ANALYSIS OF EXPORT INSTABILITY AND EXPORT PROMOTION

POLICIES IN ZIMBABWE, 1980-1987

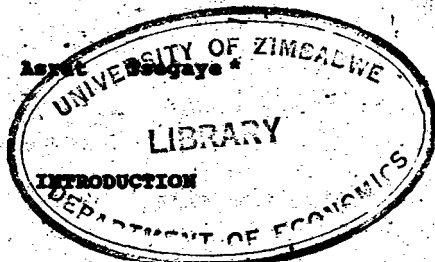Asrat   Tsegaye *

WORKING PAPERS IN ECONOMICS

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ANALYSIS OF EXPORT INSTABILITY AND EXPORT PROMOTION
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INTRODUCTION

. The problem which export instability poses for many primary
producing developing countries has been the subject of much
discussion and empirical investigation. The core of this problem
has been the view that developing conutries' export sector is
characteristically unstable and it is this instability which
retards their process of development. In a nutshell, export
instability can arise from a combination of supply and/or demand
movements, but the primary nature of production and exports has
been identified as the most important (Lloyd and Procter,1983;
Davies and Tironi,1982).

Most of the developing countries have a tendency to concentrate
on few primary product exports as a source of foreign exchange
earnings with which to obtain much needed imports, among other
things. Such an export concentration is generally believed to be
risky since it has the disadvantage of "having all one's

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eggs in one basket". In other words, it reduces a country's chances of having fluctuations in one direction in some of its exports being offset by counter-fluctuation or stability in others. Note, however, that export concentration is neither a necessary nor a sufficient condition for export instability. For export concentration to lead to export instability, it must be presumed that countries have not concentrated their exports on the least stable products or that they have failed to diversify their export mix particulary into those products that are negatively correlated (Bird,1982).

There are various policy options which might be undertaken by policy makers and planners in developing countries to mitigate the problem of export instability. Of these, diversification of the commodity composition of exports - particularly into manufactures, is widely pursued. The emphasis on manufactured than primary exports is based on the presumption that earnings from the former are more stable and predictable than those from the latter exports, and that the intercorrelation between earnings from the two types of export products is likely to be less than between earnings from pairs of primary products (Love,1983; Massell,1964). Hence, policy makers in developing countries pursued and still continue to pursue at one time or another export diversification and/or export promotion efforts aimed at securing increase and stability in foreign exchange receipts.

This study seeks to examine the extent and nature of export instability of Zimbabwe, and assess the significance of its various export promotion measures for stabilizing and/or generating

increased export receipts. There appears to be a growing recognition by policy makers in Zimbabwe to achieve a more rapid and sustained growth in exports, especially of manufactures. This is reflected in the relatively recent Press Statement by the Senior Minister of Finance, Economic Planning Development in which it was announced to introduce new export incentives and enhance existing ones (R.B.Z.,1990). Given this, it is imperative to examine the extent to which such an export promotion derive of Zimbabwe can succeed in meeting its objectives.

The choice of Zimbabwe as a case study is also dictated by the fact, as will be shown later, that compared with many African countries, Zimbabwe has a relatively diversified export mix in which primary product exports (other than fuels) and manufactured exports each account for about a third of total exports. It is of interest to examine the implication of such an export diversification for stability and growth in foreign exchange earnings. On a priori grounds, diversification of the type mentioned per se does not necessarily guarantee a more stable and increased foreign exchange earnings. For any diversification of exports to yield these results the various commodities exported should be uncorrelated or preferably, inversely correlated (Bird,1982; Brainard and Cooper,1968).

Before undertaking a detailed analysis of Zimbabwe's export instability and export promotion policies, it is useful to compare the export structure and overall export instability of Zimbabwe vis-a-vis the rest of the developing countries. This is carried out in section II below followed by section III which looks at the

composition of Zimbabwe's exports and the instabilities of main
export products. Section IV provides a comparative analysis of
variations, co-variations and correlation patterns between various
export commodities while section V focuses upon the various export
promotion measures adopted in Zimbabwe. The final section offers
a brief summary and concluding remarks.

II. THE PERFORMANCE OF EXPORTS ACROSS COUNTRIES

Table 1.1 provides some information regarding the composition
of merchandize exports of a group of developing countries including
Zimbabwe, divided into Low Income and Intermediate Income countries
following the World Bank classification (see, World Bank,1988). We
are principally concerned here with estabilishing the following:
First, the extent to which exports of the countries considered,
such as those of Zimbabwe, are diversified into traditional primary
exports and non-traditional exports including manufactures; and
second, the nature of association between diversification and
instability of exports.

As the table provided reveals, for the low income countries in
general, exports of primary products (excluding fuel, mineral and
metals) represented the overwhelming proportion of total exports
in 1965. With the exception of India, these exports accounted for
60% or more of the total, the share of India being 41%. Of the
seven low income countries considered, only India and Pakistan
managed to derive a significant portion of their export receipts
from manufactures, principally Textiles and Clothing, in the same

TABLE 1.1

COMPOSITION OF MERCHANDISE EXPORTS OF SELECTED COUNTRIES
(PERCENTAGE SHARE)

COUNTRY	PRIMARY PRODUCTS				MANUFACTURES						TOTAL MANUFACTURE	
	FUELS, MINERALS AND METALS		OTHER		MACHINERY AND TRANSPORT EQUIPMENT		TEXTILES AND CLOTHING		OTHER +			
	1965	1986	1965	1986	1965	1986	1965	1986	1965	1986	1965	1986
Low Income Countries												
Burkina Faso	1	0	94	87	1	5	2	-	2	8	5	13
Kenya	13	14	81	70	0	2	0	-	6	14	6	16
India	10	15	41	23	1	10	38	18	12	34	49	62
Malawi	0	0	99	84	0	5	0	-	1	11	1	16
Pakistan	2	1	62	31	1	3	29	51	6	14	36	68
Senegal	9	25	86	36	1	7	1	-	3	22	5	29
Sri-Lanka	2	7	97	52	0	2	0	30	1	9	1	41
Intermediate Income Countries												
Brazil	9	19	83	41	2	15	1	3	5	22	8	40
Colombia	18	12	75	70	0	1	2	3	5	14	7	18
Cote de Ivore	2	6	95	85	.	2	1	1	3	6	4	9?
Korea	15	3	25	6	3	38	27	25	30	33	60	92
Liberia	72	63	25	36	1	0	0	-	2	1	3	3
Malaysia	35	26	59	38	2	26	0	-	4	10	6	36
Mauritius	0	0	100	58	0	2	0	-	0	39	0	41
Morocco	40	26	55	27	0	1	1	18	4	28	5	47
Philippines	1	14	84	26	0	6	1	7	4	47	5	60
Thailand	11	4	84	54	0	9	0	15	5	18	5	42
Trinidad and Tobago	84	64	9	4	0	9	0	0	16	27	18	60
Tunisia	31	27	51	13	0	5	2	28	17	28	29	36
Zimbabwe	24	23	47	41	6	3	6	5	17	28	29	36

- Denote not available
+ Includes textiles and clothing where data for these items are not recorded separately.

rce: World Bank; World Development Report 1988. Oxford University press, June 1988

year. The dependence on primary product exports rather than manufactures was lower for all countries in 1986, with some countries experiencing substantial variations in their dependency ratios than the others. Countries such as India, Pakistan and Sri Lanka experienced marked shifts in their export composition away from primary product exports towards manufactures, while Senegal experienced a more or less proportional diversification of exports into all types of primary products and manufactures. For Burkina Paso, Kenya and Malawi, exports of non-fuel primary products continued to constitute for over 70% of exports.

Table 1.1 also reveals that, for the majority of the intermediate income countries considered, exports of non-fuel primary products comprised for over half of the total in 1965. The exceptions were Korea for which exports of manufactures amounted to 60%, and Liberia and Trinidad and Tobago for which exports of fuels, minerals and metals accounted for 70% of the total in the same year. Of the catageries of countries considered, only Tunisia and Zimbabwe appear to have had a relatively diversified exports composition into all types of primary products exports and manufacturs in the corresponding year. Other countries thus have had a relatively high ratio of dependence on either a particular type of primary product exports or manufactures.

Many of the intermediate income countries appear to have experienced substantial shifts away from primary product exports as a whole towards manufactures in 1986. The exceptions were Colombia, Cotede'Ivoire, Liberia, Zimbabwe and Trinidad and Tobago, which experienced only relatively small shifts in the structure of

their exports. For Colombia and Cotede'Ivoire, primary products
(other than fuels) alone still accounted for upto 70 or more % of
the total, while for Liberia and Trinidad and Tobago, fuels,
minerals and metals comprised for over 60% of total. For Zimbabwe,
the relatively diversified structure of export composition into
primary products exports and manufactures remained relatively
unchanged substantially in 1986. From among the other intermediate
income countries considered, Malaysia and Morocco exhibitted a
similar pattern of diversification into primary product exports and
manufactures as that of Zimbabwe in 1986. Tunisia which had shared
similarity with Zimbabwe in its export composition in 1965 has now
managed to experience substantial shifts towards manufactures.

The evidence presented in table 1.1 above thus tends to suggest
that, while for a few of both low and intermediate income countries
such as Burkina Faso, Kenya, Malawi, Cotede'Ivoire, primary
products exports continued to be much more important than
manufactures in 1986, for others, there is evidence of marked
shifts and/or diversification into different types of exports. As
stated before, to the extent that exports are diversified into
different export commodities particularly manufactured goods, this
may have an important bearing on the stability of total export
receipts, depending, of course, on the type of goods exported. In
an attempt to examine this issue, growth and instability of
merchandize exports were estimated for the sample countries
considered for the period 1972-87 and the sub-period 1980-87 and
presented in table 1.2.

The procedure adopted to estimate growth rate figures reported

Table 1.8

GROWTH AND INSTABILITY OF MERCHANDISE EXPORTS OF SELECTED COUNTRIES

COUNTRY	1972 - 1987			1980 - 1987		
	Xg	Ixr	Imr	Xg	IXr	Imr
Low Income Countries						
Burkina Faso	0.029	0.153	0.183 (1)	--[a]	--[a]	0.202 (1)
Kenya	-0.047	0.185	0.162 (2)	-0.017	0.093	0.081 (12)
India	0.048	0.109	0.100 (12)	0.075	0.083	0.085 (11)
Malawi	--[a]	--[a]	0.098 (13)	--[a]	--[a]	0.124 (6)
Pakistan	0.138	0.132	0.131 (4)	0.076	0.125	0.136 (2)
Senegal	--[a]	--[a]	0.115 (6)	0.075	0.066	0.087 (10)
Sri-Lanka	--[a]	--[a]	0.132 (3)	0.076	0.092	0.128 (4)
Intermediate Income Countries						
Brazil	0.049	0.095	0.074 (19)	0.080	0.071	0.079 (14)
Colombia	0.045	0.182	0.110 (8)	-0.260	0.130	0.129 (3)
Cotede' Ivoire	0.022	0.121	0.126 (5)	-0.321	0.099	0.114 (7)
Korea	0.126	0.118	0.023 (15)	0.132	0.072	0.066 (18)
Liberia	-0.046	0.093	0.077 (17)	-0.062	0.048	0.047 (19)
Malaysia	0.086	0.112	0.107 (9)	0.090	0.087	0.095 (9)
Mauritus	--[a]	--[a]	0.102 (11)	-0.380	0.145	0.113 (8)
Morocco	0.013	0.077	0.094 (14)	-0.118	0.012	0.026 (20)
Philippines	0.020	0.110	0.081 (16)	-0.181	0.053	0.080 (13)
Thailand	0.056	0.122	0.075 (18)	0.079	0.104	0.068 (16)
Trinidad and Tobago	-0.248	0.116	0.112 (7)	-0.180	0.094	0.127 (5)
Tunisia	-0.003	0.131	0.103 (10)	--[a]	--[a]	0.067 (17)
Zimbabwe	0.100	0.083	0.066 (20)	0.057	0.094	0.076 (15)

--[a] - denotes cases where no statistically significant trend estimates were obtained.

X_g - growth rate.

Ixr, Imr - Instability of export measures, based on estimated time trend and 5 year moving averages, respectively. (See text)

( ) - Figures in brackets are Ranks.

in table 1.2 above was as follows: Firstly, to identify the nature of the trend in exports of the sample countries by inspection of actual movements of the export variables on scatter diagrams; secondly, to specify and estimate the trend form or forms which are likely to be appropriate to the series; and, finally, to measure rates of export growth by the statistically significant regression coefficients   (see, Sinclair and Tsegaye,1990; Lloyd and Procter,1983).

The above growth rate estimation procedure yielded results which were derived mostly from fitting the exponential and/or logarithmic parabola trend equations. The exponential equations represented constant rates of growth behaviour while the latter equations captured better a deceleration or acceleration in the export trends. This method of growth rate estimation differs from the convential practice in which growth rates are derived in most cased arbitrarly by fitting exponential or linear function to the data (see, for example, Alejandro,1976).

Turning to the export instability measured used here, export instability for our purpose can be defined as deviations of export earnings from trend. The trend represents the systematic or predictable components while the deviations from this trend are unpredicatable components. There is, however, no unique way of determining the trend and variability around this trend (Sinclair and Tsegaye,1990; Glezakos,1983; Lloyd and Procter,1983; Lawson,1974). Accordingly, two measures are used here and the results obtained from using the two measures are compared. The measures are specifically:

(a) Least Squares Index, Ixr

$$Ixr = \frac{1}{\bar{X}}\left[\frac{1}{n} \sum_{t=1}^{n} (X_t - X_t^*)^2 \right]^{\frac{1}{2}}$$
(2.1)

where, X_t = actual exports at period t

X_t^* = estimated value of X_t calculated from using

least squares trend line (exponential or

logarithmic parabola function).

$\bar{X}$ = the mean value of X_t

t = 1,2,3...n and n is the number of observations

(b) Moving-Average Index, Imr

$$Imr = \frac{1}{\bar{X}}\left[\frac{1}{n-4} \sum_{t=3}^{n-2} (X_t - X_{mt})^2 \right]^{\frac{1}{2}}$$
(2.2)

where X_t, $\bar{X}$, t and n are as defined above

X_{mt} is a five-year moving average, or

$$X_{mt} = \frac{1}{5} (X_{t-2} + X_{t-1} + X_t + X_{t+1} + X_{t+2})$$

Both measures Ixr and Imr specified in equations (2.1) and (2.2) above define an export instability index as the standard deviations of normalized actual earnings, and thereby permit cross-sectional comparisons of export instability across countries or variables. They differ, however, in the method of detrending. Measure Ixr corrects for trend using either an exponential or logarithmic parabola trend function by implicitly assuming that there is a

constant annual growth pattern or deceleration and/or acceleration
in the trend. Measure Imr, on the other hand, detrends the series
using a 5-year moving average measure. The latter measure has some
relevance where there are short term variations in the trend
itself, which not be captured by an exponential and/or logarithmic
parabola function. Because none of the measures can capture
uniquely the trend behaviour of the export series considered, it
was thus decided to employ both measures and compare the results.

Turning now to an examination of the estimated results given in
table 1.2 and focusing first on the estimated growth rates of
merchandize exports across countries in both periods, the table
reveals relatively poor or negative export performance of countries
such as Burkina Faso, Colombia, Kenya and Cotede'Ivoire that depend
significantly on primary product exports. Included in this category
are Liberia and Trinidad and Tobago which derived a substantial
portion of their foreign exchange earnings from exports of fuels,
metals and minerals, and thereby experienced declines in their
export growth rates in the corresponding periods. The generally
poor or declining export growth performance of these group of
countries can largely be attributable to unfavourable world demand
and/or supply conditions of primary product exports as well as
increased agricultural protectionism of the part of Developed
Economies (Koester,1990; Maizels,1987; Tyler,1983).

For the relatively diversified and/or increasingly manufacturing
oriented countries, the evidence provided in table 1.2 shows
relatively high or positive export performances in both periods,
with the exception of a few cases such as Morocco and Philippines

TABLE 1.3

COMPOSITION OF ZIMBABWE'S DOMESTIC EXPORTS AND EARNINGS INSTABILITY: 1980 - 1987

Commodity	% share in Total Exports				Instability Values	
	1980	1985	1987	1980 - 87	IMR1	IMR2
Food Products and Beverages						
Meat	1.7	2.0	2.2	1.4	0.414	0.319
Tea	0.6	1.5	0.9	1.1	0.697	0.436
Coffee	0.9	3.1	2.5	2.2	0.597	0.425
Raw Sugar	5.2	3.4	5.0	4.0	0.516	0.438
Refined sugar	0.8	1.0	1.2	1.1	0.124	0.112
Raw Tobacco	15.7	22.5	21.9	21.2	0.585	0.336
Refined Tobacco	0.6	0.2	0.3	0.4	0.319	0.274
SUB TOTAL	25.2	33.7	33.7	31.4	0.465[+]	0.308[+]
Crude Materials and Fuel						
Cattle Hides	0.4	0.6	0.2	0.5	0.245	0.179
Cotton Lint	7.3	9.7	6.4	7.6	0.281	0.237
Asbestos	10.2	5.4	4.8	6.7	0.112	0.097
Coal	0.5	0.3	0.2	0.3	0.493	0.389
Coke	0.8	0.7	0.2	0.9	0.228	0.492
SUB TOTAL	19.2	16.7	11.8	16.0	0.292[+]	0.274[+]
Manufactured Goods and Others						
Soaps	0.6	0.2	0.1	0.3	0.637	0.669
Yarns and Threads	0.7	1.0	1.5	0.8	0.145	0.637
Ferro Alloys	11.2	11.7	13.2	11.1	0.162	0.144
Ingots and Billets	4.5	3.5	3.0	3.2	0.398	0.239
Iron and Steel Bars, etc.	4.2	1.2	1.7	2.0	0.404	0.337
Copper Metal	3.1	2.3	2.6	2.7	0.240	0.166
Nickel Metal	6.7	5.2	4.9	5.0	0.282	0.236

TABLE 1.3 (CONTINUED)

COMPOSITION OF ZIMBABWE'S DOMESTIC EXPORTS AND EARNINGS INSTABILITY: 1980 - 1987

Commodity	% Share in Total Exports				Instability Values	
	1980	1985	1987	1980 - 87	IMR1	IMR2
Manufactured Goods and Others						
Leather in the piece	0.0	0.4	0.9	0.3	0.423	0.282
Tyres and Tubes	0.1	0.1	0.1	0.1	0.257	0.356
Cement	0.2	0.2	0.4	0.3	0.168	0.117
Wire	0.7	0.3	0.3	0.4	0.300	0.262
Insulated Electric Cable	0.3	0.1	0.2	0.1	0.462	0.319
Railway Vehicle	0.2	0.3	0.3	0.3	0.742	0.470
Non-electric Machinery	0.9	0.6	0.3	0.7	0.162	0.103
Radios TVs and Parts	0.5	0.2	0.0	0.1	0.302	0.235
Furniture and Fixtures	0.6	0.2	0.5	0.4	0.197	0.124
Travel Goods	0.0	0.2	0.2	0.2	0.262	0.292
Clothing	1.6	1.1	1.9	1.7	0.207	0.183
Foot-wear	0.7	0.2	0.5	0.5	0.266	0.206
SUB TOTAL	36.0	29.3	32.4	30.5	0.323+	0.248+

NOTE: + Refer to (unweighted) mean values.

IMR1 and IMR2 are Export Instability values based on a 5 year and 3 year moving averages respectively.

SOURCE: Computed from data in Central Statistical Office. Quarterly Digest of Statistics, Harare, 1980 1988 (Various Volumes)

export category, Crude materials and Fuels (SITC 2-5), had a share
of 16% of total exports over the corresponding period. The data in
table 1.3, however, reveal an element of increased concentration
on a single primary export product, namely Raw Tobacco, as a source
of substantial foreign exchange earnings. The contribution of this
most important product in total export earnings rose from 15.7% in
1980 to 21.9% in 1987. Other items of importance in terms of their
percentage contributions to export earnings are Ferro Alloys,
Cotton Lint, Asbestos, Nickel Metal and Raw Sugar. The share in
total export earnings of some of these and other export items
exhibitted declines somewhat overtime, the effect of which was to
reduce the overall contribution of manufactured goods, and Crude
Materials and Fuel to total foreign exchange earnings. Food
Products and Beverages, on the other hand, became relatively more
important, accounting for 32.7% in 1987 compared with 25.7% in
1980.

In terms of export instability magnitudes, table 1.5 also
reveals estimates of export instability of Zimbabwe's domestic
exports for the period 1980-87, obtained from using 2 types of
measures, a 5 Year Moving Average (IMR1) and a 3 Year Moving
Average (IMR2). Because of marked variability of most of the
variables considered, it was not possible to obtain statistically
significant least squares trend estimates. Resort has thus been
made to the use of the two types of moving averages mentioned which
can be expected reasonably to capture the short-term variations in
the export trends. Both measures indicate that Food products and
Beverages are more unstable on the whole than Crude materials and

Fuels, and Manufactures, having mean instability values of 0.465 and 0.325 based on IMR1 and IMR2, respectively. The corresponding instability figures for Manufactures are 0.323 and 0.248 and Crude Materials and Fuels 0.272 and 0.274. These results imply that increased concentration on Food products and Beverages at the expense of Manufactures and the like would not be desirable from the point of view of maintaining stability of total export earnings.

It is important to note that the above observations have been reached at by considering the average figures for the major export categories. It is evident from the disaggregated data on table 1.3 that not all individual export items are as unstable as the average figures seem to suggest. For instance, the instability values for Refined Sugar and Refined Tobacco are considerably lower than the average of those for Manufactures, based on either of the measures employed. On the other hand, from among manufactures, products such as Soaps and Railway Vehicles exhibit higher instability values than the average of those for Food and Beverages. Other manufacturing products such as Iron Steel, Tyres and Tubes and Insulated Electrical Cable are virtually as volatile as the averages for Food and Beverages, depending on the instability measure considered. From among exports of Crude materials and Fuel, Asbestos appears to be the least unstable export product of all export categories and items except for Yarns and Threads based on measure IMR2. Cotton Lint, which is the other major export item within the class of Crude materials and Fuel, has instability values which are lower than those of the averages for both Food

products and Beverages as well as Manufactures.

The results on the whole tend to support the view that a mere diversification of export production into manufactures or any other export category does not necessarily guarantee stability in export earnings. As stated before, for a diversification and/or export promotion policy to yield lower levels of export instability, movements in export earnings from the chosen commodities must generally have dampening or offsetting effects to each other. The justification for this is that if receipts from two export products are highly inversely correlated, the risk of total loss associated with negative movements in receipts from one export product can be reduced partly by positive returns from the other product.

IV. VARIATION AND COVARITAION IN EXPORT COMMODITY EARNINGS

As discussed above, benefits from diversification and/or export promotion depend intimately on variations in export earnings from different export commodities being uncorrelated (or preferably inversely correlated). To examine this in the case of Zimbabwe, we refer to the data in table 1.4 which shows, for pairs of commodities A and B, the correlation coefficients, variation and covariation pattern in export earnings between 1980 -1987. Specifically, column 1 of this table indicates the correlation coefficient between movements in export earnings from the 2 commodities in each row. The next 2 columns show the instability values (as measured by the normalized standard deviation) for commodities A and B in each pair, respectively. Column 4 presents

TABLE 1.4

VARIATIONS AND COVARIATIONS AND MEAN EXPORT earnings OF PRINCIPAL COMMODITIES 1900 - 1987

COMMODITY PAIR A and B	CORRELATION COEFFICIENT (r)	INSTABILITY INDEX		NORMALIZED COVARIANCE	MEAN EXPORT EARNINGS (Zs '000)	
		IMRIA	IMRIB		COMMODITY A	COMMODITY B
Agricultural Substitutes						
Commodity A Commodity B						
Meat Tea	0.244	0.414	0.897	0.070	4 809	4 157
Meat Coffee	0.505*	0.413	0.597	0.147	4 809	8 423
Meat Raw Sugar	0.294	0.414	0.516	0.063	4 809	11 408
Meat Raw Tobacco	0.409**	0.414	0.585	0.099	4 809	71 206
Meat Cotton Lint	0.194	0.414	0.281	0.023	4 809	25 138
Tea Raw Tobacco	-0.144	0.897	0.585	-0.059	4 157	71 206
Tea Cotton Lint	0.066	0.897	0.281	0.031	4 157	25 133
Coffee Raw Tobacco	0.790*	0.597	0.585	0.276	8 423	71 206
Coffee Cotton Lint	0.4524**	0.597	0.281	0.070	8 423	25 138
Raw Sugar Raw Tobacco	0.379	0.516	0.585	0.114	11 408	71 206
Raw Sugar Cotton Lint	0.214	0.516*	0.281	0.031	11 408	25 138
Raw Tobacco Cotton Lint	0.354	0.585	0.281	0.058	71 206	25 128
Processing Products						
Raw Sugar Refined Sugar	-0.169	0.516	0.174	-0.011	11 408	3 417
Raw Tobacco Manufactured Tobacco	0.151	0.585	0.319	0.028	71 206	815
Cotton Lint Yarns and Threads	0.007	0.281	0.145	0.0003	25 138	2 973
Cotton Lint Clothing	0.377	0.281	0.207	0.022	25 138	3 537
Cattle Hides Leather	-0.157	0.248	0.423	-0.017	1 021	944
Coke Ferro Alloys	0.203	0.226	0.102	-0.006	2 810	37 776
Coal Ingots and Billets	0.395	0.493	0.398	0.078	874	2 842
Coal Iron and Steel	-0.200	0.493	0.404	-0.040	874	5 297
Wire Insulated Elecr. Cables	0.162	0.300	0.162	0.002	1 104	350
Wire Radios/TVs and Parts	0.300	0.300	0.302	0.007	1 104	564

TABLE 1.4 (CONTINUED)

VARIATIONS AND COVARIATIONS AND MEAN EXPORT EARNINGS OF PRINCIPAL COMMODITIES 1980 - 1987

COMMODITY PAIR A and B		CORRELA- TION COEFFI- CIENT (r)	INSTABILITY INDEX		NOMALIZED COVARIANCE	MEAN EXPORT EARNINGS (ZS '000)	
			IMRIA	IMRIB		COMMODITY A	COMMODITY B
Other							
Commodity A	Commodity B						
Coffee	Tea	0.217	0.597	0.697	0.090	8 423	4 157
Coffee	Refined Sugar	-0.006	0.597	0.124	-0.003	8 423	3 617
Coal	Coke	0.322	0.493	0.228	0.036	874	2 818
Copper	Nickel	0.300	0.240	0.269	0.019	8 428	16 562
Copper	Meat	-0.642*	0.240	0.414	-0.054	8 428	4 309
Copper	Coffee	-0.456**	0.240	0.697	-0.076	8 428	8 423
Copper	Raw Sugar	0.585	0.240	0.516	-0.072	8 423	11 403
Copper	Coal	-0.511*	0.240	0.493	-0.040	8 428	874
Asbestos	Cement	-0.318	0.112	0.168	-0.002	18 877	1 104
Nickel	Cotton Lint	-0.518	0.269	0.281	-0.008	16 562	15 108
Asbestos	Yarns and Threads	-0.509*	0.112	0.145	-0.008	18 877	2 970
Manufactured Tobacco	Meat	-0.459**	0.319	0.414	-0.061	845	4 309
Manufactured Tobacco	Iron and Steel	-0.410**	0.319	0.404	-0.053	845	9 227
Manufactured Tobacco	Copper	0.489**	0.319	0.240	0.037	845	8 428
Cattle Herds	Meat	0.085	0.245	0.414	0.009	1 321	4 309
Leather	Meat	0.620*	0.409	0.414	0.105	944	4 809
Leather	Clothing	0.462**	0.423	0.207	0.040	944	3 537
Soaps	Clothing	-0.107	0.669	0.207	-0.015	931	3 537
Soaps	Raw Tobacco	0.409**	0.669	0.585	0.160	931	71 206
Clothing	Ferro Alloys	-0.427**	0.207	0.162	-0.014	3 537	37 776
Clothing	Foot wear	-0.333	0.207	0.266	-0.018	3 537	1 395
Clothing	Travel Goods	-0.325	0.207	0.262	-0.015	3 537	917
Travel Goods	Tea	-0.476**	0.262	0.697	-0.087	917	4 157
Foot wear	Tea	-0.600*	0.266	0.697	-0.111	1 395	4 157
Furniture and Fixtures	Tea	-0.735*	0.197	0.697	-0.101	1 048	4 157

TABLE 1.4 (CONTINUED)

VARIATIONS AND COVARIATIONS AND MEAN EXPORT EARNINGS OF PRINCIPAL COMMODITIES 1980 - 1987

COMMODITY PAIR A and B		CORRELA-TION COEFFI-CIENT (r)	INSTABILITY INDEX		NOMALIZED COVARIANCE	MEAN EXPORT EARNINGS (Z$ '000)	
			IMRIA	IMRIB		COMMODITY A	COMMODITY B
Other							
Commodity A	Commodity B						
Non-electric. Machinery	Tea	-0.673*	0.162	0.697	-0.076	1 729	4.157
Radios/TVs Parts	Tea	-0.450**	0.302	0.697	-0.095	564	4 157
Radios/TVs & Parts	Tyres and tubes	-0.432**	0.302	0.357	-0.047	564	467
Tyres and Tubes	Wires	-0.565*	0.357	0.300	-0.061	467	1 104
Railway Vehicle	Cotton Lint	-0.500*	0.742	0.281	-0.104	805	25 138
Railway Vehicle	Raw Tobacco	-0.466**	0.742	0.585	-0.202	805	71 206
Railway Vehicle	Copper	-0.564*	0.742	0.597	-0.250	805	8 423
Railway Vehicle	Raw Sugar	-0.518*	0.742	0.516	-0.198	805	11 408
Railway Vehicle	Coal	-0.467**	0.742	0.493	-0.171	805	874
Tyres and Tubes	Iron and Steel	-0.494**	0.357	0.404	-0.071	467	5 297
Leather	Iron and Steel	0.406**	0.423	0.404	0.069	944	5 297
Cement	Yarns and Threads	0.633*	0.168	0.145	0.015	1 104	2 973

* (r) is statistically significant at a 1% level.

** (r) is statistically significant at a 5% level.

IMRIA and IMRIB are instability measures based on 5 year moving averages for export earnings of commodity pair groupings, A and B respectively. Normalized Cor-variance computed using values of IMRIA and IMRIB and (r).

the normalized covariance figures, and the final 2 columns show the mean values of commodity A and B set of export earnings, respectively. The commodities listed in table 1.5 are classified into 3 groups, following Brainard and Cooper,1968. These are specifically, Agricultural Substitutes, Processing Products and Others. The first group of commodities, Agricultural Substitutes, are those for which there is a fairly high elasticity of substitution in production. The second, Processing products, are those which involve processing one product into the other; and the final group, are a variety of Others including joint products, close substitutes in consumption and so on, mostly manufactures.

It is evident from the data in table 1.4 that earnings from exports of agricultural substitutes are not inversely and significantly correlated. In a few cases, such as those between meat and coffee, meat and Raw Tobacco, Coffee and Raw Tobacco, Coffee and Cotton Lint, there is a positive correlation between earnings from these products. The positive association between earnings in these products arise due the fact that these exports depend to some extent on the strength of overall demand situation in the foreign market. Hence, they fluctuate together in response to corresponding fluctuations in output and demand in the import countries. It may, on the other hand, be the case that some of these exports are all subject to the same vicissitude of weather or long run supply cycles, and so fluctuate in a similar manner. The implication of all these is that simply diversifying from the production of say, Raw Tobacco to Meat, Raw Tobacco to Coffee, or vice versa, would not be desirable since movements in earnings from

these pairs of commodities are broadly parallel to one another.

Turning to processing products, it is the case that returns from processed export products are generally much less variable, but expected to be positively correlated with returns from processing inputs. The positive correlation, in this case, behaves like a negative correlation for the case of 2 final products (Brainard and Cooper,1968). As table 1.5 reveals, however, earnings from all pairs of processing products considered are not positively and significantly correlated, though these products are generally much less unstable.

In the third group of export commodities considered, we observe inversely significant correlations between earnings from pairs of commodities. These are mostly between agricultural substitutes and manufactures such as meat and copper metal, cotton lint and nickel, Tea and Furnitures; and between various manufactures such as Refined Tobacco and Iron and Steel, Clothing and Ferro Alloys, and Clothing and Travel goods. It is in these and similar pairs of negatively correlated products that potential benefits from diversification appear to arise. In a few other cases, such as between manufactured Tobacco and copper, leather and meat, soaps and Raw tobacco, and cement and Yarns and Thread, there are positively significant correlations. This means that diversification and/or export promotion measures into these positively correlated product pairs would not simply yield the desired results. For these measures to achieve reduction in instability requires choosing commodities which generally are inversely correlated.

V.   EXPORT PROMOTION POLICIES

- In this section, we consider Zimbabwe's export promotion efforts that are designed to stimulate rapid growth of exports, especially of manufactures.

By definition, export promotion is the purposeful governmental effort to try to stimulate exports through provision of various incentives which may be in the form of export subsidies, tax rebates and/or other forms of financial and non-financial assistance. Over the past decade or so, Zimbabwe has introduced several of these measures, including the Export Revolving Fund, Export Incentive Scheme, Export Promotion Programmes, Export Bonus Scheme and Export Retention Scheme (Gridlestone,1982; R.B.Z.,1990).

The Export Revolving Fund is a scheme aimed at providing the necessary foreign exchange requirement to manufacture exportable goods by using imported raw material and machinery. In other words, it is a scheme designed to help "break the vicious circle arising from a shortage of imported raw materials, spare parts, etc., preventing export expansion". (Robinson,1987, p.39). The scheme, which was initated in 1983 with the World Bank loan of US$ 70 million, is thought to have benenfited greatly particularly the processing industries like those of Refined Sugar, Refined Tobacco, and Iron and Steel. These industries together received substantial sums of money from the Fund in 1984 to be used to restore worn out

machinery and imported spare parts.

By way of comments, as tables 1.3 and 1.4 show, of the above two beneficial export products, Refined Sugar and Refined Tobacco are the least unstable items among the class of Food Products and Beverages. This intself rightly makes them favourable targets for export promotion. Iron and Steel, which falls under manufactures is, on the other hand, relatively unstable, with the instability value of about as high as the average of those for Food Products and Beverages. As table 1.4 reveals, Iron and Steel is a product which is inversely and significantly correlated with Manufactured Tobacco, and Tyres and Tubes, but positively correlated with Leather. This means that any adverse effect arising from the instability of Iron and Steel could be mitigated in part through increased exports of the negatively correlated products rather than through Leather exports. Given that the mean export earnings of Iron and Steel is by far larger than those of both Manufactured Tobacco and Tyres and Tubes, this means the proportion of the rise in the latter products would, however, have to be substantial enough to have any offsetting effect on variation in the export of Iron and Steel.

Turning to the case of the Export Incentive Scheme (EIS), this is a scheme which provides a tax free payment to exporters on the basis of actual export performance of a list of qualifying export commodities (C.Z.I.,1987). It is in effect a subsidy to qualified exporters and enables them to sell the exportable commodities at relatively lower prices. The tax free payment rate applied since

1984 has been 9%. This is "equivalent on a taxed basis to an 18% increase in the FOB prices" (Robinson, 1987, p.39). To qualify for the incentive rate, exports should have to fulfill certain requirements such as the need to be manufactured locally or to have a minimum of 25% local content.

The above being the case, the EIS applies to only about a quarter of total exports, mainly manufactures. These include products such as copper metal, nickel metal, clothing, footwear, travel goods, furniture and fixtures. As table 1.4 shows, earnings from these exports have a general tendency to be negatively and significantly correlated with those from the other export products including the highly unstable primary export products, thereby contributing to a reduction in the overall level of export instability. From among the other products included in the list of qualifying manufactures, two of them, namely Leather and Soaps, show a tendency to exhibit similar variations with those from other products, such as, for example, the correlations between leather and meat, leather and clothing, soaps and raw tobacco, leather and iron and steel. These positive correlations suggest that the inclusion of the two mentioned products in the list of qualifying manufactures does not serve any purpose in ensuring stability in total export earnings.

Among the remaining manufactured exports not covered by EIS fall products such as Iron and Steel, Ingots and Billets, and Ferro Alloys - the contributions to total export earnings of which are relatively significant, with the latter product being the second

major foreign exchange earner, as shown in table 1.3. It is unclear as to why these important export items, especially Ferro Alloys which happens to be among the least unstable products in the class of manufactures, should have to be excluded from coverage of the scheme. Some of the above mentioned export items tend to be negatively correlated with those of other exports, such as, as for example, between Ferro Alloys and Clothing, Iron and Steel and Manufactured Tobacco. This should have provided in part a justification for the inclusion of these products under the scheme since any adverse movement created in the export of these products could be counteracted by increasing the export of the negatively correlated products.

Looking at the case of the exports of agricultural substitutes and processing products shown also in table 1.4 , we observe that most of these exports are excluded from the EIS presumably because of the various disadvantages associated with increased dependence on the production and exports of most of these products. The exclusion of these exports from past EIS has also been justified on the ground that "primary producers did not need an incentive to do what they could not in any case avoid doing" (Gridlestone,1982, p.118). The scheme is designed to promote mainly the manufacturing sector as a major foreign exchange earner. Of the agricultural substitues supported under the scheme, we have Tea which is a product marked with a relatively high degree of export instability, as is evident from tables 1.3 and 1.4. However, the same export product is negatively and significantly correlated with most

manufactures such as Travel Goods, Footwear, Furniture and Fixture, Non-electrical Machinery, thereby justifying partly its inclusion under the scheme.

The above observations suggest, overall that, for purposes of promoting the growth and stability of exports, it is necessary to choose from among export products those which possess the capacity to earn relatively stable and increased foreign exchange earnings. Not all export products falling under the EIS appear to fulffil this essential requirement for promotion. It is perhaps for this and other considerations that the scheme is intended to be phased out by the financial year 1994/95 (R.B.Z.,1990).   Alternatively, we have the so called Export Bonus Scheme which, unlike the case of EIS, provides bonus allocation in foreign currency on the basis of real growth in manufactured exports. In addition, we have the Export Retention Scheme designed for all productive sectors of the economy based on actual export earnings. Specifically, some products falling within the agricultural and mining sectors that contribute significantly to foreign exchange earnings, such as Ferro Alloys and Steel, Cotton Lint and Beef are allowed, under the scheme, to retain 5% of the value of their exports for the purchase of imported raw material and capital goods. The manufacturing exporters, including tourism, construction, horticulture and road haulliers, are granted to retain as much as 7.5% of the value of their exports for similar purposes. This discrimination in retentention of the proportion of exports by different sectors reflects the recognition of the greatest potential of the

manufacturing sector as a major foreign exchange earner (R.B.Z.,1990).

VI. SUMMARY AND CONCLUSIONS

In this paper, we looked at the interrelationships between export diversification, export instability and export promotion issues in the context of Zimbabwe. It was noted that, by an African standard, Zimbabwe's export structure is substantially diversified. Despite such diversification paricularly into manufactures, the country has experienced and still does foreign exchange constraints. The foreign exchange problem of the country stems in part from the nature of export commodities traded, whose growth rates and stability patterns are not always in the desired directions. Various measures are being implemented in attempt to improve the performance of exports, and as part of the on-going Economic Structural Adjustment Programmes.

As the findings of the empirical sections suggest, from policy point of view, it is vital to look at the pattern of variations and covariations between terms. This is because there is, for instance, a tendency for earnings from primary export products to show similar pattern of correlations to each other, with some exceptions noted. This means that Zimbabwe would not benefit much from encouraging the growth of primary export products in general. There is, on the other hand, some offsetting in the movements of primary export products and manufactures and/or within the class

of manufactures. This observation signifies the need to undertake careful choice of variables for diversification and/or export promotion particularly among the class of manufactures.

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