

Working Papers Series No. 27

A FEW NOTES ON THE EXPANSION OF THE
MANUFACTURING SECTOR IN INDONESIA

Steven J. Keuning

February 1985

A Few Notes on the Expansion of the Manufacturing Sector
in Indonesia

Introduction

It is only recently that industrialization in Indonesia got well under way. Starting from a low base the manufacturing sector in this country showed one of the highest growth rates in the (South-) East Asian region during the previous decade. As in many other nations this early phase mainly concerned import substitution.

It is evident that the Indonesian government is firmly committed towards a development strategy which heavily leans on a continued expansion of the industrial sector. In the course of 1984 the execution of the Fourth Five Year Plan (REPELITA IV) has started and policy statements have been made that "industrial development must have our greatest possible attention in REPELITA IV" (Soeharto, 1984, p. 28).

Regarding the main objectives to be fulfilled, the pressing need for extensive creation of productive employment is beyond any doubt. It is well-known that at the moment a large proportion of the population lives in poverty and the expected increase of the labor force may well exaggerate this problem, as a concomitant rise of opportunities for employment in agriculture is not likely. With farm land becoming increasingly scarce and a progressive subdivision of plots almost beyond subsistence level, more and more income must be earned outside the traditional sedentary food crops cultivation sector. This applies in particular to the densely populated islands of Java and Bali. Because of a lack of paid jobs enormous amounts of people have been pushed into self-employment-mainly in the service sector, where the prospects for a decent living depend on a rise in demand, matching (at least) the increase in the number of suppliers. However, it can be expected that even a greater purchasing power for the bulk of the population would first stimulate the demand for manufactures. Any industrialization strategy for Indonesia has to be judged against this background.

Employment: An Overview

A remarkable characteristic of the industrial sector in Indonesia is the relatively high capital intensity of production. Only 40% of manufacturing value added (at factor costs) accrued to labor in 1975 (29% consisted of wages and 11% concerned imputed payments for the labor of the self-employed)¹⁾. This is a very low share, even in comparison to other developing countries. The cause is not so much an abnormally small proportion earned by own account workers and their (unpaid) family workers, as a relatively inconsiderable sum of wages and salaries. This impression is confirmed when firms of different size are considered separately. Medium and large industries (more than 20 employees) generated 77% of manufacturing value added in 1979, but created only 19% of manufacturing employment. The reverse applies to household and cottage industries (less than 5 persons involved): 14% of value added versus 63% of employment.

Productive employment consists of two parts: a) the availability of work, and b) a decent remuneration of one's efforts. In order to assess to what extent these two conditions are fulfilled, it is necessary to distinguish not only sectors of activity but also various layers in society. Table 1 provides an overview of the number of worker equivalents, defined as 40 hours of work per week for a 52-week year.

Workers are subdivided according to four criteria: sex, region (rural; urban), employment status (employee; other: employer, own account worker, unpaid family worker) and occupation (agricultural and manual worker; clerical, sales and service worker; professional, technician, manager, supervisor). The availability of data on hours worked by each person in each occupation enabled a more precise computation of labor input than merely head counting. The latter method yields distorted employment and labor income estimates, in view of underemployment and, on the other hand, widespread multiple

1) See Keuning [1985 (forthcoming)] for a discussion of the methodology to arrive at these estimates and for the factorial distribution of income by sector (2-digit ISIC).

Table 1: Worker Equivalents by Sector of Production and Labor Type in Indonesia (1975) (x 1000)

Sector of Production				Agriculture	Mining	Manufacturing, Utilities and Construction										Trade, Transport & Services	Total Indonesia	
						Food	Textiles	Paper & Printing	Chemicals	Basic Metals	Metal Products & Machinery	Non-metallic Mineral Products	Wood, Wood Products & Construction	Utilities	Total Industry			
Labor type																		
				Manual Workers	Employees	Rural	Male	4616	43	234	124	3	54	13	130	114	848	1
Female	2227	4	261				238	1	21	0	34	34	69	0	660	54	2944	
Urban	Male	190	11			85	98	29	30	14	73	18	419	24	789	791	1781	
	Female	37	0			91	75	9	18	1	12	4	9	0	219	49	304	
Others	Rural	Male	12153			42	231	40	1	1	17	76	88	300	1	757	692	13644
		Female	4568			14	260	160	5	1	1	65	68	415	0	976	75	5634
	Urban	Male	384		3	24	13	3	1	1	12	3	48	2	108	378	872	
		Female	128		0	25	15	1	0	0	2	2	10	0	55	51	234	
Clerical, Sales & Service Workers	Employees	Rural	Male		39	17	30	10	5	22	3	21	13	77	10	190	1208	1454
			Female		2	0	17	4	0	20	0	5	1	12	0	57	493	552
		Urban	Male		6	8	31	15	6	17	4	36	5	31	8	153	1138	1306
			Female		1	0	10	9	3	10	0	9	2	3	1	46	651	697
		Others	Rural	Male	15	12	4	3	0	0	0	5	1	6	0	20	2636	2683
				Female	7	1	4	2	0	0	0	2	1	5	0	14	2436	2457
	Urban		Male	0	1	3	2	0	0	0	2	0	3	0	12	1060	1073	
			Female	0	0	3	1	0	0	0	1	0	0	0	6	862	868	
	Professionals & Managers	Employees	Rural	Male	35	3	12	5	1	8	0	3	1	20	2	53	877	968
				Female	1	0	1	1	0	0	0	1	0	0	0	3	136	140
			Urban	Male	2	5	9	6	3	6	1	11	2	24	9	70	692	769
				Female	0	0	1	1	0	2	0	1	0	0	0	5	157	162
Others			Rural	Male	16	2	8	1	0	0	4	3	2	14	0	32	258	308
				Female	0	0	2	4	0	0	0	0	0	1	0	6	100	106
		Urban	Male	0	0	8	4	3	0	1	2	1	10	0	29	187	216	
			Female	0	0	1	1	0	0	0	1	0	0	0	3	57	60	
Total manual workers				24301	118	212	764	53	128	47	405	331	2118	27	5085	3065	32569	
Total clerical workers				69	40	102	45	14	68	8	81	23	136	19	497	10484	11090	
Total higher level workers				54	10	42	22	7	15	6	22	6	68	12	201	2464	2729	
Total paid				7154	92	780	586	61	207	36	337	193	1512	55	3767	7221	18233	
Total unpaid				17271	76	575	246	13	5	25	172	168	811	3	2017	8792	28156	
Total rural				23678	138	1065	592	18	128	38	346	323	1767	14	4291	9939	38046	
Total urban				746	30	290	240	57	83	23	163	37	556	44	1493	6074	8343	
Total male				17454	148	679	323	55	139	58	375	248	1800	57	3734	10892	32229	
Total female				6970	20	676	509	19	73	2	133	112	523	1	2049	5121	14159	
Total Indonesia				24424	168	1355	832	74	211	61	508	361	2323	58	5783	16013	46388	

jobholding and extremely long work weeks by many of the poor.²⁾

It appears that in 1975 still more than 50% of all labor years were spent in agriculture. The number of people working in agriculture is even much larger in view of general underemployment in that sector (an average work week of 32 hours) as opposed to extreme long working hours in various other activities (services). Agriculture almost exclusively employs manual workers and relatively more men than women.

It is also obvious that only a small part of the Indonesian labor force has a paid job: not more than 40% of all labor years concern employees. Even outside agriculture the total of self-employed and unpaid family workers constitute more than half the labor force. In manufacturing this proportion is much lower, varying from 2% in chemical industries to 47% in non-metallic mineral industries. Although the lion's share of worker equivalents in agriculture is unpaid, this sector still provides almost 40% of all paid jobs, which is twice as much as manufacturing, utilities and construction together. Moreover, this amount is hardly surpassed by the trade, transport and service sectors, which clearly illustrates the paramount importance of agriculture in Indonesia. It remains to be seen whether substantial new employment can be created in agriculture. This already points to the challenge of industrial development.

The regional break-down reveals that 82% of the worker equivalents are found in rural areas (where 81% of the population lives). Still urban dwellers typically have longer work weeks, because the cities are relatively more inhabited by economically inactive people.

Women account for 30% of the total number of workers.

2) Refer also to Moir [1979], Hart [1980], and Jones [1981] for further evidence on these points.

It is expected that the labor force participation of women will rise in the near future (BPS, 1983/b). About two thirds are unpaid, which is a slightly higher percentage than applies to men (58%).

Only 3% of female laborers and 7% of male laborers are working in higher level functions (manager, supervisor, professional, technician). This proportion of skilled laborers is rather low in much of industry in Indonesia (averaging 3%), if compared with trade, transport and services (where the mean equals 15%). Relatively more skill intensive subsectors are utilities (21%), basic metals (10%), paper and printing (9%) and chemicals (7%).

About 12.5% of the economically active are engaged in the industrial sector. Among these the subsector wood, wood products and construction is the biggest employer. In the rural areas the subsector food processing is also important. Relatively many women are involved in that activity. Female workers even constitute a majority in the textile sector. In general, the under-representation of women is less pronounced in manufacturing than in other activities. It is also not true that all industrial employment is created in urban areas (only 26%).

Table 2 sketches significant wage differences between population groups. The unpaid workers receive an imputed hourly wage which equals the remuneration of employees in the same category (regarding location, sex, age, sector of employment and occupation).

Clearly the benefit of employment is doubtful if the payment is not adequate. Recent evidence even indicates that the poorest groups tend to work comparatively long hours. As Hart [1980] puts it: "... the employment problems faced by the poorest groups derive not so much from inadequate work opportunities per se, as from having to accept extremely low returns to labour" (p. 191). Average labor payments amounted to 113,000 Rp in 1975 (about 272 U.S. \$ for a full-time work year). Prevailing discrepancies

Table 2: Wage per Worker Equivalent by Sector of Production and Labor Type in Indonesia (1975)

x 1000 Rupiah

Sector of Production				Agriculture	Mining	Manufacturing, Utilities and Construction										Total Indonesia	
						Food	Textiles	Paper & Printing	Chemicals	Basic Metals	Metal Products & Machinery	Non-metallic Mineral Products	Wood, Wood Products & Construction	Utilities	Total Industry		Trade, Transport & Services
Manual Workers	Employees	Rural	Male	36	291	140	128	320	166	97	162	97	186	290	164	109	107
						Female	55	55	73	47	42	84	-	67	45	44	-
		Urban	Male	103	695	199	208	314	264	110	292	161	227	415	234	171	195
				Female	78	-	83	97	113	103	65	134	59	94	-	94	92
	Others	Rural	Male	79	103	157	131	166	232	97	158	96	180	156	157	107	85
					Female	49	51	78	48	35	111	-	78	45	57	-	62
		Urban	Male	96	1446	198	209	321	250	113	287	164	224	415	226	149	140
				Female	69	-	94	103	100	-	-	126	34	81	-	94	93
	Employees	Rural	Male	131	227	181	146	229	163	130	181	165	181	292	182	127	135
					Female	45	-	39	42	-	76	-	71	151	40	-	56
		Urban	Male	265	849	278	292	339	393	141	366	175	358	424	332	241	256
				Female	117	-	122	182	215	169	-	224	80	276	275	178	86
	Others	Rural	Male	116	130	192	146	-	-	-	229	115	197	-	187	104	104
					Female	28	-	59	42	-	-	-	60	103	52	-	56
		Urban	Male	-	532	285	295	-	-	-	348	-	345	-	308	141	143
				Female	-	-	134	198	-	-	-	182	-	-	-	168	86
	Employees	Rural	Male	142	302	199	153	246	283	-	208	91	249	689	246	368	353
					Female	149	-	113	217	-	-	-	13	-	-	99	327
		Urban	Male	680	2520	416	439	724	621	203	597	463	592	789	581	576	589
				Female	-	-	144	248	-	710	-	165	-	-	419	401	401
	Others	Rural	Male	134	234	188	194	-	-	254	189	82	276	-	224	82	100
					Female	-	-	114	217	-	-	-	-	-	-	159	100
		Urban	Male	-	-	403	402	604	-	197	544	485	546	-	479	491	489
				Female	-	-	157	346	-	-	-	135	-	-	228	164	166
Total manual workers				73	259	116	94	240	167	99	166	84	163	402	138	127	89
Total clerical workers				127	335	179	197	274	196	131	267	154	211	338	213	108	114
Total higher level workers				160	1369	274	300	565	453	238	422	246	416	764	392	390	389
Total paid				78	493	126	113	285	197	114	217	102	200	468	172	220	155
Total unpaid				72	163	124	87	230	212	121	146	78	124	275	119	102	85
Total rural				73	178	113	74	171	145	114	136	83	149	334	124	118	91
Total urban				96	1116	172	182	308	277	122	313	162	252	497	238	217	213
Total male				82	376	173	175	336	241	120	229	111	207	458	200	189	133
Total female				52	97	78	61	102	114	48	91	47	58	393	69	84	66
Total Indonesia				74	344	125	105	276	197	117	193	91	174	457	153	155	113

in wages between various types of labor are even not fully shown in this table, due to aggregation³⁾.

In urban areas earnings are generally much higher than in the countryside. This does not only apply to the average, but also to each labor type and sector of production. Besides, it appears that men earn twice as much as women. Such a difference in pay between the sexes seems to exist as well when they hold similar posts. In the industrial sectors the difference is even more pronounced: women typically receive only one third of what their male colleagues get.

As expected, employees generally hold better positions than the other workers, which is also expressed in their average salary.

Between sectors the variation in wages is considerable as well. By far the lowest payments are found in agriculture. Work is most remunerative in utilities and mining, but not even 0.5% of total employment is generated in those sectors. As regards the manufacturing sectors, labor incomes are most rewarding in paper & printing, chemicals, metal products & machinery, and wood, wood products & construction. It strikes that wages by sector of production diverge less for women than for men.

All in all, we may conclude that the assumption of factor price equalization across sectors does not seem justified. Moreover, the substantial urban-rural (nominal) wage differentials together with less underemployment in the cities, indicate that migration to the urban areas is still an attractive option for many of the rural poor. If massive migration is to be avoided, continued industrialization of rural areas seems indispensable.

In general, manufacturing employs less higher level personnel than the service sectors. Comparing industrial subsectors, skill requirements are highest in heavy processing industries (ISIC 34-36).

3) The source for this table contains more disaggregated information (for instance distinguishing 31 sectors of production).

Recent Developments

Some tendencies regarding growth and employment creation may be derived from table 3. It is obvious that mining and manufacturing belonged to the fastest growing sectors in the second half of the seventies. Whereas in the former activity growth of value added was mainly due to higher (oil) prices, in manufacturing a substantial real increase occurred. Clearly growth has slowed down during the first half of the eighties. After accounting for inflation, utilities, transport and communication (annual growth rate: 10.4%), financial services (10.0%) and construction (8.0%) took over the lead. The expansion of the manufacturing sector at large hardly surpassed the upward trend of the economy as a whole. The mining sector even shrank.

Recent employment figures by sector of production are not available, but developments between 1975 and 1980 were not encouraging. The increase in the number of jobs amounted to about a third of the increase in value added. In the industrial sectors the divergence was even sharper: labor productivity rose at a rate of 11.3% per year (assuming that output and value added followed the same trend).

As table 3 shows, the last decade has been characterized by a fast development of heavy industries. Hill [1984] computed that between 1975 and 1980 the share of consumer goods (ISIC 31,32 (except 323), 332,342,361,39) in industrial value added declined from 62% to 50%, while the share of intermediate goods (ISIC 323,341,35,36 (except 361), 37) rose from 29% to 37% and that of capital goods (ISIC 38) from 9% to 13%. Production of intermediate goods may even speed up in the near future as large projects in plywood, paper products, aluminium, fertilizer and cement become operational. There are good prospects as well for oil refineries, LNG plants and some light industries (cigarettes). Since the devaluation of the rupiah in 1983 and the introduction of a system of a managed floating exchange rate, the capital goods sector may have lost its preferential treatment caused by a relatively cheap import of parts, components and accessories. On the other hand, there are clear signs that non-oil (manufactured) exports

Table 3: Annual Growth Rate of Value Added and Employment by Sector of Production in Indonesia (1975-1983).

Sector of Production	Value Added ¹⁾ (current Prices)		Value Added (constant Prices)		Employment (1975-1980)
	'75-80	'80-83	'75-80	'80-83	
Agriculture	23.0	18.5	4.0	3.9	1.8
Mining	36.3	5.8	4.6	-2.6	-1-1
Food Products	33.0	} 19.6	} 14.5	} 5.4	5.3
Textiles	32.2				4.3
Paper etc. ²⁾	31.4				8.4
Chemicals ²⁾	40.8				6.3
Basic Metals	82.1				8.1
Metal products & Mach.	38.0				-3.3
Non-metal. Mineral prod.	48.0				3.5
Wood etc. & Constr.	36.2	4.8			
Utilities	26.3	30.8	13.7	13.1	1.5
Total Industry ²⁾	35.1	19.9	14.5	5.7	3.2
Trade, Transport & Services	27.0	19.7	9.4	6.5	5.0
TOTAL INDONESIA ²⁾	29.2	16.2	7.9	4.8	2.8

1) Subdivision of industrial value added based on Censuses of 1974/75 and 1979.

2) Excluding Oil Refineries.

Sources: World Bank (1984), Presidential Address 1983 (BPS, 1983/a), Input-Outputtable 1980 (BPS1984/a). National Income Tables 1979-1983 (BPS, 1984/b), ISS computations.

have gone up, apparently benefiting from this price incentive. Thus, it seems that the short-term price-elasticity of supply in the export sector is substantial.

Government Policies

There exists general agreement among observers that government policies have contributed to the build-up of an excessively capital intensive manufacturing sector. To mention just some of the stimuli⁴⁾: Firstly, an overvalued exchange rate which cheapened intermediate (capital goods) imports and punished relatively labor-intensive (potential) exporters. Secondly, administrative barriers which, among other things, thwarted the entry of new firms, thereby reducing competition and increasing profits. It is well-known that a few small industries generally create more employment than one large establishment. Further, the discretionary nature of "red tape" tends to reduce the relative costs of large (investment) projects. Thirdly, financial policy stimulated capital intensive industrialization through mandated negative real interest rates during much of the seventies and through credit rationing in favour of government sponsored large-scale projects and other "credit-worthy" big business. Fourthly, tax policies were effectuated by granting tax holidays, accelerated depreciation schemes and other investment incentives to foreign and national private investors. Fifthly, investment policy emphasized large capital intensive public sector projects. Finally, the trade policy implied high effective rates of protection for sectors substituting imports and even negative rates for exportables. Moreover, import of new capital goods for investors has often been exempted from import duties, while on the other hand the import of second-hand machinery has been banned⁵⁾. Obviously, the latter involve more labor-intensive and less skill-intensive production techniques.

It has to be noted however, that lately measures have been

4) An extensive overview is provided by a country report of the World Bank [1981].

5) Hill [1983] provides an instructive example of the effects of these policies on the choice of technology in the weaving industry.

taken to eliminate some of these adverse effects. Recently the national currency has been devalued against the U.S. dollar, and the previous policy of tying the rupiah to the dollar has been abandoned. It has been stated that in future it will be tried to keep the real exchange rate stable.

Next, financial policies have been reformed, involving significant deregulation of interest rates as well as a lifting of credit ceilings imposed by the central bank on all commercial banks.

Thirdly, the tax system has been changed drastically, boiling down to a shift from sales taxes to value added taxes, in addition to the streamlining of all kinds of corporation and income taxes into one comprehensive system of revenue taxes. A major feature of the new system is the abolition of all kinds of tax holidays and other investment incentives and the replacement by generally lower tax rates⁶⁾. However, much will depend on the actual implementation of these new regulations.

Finally, the necessity to adopt austere government budgets in the wake of lower oil prices has led to the cancellation or postponement of various sizeable capital-intensive public sector projects⁷⁾.

On the other hand, the regulatory environment has not been adjusted fundamentally, nor is a significant reversal of trade policies foreseen. Nevertheless, there are indications that the government gradually becomes aware of the harmful effects of overregulation, and in the 1984 Presidential Address a reduction of the number of business permits was announced (Soeharto, 1984). Finally, attempts are made to step up Indonesia's technological development. Whether this policy will aim at maximizing prestige for a small elite or will adopt solutions tailored to the needs of the

6) Refer to Conrad and Gillis /1984/ for a comprehensive description of the tax reform.

7) Some of these are documented in the Far Eastern Economic Review /1984/.

country remains to be seen. At least, it seems a good thing that more attention is given to the quality of the labor force (through improving their skills, although health problems of the mass of the laborers should not be overlooked), and concomitantly to the quality of the output, in order to enhance competitiveness in the world markets.

Industrialization Strategy

It is evident that the Indonesian government wants to prepare the nation for an imminent take-off to prosperity through an accelerated industrialization. This is illustrated by some of the policy reversals discussed above. However, it appears that still an industrialization strategy which puts an emphasis on heavy industry is preferred. A very instructive critique on this wide-spread preference in developing countries is given by Oshima [1984].

Firstly, the upstream heavy industries have become increasingly technology-intensive in developed countries. More often than not an integrated system of continuous, synchronized processes is automatically run by a few highly skilled technicians from control rooms. In addition, the day to day technological problems of repair and maintenance are immense.

Secondly, in an early stage it cannot be expected that the output of various complex upstream heavy industries (roughly ISIC 341,351,353,37) can be exported, and therefore the demand has to come from domestic middle-stream industries. If these intermediate factories do not exist, prospects for basic industries are gloomy, irrespective of the demand for end-products. Both upstream and middle-stream industries must produce good quality outputs, which requires a good deal of competition and at least several firms operating in the same market. That, in turn, implies enormous capital investments.

Further down the line, the buyers of middle-stream products tend to be enormous varieties and numbers of firms, both large-scale assemblers of machinery and means of transport, and countless small and medium producers of components, parts and accessories. The latter frequently serve as subcontractors for the former. The existence of sufficient reliable subcontractors is vital not only to the assembling plants, but also to the turnover of middle-stream industries. UNIDO [1984], in an advisory report to the Indonesian government, also lays stress on the desirability of promoting subcontracting. This may enhance the capacity of small firms and simultaneously economies of scale can be reaped when components required by several industries are standardized.

In case that these long lines of production, from raw material processing to the manufacturing of consumer goods, are not carefully planned, low rates of capacity utilization in the upstream industries are inevitable. As a consequence, returns are not sufficient to cover high overhead costs or even to replace depreciation fully, let alone that expensive research can be financed. Nevertheless, that is absolutely essential in a rapidly changing technological environment. It is questionable whether any government could go on subsidizing all these expenses, until a secure domestic demand for these basic and intermediate products has been established.⁸⁾ Evidently, the situation changes when the investment is largely financed from additional external sources and a stable market abroad is guaranteed, as in the case of the Asahan aluminium smelter and hydro-electric power plant. This Indonesian-Japanese joint venture uses the apparent comparative advantage of Indonesia in some energy-intensive resource-based processes (the cost of power is said to be only about one-seventh of that paid by smelters in Japan [Hill, 1984]). Oil refineries and

8) Oshima [1984] cites the case of India as an illustrative example.

LNG-processing are another example.

Apart from these (exceptional) cases, generally better prospects may exist for simpler process industries which sell directly to final business users on the one hand, and for labor-intensive exportables on the other hand. The first group consists of products like cement, fertilizer, rubber, glass, etc. In the second category fall textile and garment, plywood and furniture, various metal products, footwear and possibly pottery, food, tobacco products, labor intensive stages of electronics and ship-building. The last-mentioned sector needs relatively modest amounts of (imported) parts and components when compared with other heavy assembly industries (like the automobile industry). Apart from the engine, other intermediate inputs comprise a minor proportion of the output value. The construction is a rather labor-intensive process, so that Indonesian ships may become competitive in the world market as soon as labor productivity and quality reach fair standards. Besides, the size of the domestic market is beyond any doubt in this huge archipelago.

Kuijvenhoven and Poot [1984] show that "...an industrialization strategy which gives priority to the promotion of export of manufactures and natural-resource (agro-)processing contributes most to a labor-intensive industrialization path" (p. 35). This means that encouraging a better absorption of labor supply in Indonesian manufacturing simultaneously yields good prospects for the balance of payments, which is an important consideration in view of the expected reduction in foreign exchange earnings from energy exports. Moreover it turns out that the outward-looking strategy may lead to less imports in the medium term than an explicitly import substituting strategy [Kuijvenhoven and Poot, 1984]. Of course, this applies to a country where a great deal of the imports have already been substituted (notable exceptions

are paper, glass and metal products).

In conclusion, it can be added that a mechanical use of input-output techniques or other quantitative tools is not sufficient for the selection of an appropriate strategy. Although large backward and/or forward linkages clearly point to potential multiplier effects, it must be kept in mind, firstly, that customers of domestic products, substituted for imports, are even worse off if they have to buy lower quality at higher prices, and secondly, that suppliers of national industries, processing previously exported raw materials, do not benefit, if nobody wants to buy the expensive, bad quality, domestically finished articles. Evidently in some sectors these extra costs, not accounted for by input-output analysis, may only be temporary (infant industry argument). However, in other activities supply bottlenecks may be insurmountable in the short and medium term, in particular with regard to skilled manpower⁹⁾. It goes without saying that if such (upstream) projects are nevertheless undertaken and if, moreover, their non-competitive outputs are effectively forced upon downstream labor-intensive export industries, industrial growth as well as the balance of payments will be adversely affected. Subsequently, if these investments were paid out of the public purse, maintenance costs and subsidies will continue to put a strain on the government budget, at the expense of more rewarding outlays.

It seems that really beneficial tasks for the government lay with the removal of obstacles hindering (labor-intensive) industrial growth (see above), and foremost with the creation of physical and human infrastructure. Major

9) Making use of a model containing both demand and supply considerations, based on a Social Accounting Matrix, in which various types of labor are distinguished (with skills among the classification criteria), and in which production activities are separated by technology, might partially obviate the above objections. Recently, the Indonesian Central Bureau of Statistics has also completed labor supply projections [BPS, 1983/b].

advantages of the construction of physical infrastructure, particularly in the rural areas (irrigation works, supply of clean drinking water and sanitation, electrification, roads, ports, etc.) above turn-key projects in heavy manufacturing are: a) its beneficial effects on (rural) labor productivity and on labor-intensive small-scale (industrial) development, and b) its typically lower rate of obsolescence.

Development of human infrastructure seems even more crucial, in view of rapid technological changes pushing up skill-intensity of (industrial) production. Apart from education, a better health of the workers will provide an important stimulus to labor productivity and economic growth¹⁰⁾. These policies are also to be preferred in view of the government objective to promote a more equitable distribution of the fruits of development.

List of References

- Bank Indonesia, 1984: Indonesian Financial Statistics (various issues).
- BAPPENAS, 1984: REPELITA IV, 1984/85 - 1988/89.
- BPS, 1981: Statistik Industri 1979, Volumes I & II.
- _____, 1982: Statistik Industri Kecil 1979.
- _____, 1983a: Bahan Pidato Pertanggungjawaban Bapak Presiden/ Mandataris MPR RI Maret 1983.
- _____, 1983b: Proyeksi Penawaran dan Permintaan Tenaga Kerja di Indonesia Selama Pelita IV dan V (1983-1995).

10) McCawley/1979 cites results of research into health conditions of Indonesian workers. It was found that extremely large proportions of the labor force suffered from iron deficiency anaemia and hookworm infestation, which exerted a major influence on labor productivity. The benefit-cost ratio of some simple measures improving their condition turned out to be very large.

- _____, 1983c: Social Accounting Matrix Indonesia 1975, Volumes I and II.
- _____, Input-Output Table Indonesia, 1980, Volume I.
- _____, National Income of Indonesia 1979-1983 (Main Tables).
- Conrad, R., and M. Gillis, 1984: The Indonesian Tax Reform of 1983, Harvard Institute for International Development Discussion Paper.
- Far Eastern Economic Review, 1984: Asia 1984 Yearbook.
- Hart, G., 1980: 'Patterns of Household Labour Allocation in a Javanese Village', in Binswanger, H.P. , R.E. Evenson, C.A. Florencio and B.N.F. White (eds.): Rural Household Studies in Asia, Singapore: Singapore University Press.
- Hill, H., 1983: 'Government Policy and the Selection of Technology in the Indonesian Weaving Industry', The Developing Economies, Vol. 21 , No.2.
- Hill, H., 1984 : 'Survey of Recent Developments', Bulletin of Indonesian Economic Studies, Vol. 20, No. 2.
- Jones, G., 1981: 'Labour Force Developments Since 1961', in Booth, A. and P. McCawley (eds.), The Indonesian Economy During the Soeharto Era, Kuala Lumpur: Oxford University Press.
- Keuning, S., 1985: 'Segmented Development and the Way Profits Go: The Case of Indonesia', The Review of Income and Wealth (forthcoming).
- Kuyvenhoven, A. and H. Poot: Industrial Development in Indonesia - Analysis and Options, Erasmus University Centre for Development Planning Discussion Paper No. 70.
- McCawley, P., 1979: Industrialization in Indonesia, ANU Development Studies Centre Occasional Paper No. 13.
- Moir, H.V.J., 1979: 'The LEKNAS Labor Utilization Survey: Some Data on Labor Utilization from Selected Areas of Java', Ekonomi dan Keuangan Indonesia, Vol. 27, No. 4.

- Oshima, H., 1984: 'Issues in Heavy Industry Development in Asia', Ekonomi dan Keuangan Indonesia, Vol. 32, No. 1.
- Soeharto, 1984: Address of State on the Occasion of the 39th Independence Day.
- UNIDO, 1984: Prospects for Industrial Development and for Capital Goods Industry in Indonesia.
- World Bank, 1979: Indonesia, Cottage and Small Industry in the National Economy, Vol. I and II.
- World Bank, 1981: Indonesia, Selected Issues of Industrial Development and Trade Strategy.
- World Bank, 1984: Indonesia, Policies and Prospects for Economic Growth and Transformation.

WORKING PAPERS PUBLISHED SO FAR:

Sub-Series on Money, Finance and Development

- No. 1 - Karel Jansen, 'An Introduction to the Research Programme of the Institute of Social Studies' (November 1982)
- No. 2 - Fernando Tenjo Galarza, 'Accumulation and the Financial Sector in Colombia (1970-1979): An Interpretation' (December 1982)
- No. 3 - E.V.K. FitzGerald, 'Aspects of Finance Capital in Latin America' (December 1982)
- No. 4 - Willem van der Geest, 'International Economic Models as Particular Views on Third World Economic Development' (December 1982)
- No. 5 - Rosalia Cortes, 'Agrarian Structures, Food Prices and Real Wages' (December 1982) - NOW WITHDRAWN -
- No. 6 - Karel Jansen and Joan Verloren van Themaat, 'Recession and Adjustment in the Developing Countries. International and National Responses to the Economic Crises of the 1970s' (December 1982)
- No. 7 - William Darity, Jr. and E.V.K. FitzGerald, 'A Kalecki-Keynes Model of World Trade, Finance, and Economic Development' (December 1982)
- No. 8 - E.V.K. FitzGerald, 'Kalecki on the Financing of Development: An Elucidation and an Extension' (March 1983)
- No. 9 - Rob Vos, 'Financial Development, Problems of Capital Accumulation and Adjustment Policies in Ecuador, 1965-1982' (November 1983)
- No.10 - Karel Jansen, 'Stability and Stabilisation in Thailand' (November 1984)
- No.11 - Marc Wuyts, 'Money and the Balance of Payments in Mozambique' (November, 1984)
- No.12 - Richard Brown, 'On Assessing the Effects and Rationale of the IMF Stabilisation Programme in Sudan Since 1978' (November 1984)
- No.13 - Joan Verloren van Themaat, 'Finance and Monetary Policies of Tanzania in the Present Economic Crisis' (November 1984)
- No.14 - E. V. K. Fitzgerald, 'Problems in Financing a Revolution: The Case of Nicaragua 1979-84' (December 1984)

/Continued.....

General Series

- No. 1 - Kurt Martin, 'Agrarian Reforms and Intersectoral Relations: A Summary' (December 1982)
- No. 2 - Steven J. Keuning, 'Distributive Aspects of Indonesia Agriculture' (December 1982)
- No. 3 - Steven J. Keuning, 'Segmented Development and the Way Profits Go: The Case of Indonesia' (February 1984 revised)
- No. 4 - Bert Helmsing, 'Agriculture and Industry in a Regional Perspective' (December 1982)
- No. 5 - Mike Douglass, 'From Peasant to Migrant Worker: Regional Perspective from the Central Plains of Thailand' (January 1983)
- No. 6 - Ben White, '"Agricultural Involution" and its Critics: Twenty Years After Clifford Geertz' (February 1983) - NOW OUT OF PRINT -
- No. 7 - Jan J.P. van Heemst, 'National Accounting and Subsistence Activities in Developing Countries: A Review of Some Major Issues' (March 1983)
- No. 8 - Veronika Bennholdt-Thomsen, 'The Sexual Division of Labour in Capitalism' (March 1983)
- No. 9 - Jos Hilhorst, 'Beyond the Waters: Toward Water Resource Management in Peru' (March 1983)
- No.10 - Bert Helmsing, 'Colonos, Agricultural Colonisation and Production in Andean Countries' (April 1983)
- No.11 - David Dunham, 'Interpreting the Politics of Settlement Policy: A Background to the Mahaweli Development Scheme (May 1983)
- No.12 - Antony J. Dolman, 'World System Processes and Third World Environment' (May 1983)
- No.13 - Louis Emmerij, 'How to Get Out of The Crisis?' (May 1983)
- No.14 - Gilbert Benz, '"The Impact of 'The New Forms of Investment' on the 'Codes of Conduct'" (August 1983)
- No.15 - Ashwani Saith, 'The Distributional Dimensions of Revolutionary Transition: Ethiopia' (August 1983)
- No.16 - Ashwani Saith, 'Development and Distribution a Critique of the Cross-Country U-Hypothesis' (July 1983)
- No.17 - Ben White, 'Measuring Time Allocation, Decision Making and Agrarian Changes Affecting Rural Women: Examples from Recent Research in Indonesia' (August 1983) - NOW OUT OF PRINT -
- No.18 - Ashwani Saith, 'Some Observations on China's New Population Policies' (August 1983)

/Continued overleaf.....

- No.19 - Bert Helmsing, 'Industrialization and Regional Division of Labour: Analysis of Patterns of Change in Colombia 1945-1980' (November 1983)
- No.20 - Joost Kuitenbrouwer, 'Rural Policies and Contradictions in Pakistan in the Seventies and Their Implications for the Eighties' (November 1983)
- No.21 - Peter Waterman, 'Needed: A New Communications Model for a New Working-Class Internationalism' (April 1984)
- No.22 - Charles Cooper, 'Learning-By-Doing' In an Open Economy Version of the Fel'dman Model (September 1984)
- No.23 - Bert Helmsing, 'Economic Structure, Trade and Regions (November 1984)
- No.24 - Godfried van Benthem van den Bergh, 'The Nature of Peace and the Dynamics of International Politics' (December 1984)
- No.25 - Roger A. Downey and Steven J. Keuning, 'Introduction to the Indonesian Social Accounting Matrix' (March 1985)
- No.26 - Steven J. Keuning and Roger A. Downey, 'The Distribution of Sectoral Value Added and Employment by Factor Types in Indonesia' (May 1985)
- No.27 - Steven J. Keuning, 'A Few Notes on the Expansion of the Manufacturing Sector in Indonesia' (February 1985)

/Continued.....

WORKING PAPERS AND SUB-SERIES ON WOMEN'S HISTORY AND DEVELOPMENT

- No.1 - Elisabeth J. Croll, 'Women's Rights and New Political Campaigns in China Today' (October 1984)
- No.2 - Rhoda Reddock, 'Women and Garment Production in Trinidad & Tobago 1990-1960' (October 1984)
- No.3 - Truong Thanh-Dam, 'Social Consciousness and the Vietnamese Women's Movement in the 20th Century' (October 1984)
- No.4 - Alem Desta, 'Profile of Ethiopian Women' (Feb. 1985)
- No.5 - Saskia Wieringa, 'The Perfumed Nightmare' (Feb. 1985)