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THE LARGEST ESTABLISHMENTS IN CHINA AND THAILAND: AN ANALYSIS OF INDUSTRIAL STATISTICS*

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CONTENTS

1. INTRODUCTION

This paper presents a comparison between statistics published in the Industrial Census 1985 of the People's Republic of China (China) and the 1985 Industrial Survey of the Kingdom of Thailand (Thailand).

Admittedly, there are such differences in the national contexts that the industrial patterns of China and Thailand are not likely to have much in common. The economic systems of the People's Republic of China and the Kingdom of Thailand differ greatly. In 1985 the population of China was 20 times larger than that of Thailand. At 828 dollars, the per capita GDP of Thailand was 85 per cent higher than that of China.[1/] Thailand was already an outward-oriented country, while outward orientation was more in the nature of a prospect in the case of China with the incipient "special economic zones" and the forthcoming return of Hong Kong to Chinese sovereignty.

Yet, both countries being now in the throes of modernization have some common traits. Industry, still underdeveloped, is expanding output, diversifying its products and acquiring new productive techniques at very fast speeds compared with the historical records of the two countries, as well as with the current performances of almost all other countries of the globe. Having awoken to a dynamism comparable to that of the neighbouring East Asian Newly Industrialized Countries, China and Thailand appear destined to follow in their footsteps.

As they enter the international area, the manufacturing firms of China will have to face international changes in demand for their products, supply of their inputs, competition from their rivals, and shifts in their production advantages as compared to other countries. Once exposed to such thrusts, firms will realize that in manufacturing there is no absolute achievement, that the performance and worth of a firm can only be gauged in relation to the competitors. Consequently, there will be a growing need for comparisons between China and foreign industries.

By themselves, industrial statistics, to which the present paper is confined, are too limited to discern the respective competitive edges of the countries being compared. This is a matter of products design, manufacturing capabilities, marketing outlets, price competitiveness, etc. But industrial statistics have an heuristic value at the macro level where the manufacturing sector as a whole, and its breakdown into branches, appears as a global operational environment conditioning the performance of firms at micro level.

2. Data Sources

The source of data on China is: People's Republic of China, Industrial Census 1985 (Large- and Medium-Sized Enterprises), Hong Kong, June 1988 (Census).

1/ Figures for 1985 at 1980 constant prices. Note that, measured in purchasing power parity terms, it is China, with an estimated per capita GNP of $2,400, which is higher than Thailand with $1,900 (see Summers, R. and Heston, A., A New Set of International Comparisons of Real Product and Prices: Estimates for 130 Countries, 1950-1985, The Review of Income and Wealth, series 34, No.1, March 1988, Tables 3 and 4).

The source for Thailand is the National Statistical Office, Office of the Prime Minister, Report of the 1985 Industrial Survey, Whole Kingdom (Survey).

Both the Census and the Survey cover the largest establishments within the scope. In the case of Thailand, the publication indicates a cut-off point in terms of employees. In the case of China, the definition of the cut-off point is provided by the expression "large and medium" used in the title. The Survey presents statistics covering a sample of establishments with 10 to 19 employees and all establishments where 20 or more persons are engaged; the data in this paper relate to the 5,649 establishments of 20 or more employees. This number is close to the number of establishments covered by the Census (8,285), but in proportion to the total population of establishments, it is doubtless larger than in China.

The scope of the Survey is limited to manufacturing (major division 3) of the Thailand Standard Industrial Classification, which is close to the International Standard Industrial Classification. The period of reference is 1 January to 31 December 1984.

The scope of the Census includes not only manufacturing but the whole of industry. In order to obtain a better match between the scopes, establishments included under mining, logging, water and electricity are excluded from the Census figures in the following text; this operation reduces the number of establishments covered in this paper from 8,285 to 7,278.

The Census does not make an explicit reference to a classification and omits use of code numbers to identify the branches and their breakdown or aggregation.

Values in national currencies are converted at the official rates of 2.937 yuan renmimbi (1985) and 23.639 bahts (1984) both to the dollar.

3. Definitions

The Thai Survey adopts the canonical definition of value-added.[1/]

The Chinese Census definition of value-added is:

net industrial output . gross industrial output - "value of means of production consumed in the process of production" (S13 of Explanatory notes, p.332)

where:

1/ See United Nations, International Recommendations for Industrial Statistics, Statistical Papers, Series M. No.48, Rev.1, Sales No.E.83.XVII.8, New York 1983.

Gross industrial output (S11)	Value of means of production[1/]
+ "Value of products produced"	+ "Materials, fuel and power"
+ "Value of industrial processing"	+ "Depreciation of fixed assets"
+ "The value difference of self-produced semi-products and products operated between the beginning and end period"	+ "Overhaul fund collected"
	+ "Material consumed for other expenditure"
	+ "Materials consumed in the expenditure of products sold"

Apparently, the main discrepancies between the two sources is that in China the net value of goods shipped in the same condition as received is not included in the calculation of value added, whereas the depreciation of fixed assets is deducted from it. In order to obtain a better match, the Thai value-added figures have been adjusted by subtracting the value of goods shipped in the same condition as received, adding the purchases or receipts of goods to be shipped in the same condition as received and subtracting the depreciation of fixed assets. Performing these operations amounts to reducing the Thai value-added by 12.9 per cent at aggregate level; it increases the Thai value added in petroleum and decreases it in all the other branches.

4. China-Thailand Comparison

4.1 Establishment Size

4.1.1 Employees per Establishment

The average number of employees per establishment is 2,203 in the Census and 226 in the Survey (see Table 1). In China, the branches with relatively large-size establishments belong to the heavy industries: iron and steel, non-ferrous metals, petroleum, textiles, transport equipment and industrial chemicals. In Thailand, the largest establishments are in beverages, wearing apparel, petroleum, textiles, glassware, paper and rubber. The largest differences between the average size of Chinese and Thai establishments are recorded in non-ferrous metals, iron and steel, industrial chemicals, machinery and transport equipment. Curiously, in Thailand, there is one branch - beverages - with an average size larger than in China.

Apparently, the many factors which may account for the size difference could include discrepancies in the output mixes of the countries. This is suggested by the observation that the gaps between Chinese and Thai sizes tend to become narrower when passing from 3- to 5-digit levels. At the latter level of disaggregation, the unweighted average found for China is 1732, while that for Thailand is 567; thus, China's size has become only 3.1 times larger than Thailand instead of 9.7 times at the aggregated level. The 5-digit observations are taken from the intersection of Chinese and Thai industries. In other words, industries which are not common to the two countries are not

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1/ The "value of means of production" is not explained in the explanatory notes. However, in S12, there is an explanation of "value of materials consumed in the process of production". It has been assumed that the "means of production" of S13 is the same thing as the "materials" of S12.

included in the comparison, a procedure which can only bring about more homogeneous output mixes. Hence it can be said that the size difference becomes smaller when more homogeneous output mixes are compared.

4.1.2 Gross Output per Establishment

Table 1 provides figures for gross output per establishment at branch level for China and Thailand as well as the ratio China to Thailand.[1/] It can be seen that the gap between output sizes is 1 to 2.3 when taking the manufacturing sector as a whole. Such a gap is much smaller when size is measured by number of employees. This feature may be given several interpretations, one of which being that there is a possible overstaffing of Chinese establishments. At this stage the evidence is too scanty to reach a conclusion, but it is useful to note that, compared to the Thai establishments, the Chinese are substantially larger in terms of staff than in terms of the output which this staff contributes to produce. The social legislation of China is known to emphasize job security and may therefore be playing a role in this phenomenon. Furthermore, Chinese establishments perform welfare functions in addition to their productive functions. The Census reports 343,606 staff in medical and health services and 543,215 staff attending "higher learning schools"; the personnel employed in the nurseries and schools run by the establishments is not reported, but can hardly be less than the medical and health staff. In total therefore, Chinese establishments employ about 5 or 6 per cent of their total staff in welfare activities.

With $16.3 million, the average size of an establishment in China appears quite high compared, not only to Thailand, but also to countries like the Federal Republic of Germany and the United Kingdom, where the average gross output of establishments with more than 20 employees was, in 1985, $11.9 and $2.2 million respectively. The largest establishments are found in iron and steel, petroleum, tobacco, non-ferrous metals, rubber and industrial chemicals. The smallest establishments are in pottery, professional goods, furniture and fixtures, beverages, printing and publishing.

The sharpest contrast between China and Thailand is in non-ferrous metals and iron and steel. Although Thailand's establishments are generally smaller than those of China, in four branches the reverse relation occurs: in petroleum, beverages, plastic products and non-metallic minerals.

4.1.3 Value Added per Establishment

In order to provide a view of the net contribution an establishment makes to the economy, it is more appropriate to consider value added than

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1/ Values in national currencies are converted into US dollars at the official rates. As suggested in the footnote on page 1, there seem to be substantial distortions in the relative prices between China and Thailand. Accordingly, it would be better to measure the relative level of gross output by weighting the physical outputs by a common set of price weights. As such a procedure is not feasible in the context of this paper, the reported relation between levels of output must be taken with a grain of salt.

gross output. Table 1 provides figures of value added per establishment at aggregate and branch levels. In China the value added per establishment is $5.3 million in the manufacturing sector as a whole. Branches with higher values are: petroleum, tobacco, iron and steel, non-ferrous metals, rubber, industrial chemicals and transport equipment. In Thailand the average for the whole sector is $2.2 million. Petroleum, beverages and tobacco record the highest averages per branch. Here, a fifth branch, leather, is added to the four in which Thailand records a superiority in terms of gross output.

On average, an establishment in China is 2.4 times larger than in Thailand. This is the same proportion as recorded in the case of gross output. Indeed, Table 2 shows that at the aggregate level, China and Thailand have closely similar shares of value-added in gross output, 33 and 31 per cent, respectively.

In China, the value added to gross output ratios are not much dispersed around the mean. One sector only, tobacco, stands well above with value added accounting for 62 per cent of gross output. Pricing of the final product intuitively appears in this case to be the basic cause for the large difference between the value of output and the value of input.

In Thailand, the dispersion of the ratio is wider. In three sectors - leather, beverages, tobacco - value-added represents about three-quarters of gross output and in one - professional goods - almost two-thirds.

In comparing the ratios of value added to gross output, 15 out of 26 branches of China appear with higher values than Thailand. There are several possible explanations for a relatively high ratio of China in comparison with Thailand.

(1) China uses less inputs per unit of final output than is the case in Thailand;

(2) The price of a unit of input relative to the price of a unit of output is lower in China than in Thailand;

(3) There is less specialization of production within establishments in China, and smaller interplant shipments as a result, than in Thailand;

(4) The Chinese Census may collect less complete information on inputs than is the case with Thailand.

In 1985, in China, there was a mixture of administered and market prices. Apparently, prices of raw materials and energy were more generally administered and kept at a lower level than final product prices. Such a structure of the price system, probably intended to promote transformation activities, would give support to the second of the above-mentioned explanations.

4.1.4 Fixed Assets per Establishment

The book value of the fixed assets invested in the 7278 manufacturing establishments covered by the Chinese Census was 96,533 million dollars or

13.3 million dollars per establishment (see Table 1).[1/] In Thailand the corresponding figure is 2.0 million dollars per establishment.

The inter-branch variation of the indicator is shown in Table 1. In China, the fixed assets per establishment vary from $4.3 million in furniture and fixtures to $133.3 million in iron and steel. In Thailand, the indicator takes values comprised of between a minimum of $200,000 in the leather, pottery, non-ferrous and non-electrical machinery branches and a maximum of $42.9 million in petroleum.

Two salient contrasts are noteworthy between the two countries. In non-ferrous metals an average establishment employs 220 times more assets in China than is the case in Thailand; in beverages, however, it is the contrary: it is Thailand which employs more assets; this industry is actually the only one where Thailand employs more assets per establishment than China. In the case of non-ferrous metals, the gap is so wide that one cannot account for it in terms of organization of production; the technology in non-ferrous metals is not flexible enough to allow for the production of the same output in productive units which have fixed assets of $44 million and $200,000 respectively. It is more likely that, within the same branch, activities and products are included which may be very different from one country to the other. In the case of beverages, the size difference is not that large, yet it is puzzling that the establishments of China, which presumably pertain to a higher cut-off than those of Thailand (20 or more employees), should be smaller on average than those of Thailand in an industry where demand, and consequently output, is largely influenced by the size of the population. Scrutiny of the disaggregated data reveals that the anomaly takes place in non-alcoholic beverages. This sub-branch offers little room for variation in the output-mix. One is therefore inclined to envisage that the Census may have not encompassed the largest establishments involved in the branch.

5. Capital-output Ratios

The so-called capital-output ratio is approximated in this paper by the ratio between fixed assets and value added. Table 2 shows the values taken by this ratio in China and in Thailand. A glance at the Table reveals that China makes a larger use of capital per unit of output than Thailand does.[2/] This relation holds for the manufacturing sector as a whole, as well as for its breakdown into branches with the only exceptions being textiles and rubber. Picking the branches in the five highest and the five lowest positions of the respective scales of capital-output ratios brings about the following lists:

1/ An evaluation of the stock of capital at book value has of course more to do with accounting convention than with economical sense as depreciation in the balance sheet reflects fiscal mechanisms rather than the requirements of capital replacement.

2/ But it should be recalled that a non-negligible share of the fixed assets in Chinese establishments is devoted to welfare activities. For instance, the residences of employees, clubs, cinemas and theatres account for 39.5 per cent of all the buildings utilized by the establishments covered by the Census.

China Ratios		Thailand Ratios	
High (top-down)	Low (down-top)	High (top-down)	Low (down-top)
Non-ferrous	Tobacco	Rubber	Tobacco
Non-metal minerals	Rubber	Industrial chemicals	Leather
Iron and steel	Petroleum	Non-ferrous metals	Wearing apparel
Industrial chemicals	Other	Textiles	Beverages
Machinery non-elect.	Beverages	Food	Iron and steel

The heavy industries (high ratios) of China account for 40 per cent of total manufacturing value added, while those of Thailand account for 25 per cent. Thus, in China, the sector is globally more capitalistic than in Thailand and the structure of production is concentrated on the most capitalistic industries.

6. Capital-intensity

Capital combines with other factors to generate the product. Labour is one of these other factors - perhaps the most important one. A technique of production is understood by economists to be the vector of factor quantities used in producing one unit of output. Thus, a certain combination of capital and labour, related to a unit of output, is called a technique of production. A unit of a given output can often be produced by alternative combinations of factors, some more intensive in one factor than in another. Accordingly, techniques are characterized in terms of their factor intensity. Capital-intensity is an expression of the intensity of use of capital relative to other factors. Capital-intensity depends not only on the relative abundance of the factors in the economy considered but also on technology.[1/]

The quantity of capital per labour is in this paper approximated by the ratio of fixed assets to employee and is called capital-intensity. Capital intensity ratios are shown in Table 2 for China and Thailand at aggregated and branch levels. The picture revealed by this data is quite different from what was seen in the light of capital-output ratios. China may use more capital per unit of output (see Table 2) but, as far as capital-intensity is concerned, it is Thailand which is ahead, not only in the majority of sectors, but also at the global sectoral level.

Also noticeable is the fact that in China, the capital-intensities of the individual branches are much less dispersed around the mean value (unweighted) of all the branches than in Thailand; the respective coefficients of variation (standard deviation over mean) are 0.5 and 1.1. This feature, which is now simply registered, will be reconsidered later on when wages will be discussed.

1/ Technology, the set of techniques available to produce a given output, would normally propose a limited number of alternative techniques, i.e. authorize only a limited ways of combining the unit-quantities of factors.

Figure 1 translates the data of Table 2 in a graphical way. The lines connect the bilateral positions of the branches in the capital-intensity rankings of each country. A solid line indicates that the degree of capital intensity is lower in China than in Thailand; a broken line means that it is higher. The most capital-intensive branch is at the top of the figure, the most labour-intensive one at the bottom. A rising line indicates that a sector is relatively more labour-intensive in China, a declining one that the sector is relatively more capital-intensive. The graph thus conveys information on both the rankings within the economy and the comparative levels between countries of the capital-intensities.

At first sight the figure may look somewhat confused. However, it represents an ordered pattern. Statistical analysis reveals that there is quite a similarity between the two countries in terms of their respective branch-hierarchy of capital-intensity. Comparing the two country rankings of the 26 branches with regard to relative capital-intensity brings about a Spearman's coefficient of rank correlation of 0.71. As the observed value is 3.55 times the standard error, the coefficient is significant and it may be concluded that quite a close concordance exists between the two rankings.

Why is there such a concordance? Its root lies perhaps in technology. It seems reasonable to assume that both countries have, to a large extent, access to the same technology. Within a given branch the common technology probably proposes quite similar techniques. From branch to branch however the techniques proposed may be very different. If these assertions are correct, then it is conceivable that common access to technology is the explanatory factor behind the similarity observed in relative capital-intensity. At branch level, where output is presumed to be more homogeneous, the range of technically feasible combinations of capital and labour is confined within a rather narrow space. Across branches however, the combinations have a wider domain of values since the activities and products are by definition different. When passing from one country to another there is probably an adjustment to local conditions in each branch. If local conditions differ, other techniques would be adopted to produce the same outputs, but this adjustment would not be ample enough to overlay the interval separating techniques of different branches. Thus the inter-branch structure remains little altered.

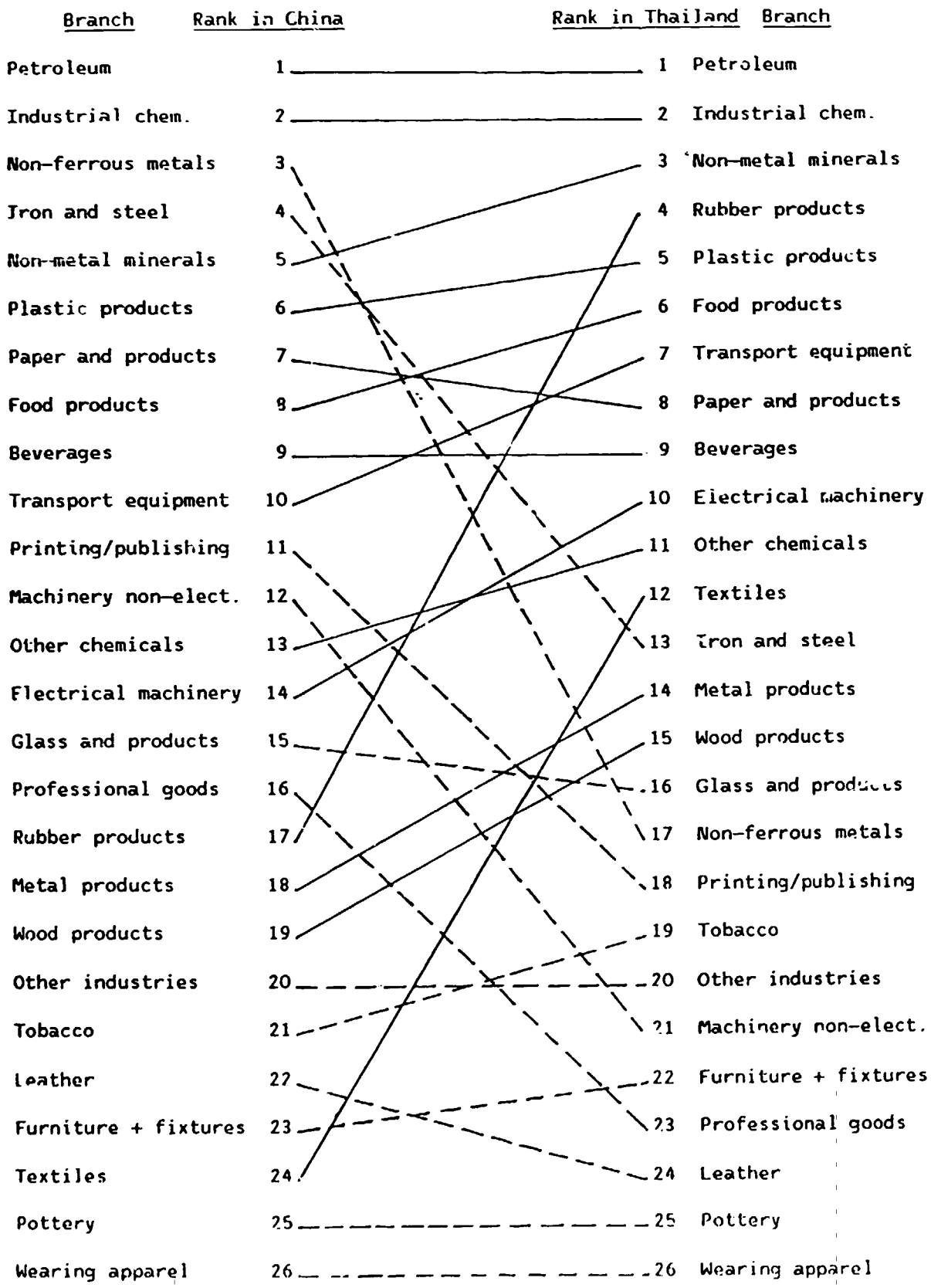
7. Wages per Employee

Why is a given branch more labour-intensive in China than in Thailand if both countries have access to the same technology?

The reason must probably be sought in the relative prices of capital and labour in each country. If the price of labour relative to the price of capital takes different values from the one country to the other, it may also be expected that the combination of capital and labour will follow. The country with relatively expensive labour would take on labour saving, while the country with relatively expensive capital would adopt capital saving techniques.

The sources used in this paper contain no data on capital prices. On wages, however, evidence is available. Table 3 shows the wages per employee

Figure 1. Relative capital-intensity



at aggregate and branch levels in both countries. At the aggregate level, the wage per employee is 5.6 times higher in Thailand than in China.[1/] Whatever the price of capital in China, even if there is no explicit price but a rationing system instead, it is doubtful that capital would be made available to Chinese enterprises at terms five or six times more favourable than in Thailand. Consequently, it appears logical that more labour-intensive techniques be adopted in China and more capital-intensive techniques be adopted in Thailand and this is actually what is taking place, as reported in the preceding section.

A striking aspect of Table 3 is the similarity of wage levels across branches in China. Although a certain variability is allowed through bonuses,[2/] the wage rate is very little affected by the branch being considered. Between the lowest level branch - pottery - and the highest level - petroleum - there is a difference of 39 per cent. By contrast, in Thailand petroleum is 33 times higher than leather in the inter-branch wage scale. The flatness of the scale in China presumably reflects a principle of social organization; the steepness recorded in Thailand is perhaps due to inter-branch differences in the employment of so-called human capital, i.e. the competence, qualifications, know-how, embodied in a unit of labour.

The much wider range of wage rates in Thailand may be the reason why the spectrum of techniques or, in other words, the dispersion of capital-intensities, is much wider in Thailand than in China, as reported in Section 6.

8. Labour Productivity

With a lower labour price, and presumably not a cheaper capital price, China is using techniques of production which are less capital-intensive than in Thailand (although they make more use of capital per unit of output). The result is lower labour productivity. Table 3 shows the ratios of value added to employee at sector and branch levels for China and Thailand. China is in this respect at a distinctly lower level than Thailand in all branches and particularly so in beverages, leather, petroleum, non-metallic minerals and transport equipment; the only branch in which China has a higher productivity is non-ferrous metals, but, as mentioned earlier on, it is very dubious that this particular branch produces the same output in both countries.

In China two branches stand well above the average labour productivity of the manufacturing sector: tobacco and petroleum. The outstanding position of

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1/ Admittedly, wages per work hour would be a more precise indicator of labour price than yearly wages per employee, but the evidence against wages equality in both countries is so overwhelming that it cannot be altered by finer data.

2/ Bonuses form a larger part of wages in China than in Thailand: 40.9 per cent as against 16.2 per cent; surprisingly, the share of bonuses in total compensation also varies very little, as if bonuses were distributed according to an equalitarian principle rather than in function of performance.

tobacco bears little relation to the capital-intensity of that branch; as said earlier, it is probably the pricing of the final product which explains the high productivity of that branch. But for all the other branches, the variation of productivity appears well correlated (R = 0.76) with the variation of capital-intensity. Similarly, in Thailand a good correlation was found (R = 0.86).

Regressing a linear function between productivity and assets provides a tool to estimate predicted productivity levels corresponding to the assets actually observed in the branches.[1/]

Such predicted levels may serve to gauge[2/] the relative performance of a given branch. The actual value added is divided by the predicted value added: a quotient larger than 1 indicates a better than expected performance and vice versa. In China, the branches which score best in that area are: rubber products, wearing apparel, other goods, textiles and beverages; branches under the expected level are: non-ferrous metals, non-metal minerals, industrial chemicals, iron and steel, food products.

As can be seen in section 5, most of the best scoring branches have low capital-output ratios, while most of those with low scores have high capital-output ratios. In other words, where relatively large quantities of capital are employed per unit of output, it seems as if the productivity of labour does not reach the standard defined by the regression line.

9. Wages as a Share of Value Added

A branch cannot use more capital per worker and devote a larger part of its value added to the wage bill, at the same time, without being exposed to a loss of resources in favour of the other branches. Assuming that only one capital price applies to all branches, resources would move away from the less efficient branch to the more efficient one. Accordingly, it may be expected that the cost of labour and the cost of capital to a certain extent replace one another in a way which tends to equalize the combined costs of factor in relation to value added. This expectation is supported by the available evidence. In both China and Thailand, a negative correlation has been observed (coefficients of -0.45 and -0.29 respectively) between fixed assets per employee and the share of wages in value added. In other words, when the wage bill looms large in value added, capital is more sparingly used, and vice versa.

1/ The equation the the regression line over all the branches excluding tobacco is: y = 0.52 x -486.

2/ It would be quite naive to attach any normative meaning to such a gauge. Every branch has its own production function (if at all a production function exists at branch level) and its performance can only be appraised within its own context. If the productivity which is registered in a branch is lower than in other branches it does not mean that the branch in question could or should do better than it actually does.

Lower productivity means that more labour is employed per unit of output. Higher capital-output ratio means that more capital is employed by unit of output. In China, as compared to Thailand, all the branches have lower productivity and, except for textiles and rubber, all have higher capital-output ratios. If it is true that both countries have access to the same technology, the fact that one of them uses more of the two factors involved in the production process means that it is less efficient.

But being less efficient does not mean being less competitive in terms of comparative cost. The wage rate gap between the two countries is wider than the productivity gap, with the result that, in China, the wage bills of the branches generally reach a lower proportion of value added than in Thailand. Table 3 illustrates that this relation holds at aggregated level (0.18 as against 0.25) and in all but two branches. With a lower weight for the wage bill there is room to remunerate more capital and yet arrive at a cost which is not too far off the cost of the country being compared.

CONCLUSION

The comparability of the two sources is limited in several respects. The cut-off of the Chinese establishments is not clearly indicated, the drawing lines of the classifications are blurred, and the scopes of both output and value added diverge somewhat. Last, but not least, the two economic systems are very different. Yet several indications are noteworthy.

Whichever size criterion is considered - employees, fixed assets, output, value added - the establishments of China are, on average, larger than those of Thailand at aggregated level as well as in virtually all the branches. It is possible however, that finer data would reduce the size difference. Both sources provided cover the establishments which are at the top of the size scale of the respective manufacturing sectors. But the very number of establishments included in the Census, 7,278, when compared to the 5,649 establishments of the Survey, suggests that the cut-off is drawn higher in China than in Thailand. Furthermore, it appears that the size difference would be reduced if the comparison could be organized according to more homogeneous outputs.

The most distinctive feature noticed in the case of China is the almost uniform wage rates across branches. Notwithstanding this uniformity, it has been found that the branches are quite distinct concerning the proportion with which they use capital per unit of labour. Technology seems to be the constraint which frames the hierarchy of capital intensity among the branches. With regard to this hierarchy, China and Thailand are fairly similar. In ordinal terms, the relative capital intensity of their branches tend to concord.

The wage rate is lower in China. The difference between the two countries in this respect is so large that whatever difference there may be in the respective prices of capital, it may safely be assumed that it makes sense to deploy more labour-intensive techniques in China than in Thailand. In practice, this happens to be the case at aggregate levels as well as in a majority of, but not all, branches.

Compared to Thailand, the productivity of China is lower at aggregate levels as well as in all those branches included in which Chinese techniques are more capital-intensive.

China engages not only more labour but also more capital per unit of output than Thailand, except in textiles and rubber which, compared to Thailand, have lower capital-output ratios.

To the extent that China is working with the same technology as Thailand, the two preceding indications suggest that China has room to improve the efficiency of her manufacturing branches.

The final word should be one of caution. Several indicators used in this paper are very crude surrogates of the entities to which they pretend to relate. The book value of fixed assets is not really an expression of the economic concept of capital, the number of employees is not the exact quantity of labour used, outputs are not always homogeneous, etc. Above all, variables expressed in value reflect a price system which itself may not be geared to the search of efficiency as understood by a particular school of thought.

Table 1. Measures of establishment size

Branch	Employees per establishment		Gross output per establishment (million $US)		Value added per establishment (million $US)		Fixed assets per establishment (million $US)	
	China	Thailand	China	Thailand	China	Thailand	China	Thailand
Manufacturing	2 203	226	16.3	7.0	5.3	2.2	13.3	2.0
Food products	883	128	7.7	5.4	1.6	1.1	5.0	1.6
Beverages	816	1 116	7.0	43.0	2.7	31.9	4.5	11.8
Tobacco	1 801	226	66.2	8.8	40.8	6.7	6.8	0.7
Textiles	2 819	507	19.2	7.2	4.9	1.8	8.5	4.0
Wearing apparel	1 984	882	14.5	8.6	3.1	2.5	5.4	0.9
Leather and footwear	1 331	135	8.9	3.0	1.9	2.3	4.6	0.2
Wood products	1 659	103	8.2	1.2	2.1	0.3	6.5	0.5
Furniture and fixtures	1 354	99	5.7	1.1	1.9	0.5	4.3	0.3
Paper and products	1 488	375	10.7	9.6	3.4	3.3	9.1	4.6
Printing and publishing	1 022	84	7.2	0.8	2.1	0.4	5.2	0.3
Industrial chemicals	2 344	97	21.2	6.5	7.1	0.9	25.2	2.5
Other chemical products	1 332	134	13.1	5.2	3.8	1.4	6.6	1.2
Petroleum	3 593	774	104.6	975.1	42.2	72.9	56.6	42.9
Rubber products	1 705	339	21.2	12.1	7.3	2.2	7.1	6.4
Plastic products	791	194	8.9	9.8	2.0	2.6	5.0	2.5
Pottery, china, etc.	1 892	122	4.8	0.5	2.3	0.2	5.7	0.2
Glass and products	1 707	482	9.0	7.2	3.9	2.6	7.8	2.1
Non-metal minerals	1 681	202	7.7	8.5	2.8	3.5	10.9	4.3
Iron and steel	14 618	148	113.3	5.8	37.3	1.9	133.3	1.1
Non-ferrous metal	4 516	38	43.4	0.5	10.2	0.1	44.0	0.2
Metal products	1 368	170	7.7	4.1	2.5	1.0	5.6	1.1
Machinery, non-electric	2 036	86	8.7	1.6	2.9	0.4	10.2	0.2
Electrical machinery	1 750	205	13.8	7.0	4.4	1.7	8.0	2.0
Transport equipment	2 918	167	17.3	6.4	5.5	2.3	15.2	2.1
Professional goods	1 580	168	5.3	0.8	2.3	0.5	7.0	0.5
Other	1 271	142	8.9	2.0	3.1	0.6	4.8	0.4

Table 2. Technical Characteristics

Branch	Value added gross output ratio		Capital output ratio		Fixed assets per employee (thousand US$)	
	China	Thailand	China	Thailand	China	Thailand
Manufacturing	32.9	31.0	2.5	0.9	6.0	9.0
Food products	20.6	20.7	3.2	1.5	5.7	12.8
Beverages	38.5	74.2	1.7	0.4	5.5	10.6
Tobacco	61.6	76.3	0.2	0.1	3.8	3.3
Textiles	25.5	24.9	1.7	2.3	3.0	8.0
Wearing apparel	21.2	29.3	1.8	0.3	2.7	1.0
Leather and footwear	21.5	77.0	2.4	0.1	3.5	1.8
Wood products	25.5	26.8	3.1	1.4	3.9	4.4
Furniture and fixtures	32.9	43.3	2.3	0.6	3.1	2.8
Paper and products	32.1	34.2	2.6	1.4	6.1	12.3
Printing and publishing	28.9	45.1	2.5	0.8	5.1	3.4
Industrial chemicals	33.5	13.5	3.6	2.8	10.7	25.4
Other chemical products	28.8	25.5	1.7	0.8	4.9	8.8
Petroleum	40.3	7.5	1.3	0.6	15.8	55.0
Rubber products	34.5	18.2	1.0	2.9	4.2	18.9
Plastic products	23.0	26.2	2.5	1.0	6.4	12.9
Pottery, china, etc.	46.5	48.5	2.5	0.8	3.0	1.5
Glass and products	43.8	36.7	2.0	0.8	4.6	4.4
Non-metal minerals	36.6	40.9	3.9	1.2	6.5	21.2
Iron and steel	32.9	32.1	3.6	0.6	9.1	7.1
Non-ferrous metal	23.4	14.4	4.3	2.5	9.8	4.2
Metal products	32.6	23.2	2.2	1.1	4.1	6.4
Machinery, non-electric	32.9	26.3	3.6	0.6	5.0	2.9
Electrical machinery	31.7	25.0	1.8	1.1	4.6	9.6
Transport equipment	31.6	36.1	2.8	0.9	5.2	12.6
Professional goods	42.5	62.5	3.1	1.0	4.4	2.7
Other	35.1	30.8	1.5	0.7	3.8	3.0

Table 3. Wages and Labour Productivity

Branch	Wages per employee (US$)		Value added per employee (US$)		Wages value added ratio (US$)	
	China	Thailand	China	Thailand	China	Thailand
Manufacturing	427	2 400	2 426	9.600	0.18	0.25
Food products	384	1 800	1 802	8.700	0.21	0.21
Beverages	387	3 600	3 318	28.600	0.12	0.13
Tobacco	414	2 700	22 642	29.500	0.02	0.09
Textiles	385	1 800	1 7[illegible]	3.500	0.22	0.51
Wearing apparel	397	1 700	1 545	2.800	0.26	0.61
Leather and footwear	395	500	1 448	17.200	0.27	0.03
Wood products	406	1 500	1 254	3.200	0.32	0.47
Furniture and fixtures	371	1 600	1 397	4.700	0.26	0.34
Paper and products	413	2 200	2 312	8.800	0.18	0.25
Printing and publishing	414	1 800	2 044	4.400	0.20	0.40
Industrial chemicals	432	3 800	3 026	9.000	0.14	0.42
Other chemical products	411	5 000	2 828	10.400	0.15	0.49
Petroleum	507	16 500	11 753	93.400	0.04	0.18
Rubber products	426	3 300	4 299	6.500	0.10	0.51
Plastic products	400	2 200	2 578	13.300	0.16	0.16
Pottery, china, etc.	365	1 100	1 190	1.800	0.31	0.58
Glass and products	407	2 700	2 303	5 500	0.18	0.49
Non-metal minerals	433	4 000	1 678	17.200	0.26	0.23
Iron and steel	472	3 500	2 551	12.600	0.19	0.28
Non-ferrous metal	494	1 500	2 255	1.700	0.22	0.87
Metal products	419	2 000	1 827	5.600	0.23	0.35
Machinery, non-electric	421	1 800	1 403	4.900	0.30	0.37
Electrical machinery	440	2 000	2 492	8.500	0.18	0.24
Transport equipment	433	3 300	1 868	13.900	0.23	0.24
Professional goods	418	2 000	1 424	2.900	0.29	0.72
Other	432	1 800	2 460	4.400	0.18	0.40