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DOMESTIC ECONOMIC GAINS FORGONE BY EXPORTS OF LOGS AND LUMBER

by

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by *Gerardo P. Sicat*

The more a product undergoes processing prior to its export, the greater is the gain of the domestic economy. This is a statement that can be defended on general economic grounds. The most obvious real costs to the Philippines of not processing logs and lumber into other products prior to exports can be summed up in terms of the lack of utilization of as much labor employment into industry and of the saving of forests from rapid cutting. An attempt will be made in this paper to quantify these costs. An effort will be consciously made so that the economic assumptions used are as reasonably conservative as possible.

Between 1949 and 1966, logs and lumber earned for the Philippines foreign exchange in the amount of $1.36 billion. This required the shipment of 23.65 billion kilograms of logs and lumber. The rate of growth of these exports has been quite fast, beginning with only $3.3 million in 1949 and reaching $208 million in 1966. The current largest earner of foreign exchange of the Philippines are logs and lumber, accounting for 25 per cent in 1966. All these are

based on published statistics. A recent study has shown that Philippine export statistics are understated, especially in the 1950's.[1] Officially recorded statistics of logs and lumber exports are the data basis of the estimates to be made in this paper. This puts us on the conservative side of things, since we do not allow for the understated value of logs and lumber exports.

The exports of plywood have been an insignificant part of total wood exports, although in 1959 this reached a peak of about 14 per cent as a proportion of total wood exports. Table 1 shows relative orders of magnitudes of wood products of the Philippines. In this paper, we direct our attention to the implied costs to the economy of exports of logs and lumber, the magnitudes reported in column 1 of Table 1.

The forgone gains of the domestic economy may be quantified in terms of direct employment, additional output, and tax revenues of the government.

Preliminary assumptions. To compute the approximate gains that the economy has forgone by allowing direct

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[1]George L. Hicks, "Philippine Foreign Trade Statistics, 1950-1966," (mimeographed; National Planning Association Field Reports, Sept. 1966, Sept. 1967).

Table 1. WOOD EXPORTS OF THE PHILIPPINES, 1949-1966
(f.o.b., US $1,000)

Year	Logs and Lumber	Plywood	Total*	Per Cent of Plywood on Total
1949	3,260	17	3,315	0.5
1950	10,691	59	11,031	0.5
1951	17,267	58	18,557	0.3
1952	18,946	46	19,145	0.2
1953	28,937	14	32,569	0.04
1954	35,590	236	36,236	0.6
1955	41,542	923	43,432	2.1
1956	48,828	1,516	51,604	2.9
1957	45,059	2,281	48,819	4.7
1958	69,661	6,484	79,014	8.2
1959	80,444	13,635	98,399	13.8
1960	91,600	6,482	102,831	6.3
1961	92,423	7,950	105,514	7.5
1962	112,791	11,171	131,519	8.5
1963	152,882	15,964	179,523	8.9
1964	143,114	22,801	178,308	12.8
1965	162,001	17,579	193,831	9.1
1966	208,389	18,151	243,569	7.4
1949-66	1,363,425	125,367	1,577,216	7.95
1962-66	779,177	85,666	926,750	9.24
Average Yearly 1949-66	75,746	6,965	87,623	7.95
Average Yearly 1962-66	155,835	17,133	185,350	9.24

*Total wood exports is greater than logs, lumber and plywood exports combined, because of other minor wood exports.

Source: Central Bank, Statistical Bulletin (December, 1966), Vol. 18, No. 4, pp. 191, 195-199.

exports of logs and lumber requires some simplifying assumptions. We shall base the computations on statistics on wood industries, specifically plywood manufactures.

From the 1961 Census of Manufactures, it can be derived that the average total sales per labor employed of the plywood industry was ₱9,200 and that the gross value added as a ratio to total sales was 0.364. Suppose we assume that transforming logs and lumber into plywood multiplies the value of the product by twice as much. Thus, for every dollar of logs and lumber exported, 2 dollars could be realized if these wood products are processed into plywood, etc. Another way of saying this is that 50 per cent of the value of exported wood products would represent the value of logs and lumber.

The above assumption about the value added ratio is a rough one, but it seems reasonable, although the estimates that follow can easily be altered by changing the transformation factor. Given that log and lumber inputs account for 50 per cent of value of sales and that the value added ratio to sales of plywood industries is 0.36, about 0.14 is the ratio contributed by the transport and other ancillary industries to logging and to wood processing.

It is assumed that the ancillary industries employ one laborer for every six employed in the wood processing indus-

tries. This is based on the hypothesis that industries ancillary to processed wood exports would also grow by an increase in domestic processing. Some of these ancillary industries, transport and utilities industries, are probably quite capital-intensive relative to the wood processing industries, but there are quite a few industries built around the new domestic processing industries (e.g., retailing) which will be quite labor-intensive. So in view of the above remarks, it is felt that the employment ratio assumed is also a conservative one.

To convert the dollar earnings into pesos, the official exchange rate of ₱2 to $1 was applied to export receipts from 1949 to 1961. In 1962, ₱3.62 to $1, in 1965 (the year of removal of the 20 per cent retention scheme in November), ₱3.70 to $1, in 1966, ₱3.90 to $1. These exchange rates approximate the actual exchange rates for the Philippine peso during the specific years in question.

In order to account for the portion of sales which is not directly derived from plywood and other processing industries, it was decided to adjust the presumed peso value of the processed wood exports derived from logs downwards. The basic reason for this is that some part of the exports of logs and lumber is directly the product of ancillary activities tied up

to logging, like transport and communications. By assuming that 12 per cent of this value goes to the ancillary industries relating to export shipments of logs and lumber, we are able to take into account only the log and lumber values before they reach the export points. This assumption reduces the value of the log and lumber exports to 88 per cent of reported earnings value. This assumption certainly tends to be on the conservative side in the estimation of the economic costs of exporting the timber products directly. But as pointed out earlier, conservative estimates should be appropriate for this special exercise.

Assumption I. Suppose that all the yearly logs and lumber exports from 1949 to 1966 were further processed into exportable wood products; this is an extreme assumption, and it is expected that the economic gains forgone would naturally appear exaggerated. But the magnitudes implied are worth looking into. The additional gross value added to the wood processing industry is quite substantial, rising from an insignificant amount in 1949 to 0.7 per cent of the recorded GNP in 1955. Between 1956 and 1961, this ranged from 0.6 per cent to almost 1 per cent of GNP. But after decontrol, this gross value added forgone ranged from about 1.8 to 2.4 per cent of GNP. Using 9 per cent as the ratio of total tax revenue to total GNP, the

government could have collected a total of ₱243 million in taxes, averaging about ₱13 million per year between 1949-1966. Between 1962 and 1966, the total revenues forgone amounted to ₱173 million (about 70 per cent of total taxes forgone!), averaging at ₱35 million per year.

The costs in terms of forgone employment can be summarized by examining the ratios of employment forgone to the total labor force in existence. On the simple assumption that the gross sales per labor remained constant all throughout the period under consideration, the cost in terms of gainful employment is quite high. This ranged from 1.5 per cent to 5.9 per cent of the labor force. Since the growth of wood exports was quite marked after 1962, the cost in terms of employment would have exceeded 6 per cent of the labor force.

What is the magnitude of the labor employment forgone in terms of the unemployment situation? Using the rough unemployment rates assumed in another paper,[2] the absorption of labor into the wood processing industries would have reduced the estimated unemployment by as much as 1/3 prior to 1962. In 1962 alone, this would have absorbed a little over

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[2]See G.P. Sicat and R.L. Tidalgo, "Output, Capital, Labor, and Population: Projection from the Supply-Side," First Conference on Population 1965 (Population Institute and U.P. Press, 1966), p. 375, Table 12.

half of the unemployed labor force. These results are only suggestive, but they give an idea of the costs to the economy of not processing the log exports further.

Assumption II. We assume now that one half of the yearly volume of logs and lumber exports were in fact exported and that these timber products were first processed into other wood products like plywood.

The additional value to GNP which was forgone ranged from 1/5 of one per cent in 1952 to 1 1/2 per cent of GNP in 1966. Perhaps a conservative estimate on the basis of these rough figures implies about 1/3 of one per cent of GNP forgone on the average prior to 1962 and about 1 per cent of GNP afterwards.

In terms of tax revenues forgone, it was a loss of ₱8 million new taxes per year on the average from 1949 to 1966 or a total of ₱152 million. For the years 1962 to 1966, the revenues would have been ₱108 million, or ₱22 million per year on the average.

Less labor in wood cutting would have been employed in view of the reduction of forest cutting. Since the wood processing industry is more labor-intensive than logging (with its need for heavy capital equipment for cutting and trucking),

the net gains in employment are apparently still substantial. Assume that the displaced logging activities would have reduced employment by 1/4 of the employment created by wood processing industries. The net employment gains forgone in this situation still reflect a substantial amount. The magnitudes of forgone employment in terms of the total labor force from 1957 to 1962 (taken from the Bureau of the Census and Statistics Statistical Survey of Households labor force surveys) indicate that this ranged between 0.7 per cent in 1957 to 2.76 per cent in 1962. Perhaps a more conservative estimate would have been between 1 to 2 per cent. But a tremendous saving in forest cutting could have been effected since by assumption, the physical volume of forests saved was one half of all the trees cut in the Philppines.

Further Comments. The above [redacted] are [redacted] rough calculations. Two sets of very simplified assumptions are used. These assumptions represent two extreme cases. The economic reasoning is based on the possibility that a small country like the Philippines, if it had discouraged log exports as a matter of policy and concentrated more of its resources to the wood processing industries, would have found all the export markets for the wood products exports. On the

competitiveness of our wood products?

basis of some studies,[3] it may be concluded that this assumption is not unfounded. Would not the shift of investment resources to wood processing industries, which were devoted to other industries, have meant that the latter industries would have grown less? This is a very valid question. To the extent that domestic saving resources would have been utilized, there were real trade-offs. If additional foreign saving resources through bank financing or direct investments had filled up part of the new required investments in the wood processing industries, there would have been less real trade-offs among domestic resources. The situation described by Assumption I would have had higher real trade-offs than Assumption II. For simplicity, the trade-offs between gains and losses among the real economic variables -- employment, gross value added, and taxes -- involving situations of direct log exports as against processed wood exports were of different magnitudes, depending on the assumption. In the computations presented, the gross losses were assumed to be a one-third of the gross gains in the wood processing industries in Assumption I and one-sixth in Assumption II. All the figures in Tables 2 to 4 already incorporate the balancing of these trade-offs. Therefore, they only contain estimates of real net gains forgone by the economy.

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[3]Among them J.G. Landgrebe, "Timber Trades," Philippine Economic Journal, Vol. V, No. 1 (First Semester 1966), based on a report to the World Bank.

Conclusion

In making the estimates of economic costs forgone due to lack of processing of Philippine wood exports, a lot of economic guesswork was necessary. The reported magnitudes of the costs which are therefore reported are only suggestive. However, there was a conscious effort to lean on the conservative side in making special assumptions about the gains forgone by the domestic economy.

It is of course impossible to have banned exports of logs. If the country had but succeeded in transforming one half of the logs and lumber processed wood exports (Assumption II), it would have been possible for many domestic factors, including labor, to gain from the process. These gains forgone although only suggestive in character are by no means insignicant.

Table 2. GROSS VALUE ADDED FORGONE

Year	ASSUMPTION I			ASSUMPTION II		
	Direct Gross Value Added of Wood Products (million pesos)	Total GVA Generated by ancillary industries (million pesos)	Total GVA as Per Cent of GNP	Direct Gross Value Added of Wood Products (million pesos)	Total GVA Generated by ancillary industries (million pesos)	Total GVA as Per Cent of GNP
1949	3	4	.06	2	3	.05
1950	10	14	.21	6	9	.14
1951	17	23	.31	10	14	.19
1952	18	25	.33	11	16	.21
1953	3	38	.47	17	25	.31
1954	3	47	.58	22	30	.37
1955	4	55	.68	25	34	.42
1956	5	65	.69	30	41	.43
1957	4	60	.58	27	37	.36
1958	7	93	.84	42	58	.53
1959	8	107	.89	49	67	.56
1960	9	122	.95	55	76	.59
1961	9	123	.88	56	77	.55
1962	20	272	1.79	124	170	1.12
1963	27	368	2.10	168	230	1.31
1964	25	345	1.82	157	216	1.14
1965	29	399	1.94	182	250	1.21
1966	39	541	2.40	246	338	1.50

Table 3. EMPLOYMENT (MAN YEARS) FORGONE

Year	ASSUMPTION I			ASSUMPTION II		
	Direct Labor	Ancillary Labor	Total Labor	Direct Labor	Ancillary Labor	Total Labor
1949	831	138	969	391	65	456
1950	2,723	454	3,177	1,277	207	1,484
1951	4,399	733	5,132	2,062	342	2,404
1952	4,826	804	5,630	2,263	376	2,639
1953	7,371	1,228	8,599	3,457	574	4,031
1954	9,065	1,510	10,575	4,252	706	4,958
1955	10,581	1,764	12,345	4,963	824	5,787
1956	12,437	2,072	14,509	5,833	968	6,801
1957	11,477	1,913	13,390	5,383	894	6,277
1958	17,744	2,957	20,701	8,322	1,381	9,703
1959	20,489	3,416	23,905	9,609	1,595	11,204
1960	23,331	3,889	27,220	10,943	1,817	12,760
1961	23,541	3,923	27,464	11,041	1,833	12,874
1962	51,999	8,667	60,666	24,388	4,048	28,436
1963	70,482	11,747	82,229	33,058	5,488	38,546
1964	65,979	10,996	76,975	30,946	5,137	36,083
1965	76,337	12,723	89,060	35,804	5,943	41,747
1966	103,503	17,251	120,754	48,547	8,058	56,605

Table 4. EMPLOYMENT GAINS FORGONE

Year	ASSUMPTION I		ASSUMPTION II	
	New Employment as a Per Cent of Total Labor Force	Per Cent of Unemployed Labor Force Absorbed	New Employment as a Per Cent of Total Labor Force	Per Cent of Unemployed Labor Force Absorbed
1957	1.51	14	0.70	7
1958	2.30	20	1.07	9
1959	2.62	30	1.22	14
1960	2.98	35	1.39	16
1961	2.82	37	1.32	17
1962	5.91	70	2.76	32

Source: Table 12, Sicat-Tidalgo, op. cit.