **Industrial Classifications in National Accounting**

E. Osborn.

Mr. Osborn is Chief Economist in the Rhodesian Treasury.

## **The Case for Road Transport in Rhodesia**

P. J. B. Wimbush, F.C.A., M. Inst., C.A., (S.R.).

Mr. Wimbush is a former General Manager of Swift Transport.

## **ADDRESSES**

### **Employment Problems in Rhodesia (Address to the Annual Dinner of the Rhodesian Economic Society).**

A. E. Abrahamson.

The Hon. A. E. Abrahamson is a former Minister of Labour and a leading industrialist.

### **Developing the Tribal Trust Lands (address to the Annual Dinner of the Institute of Directors).**

J. J. Wrathall.

The Hon. J. J. Wrathall is Minister of Finance.

# INDUSTRIAL CLASSIFICATIONS IN NATIONAL ACCOUNTING

E. OSBORN<sup>(1)</sup>

In the Western world, the classification of industries in the national accounts is universally based on the United Nations International System of Industrial Classification—the I.S.I.C. This system, while ensuring international standardisation and comparability, has to be modified by any particular country to meet its own particular problems. Departures from the system are common where the unit of classification is the enterprise and even frequently where it is the establishment. What is rare is a rearrangement of industries carried out *ad hoc* to elucidate the particular economic problems of a country.

I believe that in the case of most primary producing countries there is opportunity and need for greater initiative and flexibility on the part of national accountants in the arrangement of industries. It is characteristic of primary producing countries that the centres of production lie either in agriculture and or mining. This production is generally export oriented.

There are normally industrial and distributive activities associated with the primary industries, corresponding to the backward and forward linkages. The backward linkages arise with the provision of goods and services to the primary industries, and the forward linkages with the bulk processing, beneficiation and distribution of the primary products.

All the linkages, backward and forward, may be mapped out in a detailed input-output matrix. At a higher level of aggregation in the national accounts, however, the linkages will be lost sight of. It would be advantageous to have an arrangement of industries in the national accounts which reflected the linkages and thus the realities of the economic structure of a country.

Generally speaking, the identification of activities wholly associated with backward linkages is impractical. There are exceptions such as fertiliser plants which the national accountant may wish to be associated with agriculture.

More important and more readily identifiable, however, are the direct forward linkage activities. These could be associated more closely with the initiating primary activity in the system of accounts.

## The U.N. Classification

The United Nations' system<sup>(2)</sup> provides for a breakdown of industry into broad divisions, being agriculture, forestry, hunting and fishing—division 1 mining, divisions 2 and 3 manufacturing, etc. Within the divisions there are major groups. For example, 20 refers to food manufacturing industries and 23 refers to the manufacture of textiles. The final stage of sub-

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1. The views expressed in this paper are purely personal.

2. Statistical papers, series M, number 4, rev. 1. International Standard Industrial Classification of all Economic Activities, United Nations, New York, 1958.

division in the United Nations classification is provided at the so-called group level which has a three digit reference. For example, within the food manufacturing industry, major group 20, we find slaughtering, preparation and preservation of meat as group 201, manufactured dairy products as group 202, canning and preserving of fruits and vegetables 203, etc. The three digit system of classification suffices for most purposes, certainly amongst the less developed countries, and only rarely is there the need for a fourth digit sub-division of a group. There is, however, a move towards the adoption of a four digit system by the United Nations Statistical Commission.

All the groups are clearly defined in the United Nations' classification and are generally of universal applicability. The main difficulties in applying the United Nations' system of classification in practice arise with the productive unit to be classified. Ideally the units should have one homogeneous kind of economic activity. In practice, however, we find that the reporting unit frequently has a number of activities which make for difficulties in classification. Usually these are solved by classifying according to the main activity of the establishment determined by the value of the activity.

Problems of classification also arise in cases of vertical integration. In Rhodesia, the sugar estates are essentially one establishment where the activity begins at the growing of cane and ends with the sale of raw sugars. According to the United Nations' classification, if separate reporting units were available, the growing of the cane would be classified under agriculture and the processing of the cane under manufacturing. Without separate reporting units, the estates would be classified with manufacturing as the end product is a processed one. With appropriate statistical expertise a separation of the estates might be possible, but it has been decided largely on grounds of "common-sense" that all the activities of the sugar estates should be classified under agriculture.

A similar case arises in Zambia in the copper mining industry. The end product of the industry is electrolytically refined copper. According to the United Nations' system the extraction of ores is classified as mining and the smelting and refining of the copper is classified as manufacturing under group 342, Non Ferrous Metal Basic Industries. There is no practical difficulty in distinguishing between refining and other activities as separate companies are involved but the break has always been regarded as too artificial and all activities up to the point of sale of refined copper have been classified as mining.

### **The Industrial Classification for National Accounts**

All countries adhering to the United Nations' system of national accounting present a table of the industrial origin of the gross domestic product (G.D.P.). The breakdown by industries conforms with the United Nations I.S.I.C. Thus in Rhodesia we have a table giving the respective contributions to the G.D.P. by agriculture, mining, manufacturing, building and construction, etc.

Users of this table are accustomed to this presentation and in the case of Rhodesia are familiar with the respective contributions to the G.D.P.—19 per cent for agriculture, 6.5 per cent for mining, 19 per cent for manu-

facturing, etc. They are, however, not aware of the relative importance of the industries dependent on primary production as these are completely obscured by the present broad industrial classification. For the table on the industrial origin of the G.D.P. to be of its full value these linkages ought to be identified.

The most important commodity featuring in Rhodesia's exports is unmanufactured tobacco which in 1965 amounted to 33 per cent of total domestic exports. In the national accounts the activities involved up to the point of final export are included in three industries. The activities up to the point of sale on the auction floors are classified under agriculture. The services of the auction floors are classified under wholesale and retail trade. The processing of the tobacco from the green to the dry leaf and packing of the dry leaf are classified under manufacturing and finally, the merchandising of the packed tobacco is classified under wholesale and retail trade. A statistical oddity arises in the input/output matrix where the export of the unmanufactured tobacco is not shown as one figure against agriculture, manufacturing or distribution but rather as three figures corresponding to the respective contributions made by these industries to the final export value of the tobacco.

There are similar problems with grains, sugar and cotton. In the case of cotton, raw cotton production is classified with agriculture and the ginning for the production of cotton lint with manufacturing under group 231, Spinning, Weaving and Finishing Textiles. Apart from a small export of raw cotton from the Beitbridge area, exports of cotton take the form of cotton lint and the practice adopted by the Central Statistical Office is to show the exports of cotton lint as a product of the manufacturing group 231. The supply of raw cotton to the ginneries is reflected in the input/output account as a sale by agriculture to manufacturing. In this case according to the statistics, manufacturing rather than agriculture has contributed to exports and agriculture's primary importance in the flow of activity is suppressed.

It has always been a bone of contention amongst officials of the Ministry of Agriculture that statistical classifications of exports do not fairly reflect the importance of agriculture to Rhodesia. This is a perfectly legitimate contention which could be met if the following type of industrial classification were implemented. The basic thinking behind this type of classification would be applicable and of value to all developing countries.

Statistically there would be no real difficulty in identifying those activities which have their origin in primary products. These activities, given appropriate titles, could be associated closely with the respective primary industries in the statistical tables. There will be some loss of simplicity and elegance but the tables would gain in being more valuable and more realistic.

For Rhodesia the table on the industrial contribution to the G.D.P. could look as follows:—

**Agriculture:**

- Primary production and agricultural services
- Bulk manufacturing of agricultural produce

**Bulk distribution of agricultural produce.****Mining:**

Primary production

Beneficiation of minerals

Bulk distribution of minerals

**Manufacturing:**

Construction

Electricity and Water

Wholesale and Retail Trade

Banking, Insurance and Finance

Transport and Communications, etc.

Under "Bulk manufacturing of agricultural produce" would be included the slaughtering and preparation of meat, the Dairy Marketing Board, which is classified by the Central Statistical Office as a manufacturer, sugar refining, grain milling, tobacco packing, (but not the manufacture of cigarettes), cotton ginning, and saw milling. The "Bulk distribution of agricultural produce" would embrace the activities of the tobacco auction floors and tobacco merchants, the Grain Marketing Board and other such organisations dealing with bulk distribution.

"Beneficiation of mineral ores" would include smelting and refining and also the ferro-alloy industry. It is a moot point whether the Rhodesian Iron and Steel Company should be included, but with her production largely taking the form of pig iron billets, I would be inclined to include it in this category.

**An Evaluation**

A very rough assessment for the revised classification is obtainable from examination of the 1965 National Accounts and the 1965 Trade Statement. A precise assessment would only be possible if based on confidential information retained by the C.S.O. Nevertheless, the following figures are adequate as orders of magnitude.

	Contribution to G.D.P.		Exports
	£ million	per cent	£ million
<b>Agriculture:</b>			
Primary production	66.7	18.9	38.7
Bulk processing	8.7	2.5	14.4
Bulk distribution	4.0	1.1	3.3
	<hr/>	<hr/>	<hr/>
<b>Total agriculture and   allied activities</b>	<b>79.4</b>	<b>22.5</b>	<b>56.4</b>
	<hr/>	<hr/>	<hr/>

<b>Mining:</b>			
Primary production	23.1	6.5	32.8
Bulk processing	4.8	1.4	6.1
Bulk distribution	0.1	—	—
	<hr/>	<hr/>	<hr/>
Total mining and allied activities	28.0	7.9	38.9
	<hr/>	<hr/>	<hr/>
Manufacturing, net	53.1	15.0	42.2
Building and construction	15.4	4.4	—
Electricity and water	14.5	4.1	4.4
Wholesale and retail, trade, net	45.4	12.8	0.1
Other sectors	117.8	33.3	0.5
	<hr/>	<hr/>	<hr/>
All sectors	353.6	100.0	142.5
	<hr/>	<hr/>	<hr/>

The contribution by "Agriculture" to the G.D.P. is increased from 18.9 per cent to 22.5 per cent while that of Mining is increased from 6.5 to 7.9 per cent. Primary production and the immediate bulk processing activities thus account for 30.4 per cent of total domestic product. At first glance this would have been put at 25.4 per cent. The contribution by manufacturing is reduced as a result of the rearrangement from 18.8 per cent to 15.0 per cent. Wholesale and retail trade's contribution is also reduced.

The fact that the rearrangement has not brought about dramatic changes is testimony to the relatively advanced stage of industrialisation in Rhodesia. Nevertheless, the changes are significant in that they suggest that the existing classification does not fairly reflect the importance of agriculture.

The more dramatic effects are to be seen in the classification of exports. The "primary industries" together are increased from £71.5 million to £95.3 million, or 67 per cent of total exports. Manufacturing exports are reduced from £62.7 million to £42.2 million, or 30 per cent of total exports.





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