Small Industry and the Chinese Model of Development
Carl Riskin

In the shadow of the industrialization programme directly carried out by the Central Government of the Chinese People's Republic over the past two decades, there has occurred a less visible effort at industrial development under the auspices of the provincial governments and other local authorities. Widely dispersed throughout China, yet the origin of over half the nation's gross industrial output in the 1950s, local industries must have significantly affected popular understanding of the development process and popular reaction to it. At times they have even been the focus of debate over alternative approaches to the problem of achieving rapid industrialization in Chinese conditions. More intimately associated with the process of industrialization than individual handicrafts, they are capable, because of their relatively simple technology and small scale, of providing a medium for alleviating a number of problems left unsolved by large-scale and technologically advanced industries. Over a period of 20 years, such problems have run the gamut from shortages of high-grade materials required by the technologically demanding large-scale sector, to the inequalities in living standards, cultural levels and life styles created or aggravated by the development of large-scale industries concentrated in urban areas.

This article examines the evolution and implementation of China's policy towards small and medium industry. The first four sections are concerned with the period of the First Five-Year Plan (1953–57), while the latter four deal, in a necessarily more impressionistic fashion, with the

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1. In 1952, local industry produced 59.6 per cent. of national gross value of industrial production, according to the First Five-Year Plan. In 1954 it produced 57 per cent. Under the Plan, it was still to produce 56 per cent. in 1957, the last year of the Plan. See First Five Year Plan for Development of the National Economy of the People's Republic of China, 1953–1957 (FFYP) (Peking, 1956), and "Pi-hsü yu-chi-hua ti fa-chan ti-fang kung-yeh" ("Local industry must be developed in a planned manner"), Jen-min jih-pao (People's Daily) (JMJP), (Peking) 2 March 1955.
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dramatic activities of the Great Leap Forward (1958–60) and the attempts to rationalize the small-industry programme in the 1960s. Small industry is recognized to be a principal player in the Maoist script for China’s development and Mao has himself sought to stimulate this sector by means of several widely publicized exhortations. One of the objectives of this article is to delineate the relation between small industry and the general development problem in China, and thereby to gain some insight into the nature and logic of the particular strategy of development associated with Mao.

The terms “small industry” and “small and medium industry” do not have continuous counterparts among the statistical categories used in China. At different times in the past two decades, “small-scale modern” industry, “large-scale factory handicrafts,” “small-scale factory handicrafts,” commune industry or hsien industry have served to some degree as focal points for national or local efforts to achieve the relevant goals. For the period of the First Plan, however, it is most convenient to concentrate upon the broader category of “local industry,” which is comprised of all industrial enterprises under the jurisdiction of government organs at the provincial level and below. Those categories listed above which apply to the First Plan period were on the whole sub-categories of local industry. Conversely, despite the presence of relatively large and sophisticated province-level enterprises in local industry, this category contains predominantly small and medium establishments of relatively simple technology, so that its average size of enterprise was substantially smaller than that within the centrally operated group. For the same reason, the Chinese themselves used the term “local industry” interchangeably with “small and medium industry.” Moreover, a great deal more information is available about local industry than about any of its components, whereas very few data have been published concerning the more theoretically precise category of small and medium enterprises. For the period since 1958, however, the identification of local industry with establishments of relatively small-scale and simple technique is no longer valid because of the decentralization measures of 1957–58, which put many large-scale enterprises into local hands. In the sections concerning the period after the First Plan, a number of different types of industry are discussed, e.g., commune industry and hsien-level industry, and I shall attempt to make clear in each case which type is being considered.

2. For definitions of these terms, see Chung-hua jen-min kung-ho-kuo fa-chen kuo-min ching-chi ti ti-i-ko wu-nien chi-hua ti ming-tz’u chien-shih (A brief explanation of terms in the FFYP for the development of the national economy of the Chinese People’s Republic) (Peking, 1955). See also Shigeru Ishikawa, National Income and Capital Formation in Mainland China (Tokyo, 1965).


4. For a good general discussion of the problem of defining industrial size, see Douglas Fisher, “A Survey of the Literature on Small-Sized Industrial Under-
Two Principles of Local Industrial Policy

As early as 1951, a general policy concerning state development of local industry was enunciated by the Government.6 Predicated upon the limited supply of prime factors of production available to the centrally controlled modern industrial sector, and also upon the existence of resources widely scattered throughout the country and unsuitable for exploitation on a large scale by highly mechanized enterprises, this policy advocated concentration of those limited factors at the disposal of the Centre on the development of heavy industries considered vital to the national economy as a whole. Upon their exhaustion, further increases in output to satisfy lower priority needs and output of lower priority goods in general, would have to be produced by local industries with "inferior" techniques capable of utilizing scattered, low-quality resources. The bulk of rural producer and consumer goods were relegated to this second category. It was central to the proper implementation of these principles that local industry should not compete for resources with the Centre, but limit itself to surplus and waste materials as well as to those completely unsuitable for central use.6

The principle that local industry adopt small-scale, relatively labour-intensive techniques which utilize factors of production not required by the centrally controlled large-scale sector, I refer to as its "choice of techniques" function. The principle that it concentrate upon production of rural producer and consumer goods, particularly inputs needed by agriculture, I call its "sectoral allocation" function.

Taken separately, each of these principles has a justification in theory. In combination, they provide general guidelines to the choice of both products and methods of production for the local industrial sector, and may therefore be regarded as comprising a general policy towards this sector.

The "choice of techniques" function has a relatively straightforward explanation. In theory, the choice of one among many alternative methods of production depends upon the relative availabilities (and therefore costs) of the factors of production required by the various alternatives; the objective being to minimize costs for each level of output. Given this goal, several characteristics, common to developing countries such as China, might explain the simultaneous existence of different techniques of production. Geographical differences in relative factor costs provide one such explanation. Another refers to the tendency for modern


production processes in many industries to require fixed combinations of factors, permitting little or no room for substitution between factors. These combinations vary among industries, so that some industries must utilize relatively capital-intensive techniques, while others are limited to more labour-intensive ones.

A more general explanation, operative even in the absence of the two preceding conditions, puts emphasis upon the uneven rate at which factors of production become scarce as the scale of output of any given industry increases. At high rates of output, it may become desirable to switch over to a technique, previously inferior, which can do without a particular raw material, skill or imported component that has become very scarce. In an underdeveloped country, whose factor proportions typically differ substantially from those required by technologies imported from industrial countries, such an explanation may have general validity. It is implicit in the 1951 directive on local industry cited above, as well as in many other Chinese documents on the same subject.

The "sectoral allocation" function, which distinguishes the particular industries to be placed in the local industrial sphere, is less easily explained. The case of factor combinations which are technologically fixed provides some justification for concentrating production of agricultural inputs and rural consumer goods in the local sector, for many of these products have traditionally been manufactured by small-scale, labour-intensive methods, whereas heavy industrial goods tend to require more rigidly specified production techniques. If development of heavy industry is to be emphasized, materials of high quality, advanced technological skills and import capacity, all in short supply, must be carefully husbanded for allocation to this sector, which cannot do without them. Meanwhile, in stimulating production by local, small-scale and labour-intensive methods of rural consumer goods and agricultural producer goods, the Government attacks a number of problems at once, including the need to expand employment, balance production geographically and economize the use of marketed food-grains.

A further justification for the "sectoral allocation" principle that has been mentioned with increasing frequency is the motivational implication of the close relation between the production of rural consumer goods and agricultural inputs on the one hand, and the livelihood of the mass of the population on the other. Local production of such goods would enable the producers both to keep in close touch with the differentiated needs of their customers, and at the same time to stimulate the customers’ enthusiasm for supporting with their own behaviour (e.g., willingness to

market their grains and pay taxes) the further development of industry. Such arguments were not uncommon during the First Plan period, although their importance grew during the Great Leap and again in the mid-1960s.

The principles of local industrial policy were given more concrete form in the First Five-Year Plan which devoted several pages to the subject. The Plan divided local industrial establishments into two groups depending upon whether their raw materials supplies, production and marketing operations were co-ordinated on a national or a local scale. The primary task of the nationally co-ordinated establishments, which were concentrated for the most part in the old industrial cities such as Shanghai and Tientsin, was to contribute directly to national construction of industry in close liaison with central state enterprises. Local industrial establishments co-ordinated on a local scale, which were widely scattered throughout the country, were to “serve the needs of agricultural production and the rural population” by producing farm implements and machinery, fertilizers, rural transport equipment, and handicraftsmen’s tools, and by repairing tools, processing fodder and making a wide range of everyday consumer goods. However, they were also expected to ensure an adequate supply of building materials where required by capital construction projects, and to process materials and spare parts for central state industries. These additional responsibilities considerably broadened the spectrum of productive activities which the Plan encouraged local industries to undertake, and consequently added an element of ambiguity regarding priorities which was to prove troublesome in later years.

Unfortunately, the Plan gives little further information to distinguish the activities of the smaller, locally co-ordinated enterprises, in which we are primarily interested, from those of larger establishments which served essentially as adjuncts to the central sector. An investment plan was provided for local state-operated and joint public-private industries, covering in all some 82 above-norm and 1,400 below-norm construction projects. It is probably safe to say, however, that most of these projects, if important enough to list in the national Five-Year Plan, were in the category of nationally co-ordinated establishments and thus are not primarily objects of interest in the context of this article.

The Plan dealt at considerable length with the development of state-operated local industry, of which the gross value product was expected to grow by 1.8 times over the five-year period (from 3,920 million yuan

9. Information in the next several paragraphs is taken from the First Five Year Plan, pp. 97-105.
10. However, the Plan states that the below-norm construction projects would “mainly serve the needs of agricultural production and the rural population” (p. 103).
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in 1952 to 10,880 million yuan in 1957), causing the state-operated enterprises to produce well over one-third of the gross value of local industrial production by 1957. Such enterprises were to be concentrated in the food and textile industries, which together would produce roughly half the output value of local state-operated establishments by the Plan's end. Thus, of that part of local industry over which the state was to have closest control, at least half was to be divorced from production of farm inputs, concentrating instead on processing farm output.

The general lines of local industrial policy under the Plan, especially with respect to the locally co-ordinated sector, were similar to the principles of the 1951 directive discussed above. This sector was to concentrate upon serving agricultural production and the needs of the rural population, a task which corresponds to the "sectoral allocation" function in the earlier document. Moreover, with regard to methods of production, the Plan directed local industries to utilize waste materials from central industries where possible, and to attempt to develop new sources of raw materials and substitute materials. Implicit in this advice was the objective of avoiding competition over scarce materials with the large-scale central industrial sector.

The Scale of Local Industrial Development

It is difficult to judge directly the degree of success with which these principles were implemented during the period of the First Plan because of the scarcity of data pertaining to local industry. According to official figures for the first three years of the Plan period, the gross value of industrial production by small-scale enterprises grew by a total of 28 per cent. between 1952 and 1955, with an average annual growth rate of 9 per cent., compared with averages of 21 per cent. per annum for large-scale enterprises and 17 per cent. for all enterprises.11 These figures suggest that development of local industry was given considerably less emphasis than that of large-scale industry at least during the early Plan years—an inference which certainly agrees with our general knowledge of the Plan and its priorities.

Available data from individual provinces tend to corroborate this picture. For example, examination of statistics from groups of eight to 12 provinces, for various years in the mid-1950s, yields the results summarized in Table 1 below. The impression clearly generated by this table is that local industry was not a major claimant on the investment resources of the provincial budgets in the mid-1950s. This appears true

11. These percentages have been calculated from data cited in Nai-ruenn Chen, Chinese Economic Statistics (Chicago, 1967), p. 211.
Table 1

Average proportion of economic construction expenditures on local industry to total economic construction expenditures and to total budgetary expenditures, various provinces, 1955–57

<table>
<thead>
<tr>
<th></th>
<th>1955</th>
<th>1956</th>
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<tr>
<td>A.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>A.</td>
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<td>B.</td>
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Notes: 1955 ratios are averages for the following eight provinces: Shansi, Kirin, Heilungkiang, Sinkiang, Kiangsi, Yunnan, Kwangtung and Kwangsi.
1956 ratios are for 12 provinces: Shansi, Liaoning, Kirin, Chinghai, Sinkiang, Shantung, Anhwei, Kiangsi, Szechwan, Yunnan, Kwangtung and Kwangsi.
1957 ratio A is for 10 provinces: Shansi, Liaoning, Kirin, Chinghai, Shantung, Kiangsi, Szechwan, Yunnan, Honan and Kwangsi. Ratio B is for the same provinces minus Honan.
Many of the provincial figures for 1957 are budgetary rather than actual figures. Also, the coverage of "economic construction expenditures on local industry" appears to vary somewhat between provinces.

with respect both to total budgetary expenditures (row A) and to total economic construction expenditures (row B).12

In contrast, for the same three years (1955–57) economic construction expenditures on industry for China as a whole (including Central Government expenditures) constituted 51 per cent. of total economic construction expenditures and 25 per cent. of total budgetary expenditures.13 Within one province (Kwangtung) which was by no means a key target of the national industrialization effort, the resulting differences in the levels and growth rates of investment in central and local industries were striking. Table 2, although necessarily tentative, suggests that industrial investment in this province was directed principally at large-scale industries of national importance operated by organs of the Central Government. Such industries claimed roughly 68 per cent. of all industrial capital investment during the Plan period, leaving 32 per cent. to local industry.

12. "Economic construction expenditure" is roughly equivalent to gross fixed capital investment minus certain types of major repairs, plus investment in "working capital" consisting of production stocks, semi-finished goods and goods in process. See Chen, Chinese Economic Statistics, pp. 16, 103.
13. These percentages are calculated from figures contained in Chen, Chinese Economic Statistics, p. 446, for 1955 and 1956, and in Li Hsien-nien, Implementation of the State Budget for 1957 and the Draft State Budget for 1958, Current Background (Hong Kong), No. 493 (1958), for 1957.
Table 2

Capital construction investment in local and central industry
Kwangtung Province, 1950–57 (million yuan)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Local Industry</th>
<th>General Industry</th>
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<tbody>
<tr>
<td>1950–52</td>
<td>51</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1953–54</td>
<td>46</td>
<td>37</td>
<td>9</td>
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<tr>
<td>1955</td>
<td>60</td>
<td>24</td>
<td>36</td>
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<tr>
<td>1956</td>
<td>144</td>
<td>32</td>
<td>112</td>
</tr>
<tr>
<td>1957</td>
<td>170</td>
<td>40</td>
<td>130</td>
</tr>
<tr>
<td>Plan total:</td>
<td>420</td>
<td>133</td>
<td>287</td>
</tr>
<tr>
<td>1950–57:</td>
<td>471</td>
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The modesty of the provincial industrialization programmes relative to their central counterpart reveals the difference in responsibilities assigned to the Centre and the localities. The latter were chiefly in charge of social, cultural, educational and administrative expenditures, and played only a minor role with regard to industry and other economic categories. For the years 1950–56, for example, the Centre provided 84 per cent. of all expenditures for economic construction within the consolidated state budget, leaving only 16 per cent. to the provincial budgets. The rationale for this pattern was China’s emphasis upon rapid development of large-scale heavy industries, which required central allocation of all resources capable of being so allocated, so that “all large-scale industries within the province get their investment in a unified manner from the center. Thus the proportion given to economic construction expenditures in the local budget cannot occupy first place; this is certain.”

Implementation of Local Industrial Policy

If the capital construction programme for local industry was not very ambitious, its characteristics as well as the composition of existing

industries did not suggest close adherence to the two major principles of policy. The manufacture of producer goods for agriculture was said to constitute only about 4 per cent. of the gross value of production by local industries in China at the beginning of 1955, and even this production was largely concentrated in large and medium cities out of direct contact with its peasant market. Hsien-level local industries “contiguous to the rural villages” were said to make up only 3 per cent. of all local industries by gross production value.16

In the absence of more direct information about the product distributions, factor supplies and technologies of local industries, indirect methods of evaluating the implementation of their strategic roles are required. For example, both the “sectoral allocation” and the “choice of techniques” functions, because they require local industry to meet the production and consumption needs of the rural population on the basis of utilization only of those local resources unavailable to or unwanted by the Centre, would seem to demand the development of small production units widely dispersed in location. The larger the size and the more concentrated the placement of local industries, the greater the danger that they will infringe upon supplies of scarce resources intended for large-scale industries and that they will prove unresponsive to varying conditions in soil, terrain and climate as well as to differences in local tastes and habits.

Table 3 presents 1956 data, for Kwangtung Province, on the distribution of capital construction investment in local industries between different administrative levels of operation. Assuming that the larger and more mechanized industrial units would tend to be situated at the provincial level and in Canton, these two categories claimed up to three-fourths of all planned provincial industrial investment in 1956, and four-fifths of investment actually completed (columns (2) and (5) respectively) as of the end of the third quarter. Establishments administered by “other hsien and cities,” and which probably were smaller and more primitive on the average, were to receive less than one-third of total investment. The provincial investment programme thus seems to have favoured the construction and expansion of larger concerns. Moreover, Canton’s importance in the distribution (which is understated by the table because provincial-level enterprises located in Canton are listed as “provincial” rather than “Canton” enterprises) suggests that the geographical dispersion of newly constructed enterprises must have been quite limited. Planned investment figures for 1957 showed Canton receiving more than half the total projected local industrial investment in the province.17

Another indirect test, using Kwangtung data, refers specifically to the implementation of the “choice of techniques” principle. It is well known that annual industrial growth rates in China during the First Plan period

fluctuated in response to harvest conditions, so that raw materials of agricultural origin were consistently a bottleneck preventing more rapid industrial growth. If local industries did indeed successfully avoid competing with central industries for scarce materials, and used instead those of a crude, surplus, scattered, or irregular nature, then it might be supposed that rates of capacity utilization in this sector would have fluctuated in a more pronounced fashion than utilization rates in central industry. Any variations in supplies of materials used by both sectors would have been partially absorbed by local industry so as to safeguard the even development of the higher priority central sector.

If this were an accurate picture of the relation between the two sectors of industry in the first Plan period, we would expect to find local industrial growth rates exhibiting greater fluctuations than growth rates of central industry. Yet, an examination of Kwangtung data over this period does not yield such a result. On the contrary, although central industrial production grew by an average rate almost twice as high as that of local industrial production, the co-efficient of variation of its annual growth rates was also higher. In other words, no tendency for local industry to shield central industry from fluctuations in raw materials supplies can be detected in the relative variability of growth rates of the respective

sectors. While the shortness of the time period concerned, together with considerable uncertainty about the accuracy of the data used, render this less than a reliable test,\(^\text{19}\) taken in conjunction with the evidence concerning the relatively large size and concentrated locational characteristics of local industry, it further strengthens scepticism regarding the degree to which this sector was able to fulfil its appointed role.\(^\text{20}\)

The low priority assigned to local industry had serious feedback effects on the popular acceptability of the development programme and on the very success of the industrialization effort itself. In some areas, the rate of industrial construction came under vigorous popular criticism because it was thought to generate an insufficient amount of employment.\(^\text{21}\) Moreover, towards the end of the period of the First Plan, cadre enthusiasm towards local industry was impaired by its modest status.\(^\text{22}\) The most serious consequence, however, was the inadequacy of supplies of agricultural equipment, as well as its poor quality, high cost and general unsuitability to peasant needs, all of which were described by a provincial vice-governor as "our principal shortcoming and mistake."\(^\text{23}\) Perhaps it should not be surprising if local industry was neglected during the early years of the new regime. After all, the programme laid down by the First Five-Year Plan for creation of a heavy industrial base was a highly ambitious one which required enormous amounts of capital and made heavy demands upon the small supply of managerial and technological skills available.\(^\text{24}\) At the local level, leadership personnel were preoccupied with the various aspects of the socialist transformation movements in agriculture, industry, commerce and handicrafts. Moreover, the Government was concerned with what it viewed as major deformities requiring structural change in industry: the scarcity of large enterprises, the low ratio of producer goods to consumer goods production, and the poor and unbalanced nature of industrial equipment.\(^\text{25}\)

Seen against this background of preoccupations and weaknesses, the technical and administrative resources at the disposal of the localities

20. Because the evidence on which it rests comes principally from Kwangtung Province, which like other provinces had special characteristics of its own, this conclusion must be regarded as hypothetical with respect to China as a whole.
were patently inadequate. Few graduates of higher educational institutions were made available to take up technical positions in local industries, the various regions and enterprises lacked experience, and even the most rudimentary governmental apparatus for planning and administration was still being gradually established. The burden of their various non-production responsibilities more than exhausted the limited resources at the disposal of the localities, “making it impossible for them to mobilize additional energy for managing the economy.”

The Acceleration of 1956-67

As the period of the First Plan continued, the problems posed by non-fulfilment of the functions of local industry became increasingly acute and, as a consequence, leadership attention to them grew. This was consistent with a general tendency beginning in the mid-1950s, and reaching its climax in 1957–58, to look for ways of decentralizing administrative control over the economy in order to give the provinces and other local units greater flexibility. For example, after reaching a low of 22 per cent. in 1954 and 1955, the proportion of state budgetary expenditures administered by the localities rose to almost 30 per cent. by the end of the First Plan period. Nevertheless, the degree to which this trend affected local industry is uncertain. The 1956 budget, presented in June, revealed substantial increases in local expenditures, including expenditures on economic construction, but made it clear that these would be devoted largely to sectors other than industry. In his September report on the Second Five-Year Plan, then in preparation, Premier

27. Ibid. The argument that construction of local industries was neglected during the First Plan period might appear to contradict the high growth rate assigned this sector by the Plan. But most of this growth was to be derived from existing enterprises on the basis of minimal capital investment. In general, about 70 per cent. of the increase in industrial value product over the Plan period was to come from existing enterprises (FFYP, p. 51), rather than new or reconstructed ones, and much of this 70 per cent. was concentrated in the local sector where excess capacity was common.
28. Audrey Donnithorne, China's Economic System (New York, 1967), Chs. 17 and 18. Although Mao Tse-tung was later credited with initiating, with his speech “On the Ten Great Relationships” in April 1956, the stress on local industries that was to characterize the Great Leap Forward, available texts of this speech contain no reference to such industries per se, but urge that local authority and responsibility in general be increased relative to that of the centre (Jerome Chen (ed.), Mao (Engelwood Cliffs, New Jersey, 1969), pp. 74–76).
29. These percentages are calculated from the state budgets for various years, presented each year by the Minister of Finance.
Chou En-lai referred vaguely to past inadequacy in attention to small industry, but mainly in the context of correcting the practice of precipitously amalgamating the joint public-private concerns newly transformed from private ownership.31

The trend towards increasing attention to local industry gathered momentum in 1957. The national plan for that year expressed a strong commitment to “developing medium- and small-scale enterprises that call for less investment and get quick returns.”32 The Centre began directly to stimulate the growth of local industries, especially those producing industrial materials, fuels and agricultural equipment.33 Early in 1958, industrial ministries were said to be working on 132 designs for small-scale factories “suited to local conditions in various districts, counties and small towns” and capable of utilizing locally produced equipment and materials.34

The intensity of this new concentration upon local industry is explained by the nature of the choice facing the leadership in 1957. Grain output had hardly increased over the preceding year, the industrial growth rate was the second lowest since 1949, and the amount of marketed grain for the grain year 1956–57 was at the same level as in 1953–54.35 It had become clear that the prerequisite of continued rapid industrialization was to overcome the “tendency of agricultural growth to lag behind the needs of industry.” This might be attempted by means of tapping the modern industrial sector, diverting a larger part of its capacity to produce the equipment needed for the modernization of agriculture. The only

31. Chou En-lai, “Report on the Second Five Year Plan,” Current Background, No. 413 (1956). Other statements urging increased attention to small industry in 1956 also were made in this context. See, for example, Ch'en Yun, “New Problems in the Transformation of Industry and Commerce,” Current Background, No. 416 (1956), p. 17.


33. In April, the National Economic Commission decided to allot over Y11 million to 19 provinces for construction or renovation of small coal pits, and over Y12 million for developing local blast furnaces and iron mines in 14 provinces. Matching funds of over Y80 million were added by various provinces and municipalities. The resulting production of pig-iron was earmarked for agricultural implements (NCNA, 12 April 1957, in SCMP, No. 1517, p. 13). In August, the Ministry of Metallurgical Industry announced the development of a plan for establishing 18 small- and medium-sized iron and steel plants in as many provinces, autonomous regions and municipalities (JMIP, 19 August 1957, in SCMP, No. 1602, p. 17). In December, the Ministry of Electric Power reported on the acceleration in the growth of small power stations under local authorities, designed to provide electricity to local industry, irrigation and lighting (NCNA, 12 December 1957, in SCMP, No. 1673, p. 30).

34. The industries involved included mining and extracting of ferrous and non-ferrous metals, coal mining and dressing, chemical fertilizers, synthetic oil, electric power, paper and rubber production, cement kilns, machine repair shops, textile mills, printing and dyeing factories, and establishments for processing various types of agricultural products (NCNA, 19 March 1958, in SCMP, No. 1739, p. 5)

alternative was to initiate a "bootstrap rural industrialization pro-
gramme" designed to exploit local resources to the hilt in the service
of agricultural modernization, and thus to further stimulate rather than
impede even temporarily the growth of modern industry.  

This choice did not differ in kind from that which had faced the leader-
ship at the beginning of the First Plan period, at which time the second
path was selected. That such a strategy remained viable in the eyes of
at least the dominant segment of the leadership in 1957 was in part a
testimony to the inefficacy with which the role of small-scale industry
had been implemented during the intervening years. The preoccupation
of the leadership with other things, and their lack of attention to local
industry during the First Plan period, kept open the possibility that a
dramatic exertion of effort in this sector might now be productive.

Although, in its most general outlines, the local industrial policy of the
Great Leap Forward was not dissimilar to that of the First Plan, the
hypothesis on which it was based had not yet been tested by thorough
implementation. Such a test was to be one of the springboards of the
approaching Leap.

The Great Leap Forward:
Sectural Allocation of Small Industries

In some aspects of its treatment of small industry, the Great Leap
Forward marked a decisive shift away from the economic strategy of
the First Plan. The changes were associated with Maoist antipathy to
bureaucratization, typified by the authority previously concentrated in the
hands of the State Council and the central ministries under it, and they
reflected the attempt to stimulate mass initiative in and supervision of
industrial activity. The decentralization of industrial administration and
control functions in 1957 and 1958 and the rapid development of small
industrial activities throughout the countryside that followed, were
significant departures from earlier practice in signalling a far greater
emphasis on the motivational and attitudinal concomitants of mass
initiative. Some of the distinctive characteristics of the Great Leap
Forward, such as regional dispersion, local self-sufficiency and the down-
grading of the role of expertise, are associated with this shift.

It is with respect to the technological and economic role more narrowly
defined of small industries, that the similarities between the two periods
dominate. For example, the raison d'être of commune industry was to
carry out "the industrialization of agriculture, by which we mean

37. In addition, of course, the leadership was much concerned at this time with
the bureaucratic and unwieldy character of the industrial planning and control
system, a concern which increased the attractiveness of the second alternative. See
Donnithorne, China's Economic System.
mechanization and electrification of agriculture." To this end, commune industry was to make its immediate goal the improvement of farm tools, and the manufacture of part of the machinery essential to realizing the mechanization of farming, which work was to constitute "the heart of commune industry." Conversely, the heavy task of modernizing agriculture was to fall principally upon the shoulders of local industry. This assignment, which corresponds to what I have called the sectoral allocation function of local industry in the First Plan years, was to remain constant throughout the Leap and immediate post-Leap period.

However, while stressing aid to agriculture, general policy statements did not treat this task as the only appropriate one for commune industry. For example, in its "Decisions Concerning Certain Questions of the People's Communes," the Sixth Plenum of the Eighth Central Committee stipulated that simultaneously with devoting its primary attention to agricultural mechanization and electrification, commune industry should "serve the fulfilment of the daily livelihood needs of commune members, and serve the nation's large industries and socialist markets." Even in 1961, when the agricultural crisis made it essential to concentrate on supporting agricultural production, these additional functions, such as the manufacture of raw materials, spare parts, semi-finished products and packaging materials for state-operated large industries, received a considerable amount of favourable publicity.

In view of the statistical problems of the period, a reliable estimate of the actual distribution of activities of commune industries cannot be made. The total number of industrial units operated by communes throughout China, according to one estimate, rose to over 200,000 in 1959. The same figure is given for the latter part of 1960, although urban communes are included in this tabulation. Ten to 20 per cent.

38. Shih T'ung, "Correctly Understand the Policy of Industrialization of People's Communes," Shih-shih show-t'se (Current Events), No. 24 (21 December 1958, in Extracts from China Mainland Magazines (Hong Kong) (ECMM), No. 160).
40. Wen Ming-sheng, in NF, 4 May 1958.
41. See above, p. 247.
44. Li Ch'eng-ju and Tso Ch'ung-t'ai, in HC, No. 8 (April 1961).
46. The 1959 figure apparently, and the 1960 figure definitely, exclude units operated by the production brigades and teams below the commune level.
of the personnel and output of rural commune industry “served large-scale enterprises.” 47 At the end of 1959, commune industrial establishments were distributed by type of production as follows 48:

<table>
<thead>
<tr>
<th>Type of Establishment</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factories manufacturing and repairing agricultural implements</td>
<td>20,000</td>
</tr>
<tr>
<td>Agricultural machine factories</td>
<td>136</td>
</tr>
<tr>
<td>Chemical plants</td>
<td>19,000</td>
</tr>
<tr>
<td>- of which chemical fertilizer units</td>
<td>11,600</td>
</tr>
<tr>
<td>Construction materials plants</td>
<td>20,000</td>
</tr>
<tr>
<td>Ferrous metallurgical plants</td>
<td>2,800</td>
</tr>
<tr>
<td>Fuel industry factories and mines</td>
<td>6,100</td>
</tr>
<tr>
<td>Lumber factories</td>
<td>16,000</td>
</tr>
<tr>
<td>Establishments processing agricultural products</td>
<td>123,000</td>
</tr>
</tbody>
</table>

Judging by these figures, well over three-fourths of commune industrial units in late 1959 “served agriculture,” a term which subsumes both processing its output and providing equipment or current inputs. Yet only about half of the gross production value of these industries came from components serving agriculture.49 Apparently, in terms of their size and income-earning capacities, those units of commune industry not related to agriculture in any direct way were substantially more important than their numbers alone would suggest. This observation points to an essential property of commune industry from the viewpoint of commune members – it was the major source of income at the commune level. In 1959, it was estimated that 70 per cent. of the income from commune-level enterprises in the average commune came from industrial enterprises.50 Indeed, many of the hortatory articles appearing in the press at that time strongly emphasized the ability of communes to earn distributable income by developing industries.

Hence, joining general policy prescriptions in influencing the choice of product mix on the part of commune industry was the more immediate desire of commune members to increase income and therefore the profits of their collective enterprises. The efficacy of the latter force was strengthened by an extraordinary degree of local financial autonomy,51 coupled with the temporary loss of statistical control by the Centre, which gave individual communes much leeway to choose the most profitable lines of production. Such a choice would not have contradicted the policy of serving agriculture had the structure of relative prices created profitable opportunities to do so. In fact, however, the official terms of trade between agriculture and industry tended to favour the latter, so that the farmers often could not compete with urban industries for the services and products of their own commune enterprises. The
following is typical of the resulting complaint, which was voiced throughout the Great Leap and immediate post-Leap years:

The labour force in some communes is largely devoted to operating a few industries that are highly profitable, such as digging clay and firing bricks, while tools and fertilizer urgently needed for agricultural production get scant attention.\(^{52}\)

Thus the "sectoral allocation" role of commune industry was compromised by a continued preoccupation, strengthened by the motivational implications of the price structure, with development of industry for its own sake. This is not to say that the concentration of small industry upon producer goods unconnected with agriculture was caused solely by the desire to maximize profits and the nature of the price structure. Certainly the campaigns to surpass Britain in the production of major heavy industrial goods, to make provincial industrial output value overtake agricultural output values in three years, to diversify and industrialize the rural economy, were all major additional sources feeding the same stream. However, the workings of the market appear to have reinforced this tendency rather than to have counteracted it.

The emphasis on heavy industry in the communes, and the appeal to market-related incentives in the choice and operation of commune industries, may be regarded as "pre-Maoist" elements atavistically resurfacing in the Maoist strategy of the Great Leap Forward. In this particular case, compromise with the past did not conform to the dictates of pragmatism but seriously impeded the success of the new model. The tension between the new and the old was thus severe, and would have to be resolved either in the direction of a fuller adoption of market incentives, with the necessary corollary that prices be allowed to reflect scarcities as perceived by planners, or by tightening administrative and financial controls or stepping up ideological education to further de-emphasize the role of the market.\(^{53}\) Moreover, either way, it is of course clear in retrospect that a shift in priorities in favour of agriculture was a prerequisite for further growth.

**The Great Leap Forward: Choice of Industrial Techniques**

It is with respect to choice of techniques strategy, however, that the Great Leap Forward experience raises the most interesting questions. This strategy, an essential part of the "walking on two legs" approach,

\(^{52}\) *NF*, 22 February 1959 (article on Hua hsien). For other examples of such criticism, see *NF*, 16 August 1960 (article on Hsin-hua Commune, Hua hsien), p. 2; *Kuang-tung ch'ing-nien pao*, 26 January 1961; *NF*, 7 September 1961 and 2 December 1961; *NF* editorial, 7 April 1962, in *SCMP*, No. 2750, p. 4.

\(^{53}\) I deliberately avoid putting the question in terms of "material" versus "non-material" incentives, for elements of material incentives are clearly present in the "Maoist" approach, although they are not intended to operate through the
entailed primary but temporary emphasis upon small-scale, labour-intensive methods of production within the framework of long-term priority for large-scale and capital-intensive techniques. The nature of this approach as well as its justification, was clearly conveyed in contemporary expositions:

It is the direction we follow in development to build large-scale enterprises using modern production methods; but at a time when our capital and technical conditions are not yet adequate, the development of small-scale enterprises using native production methods is the goal of our major efforts for a certain period of time and in given places.54

The advantages claimed for small-scale, labour-intensive methods of production included their ability to utilize dispersed deposits of material resources; their lower average capital-output ratios and shorter gestation periods; their ability to undertake repairing, maintenance and processing activities, freeing large-scale capacity for jobs which the modern sector alone could do; lower costs of urbanization and social overhead capital in general; and a capacity to create "industrial consciousness" among the peasantry.55 In short, the case for small industry closely resembled the arguments of an influential school of thought in western developmental economics,56 as well as the conclusions of planning and development agencies of the United Nations.57 A general argument buttressed with specific examples, it cannot be accepted or rejected per se, but must be evaluated in the context of the pre-existing situation as well as the desired speed and scale of change. With respect to the first, it can hardly be doubted that the bias during the years of the First Plan towards development of large-scale, heavy and regionally concentrated industries left many local resources unused and much local initiative untapped. As a strategy to correct such waste and mobilize the population more fully, a "walking on two legs" approach would appear to have had much to recommend it.

If the general character of the Leap’s “choice of techniques” strategy was reasonable, however, major difficulties arose concerning the feasible speed and scope of its implementation. First, industries were chosen for local development whose technological spectrum did not include small-market or on an individual basis. For a good discussion of this point, see Jack Gray, “The Economics of Maoism,” Bulletin of the Atomic Scientists, February 1969.

54. “Yung liang-t’iao t’uei tsou-lu” (“Walk on two legs”), Ta kung pao (Peking), 18 May 1959, p. 3.

55. This list was made from material summarized in SRI, “Notes on Small Industry and Handcraft Development in Mainland China, 1952–1958,” Miscellaneous Paper No. 2, December 1958, pp. 15–19.


scale and labour-intensive options, so that there were a good many resources wasted in the production of goods of inferior quality. But implementation was also too deep, in that it was pushed beyond the limits of available resources even for those lines for which small-scale technological possibilities existed.

With respect to material inputs and equipment, commune industry was intended to rely heavily on waste, scrap, surplus and other types of materials without opportunity cost. It is well known that a similar policy held regarding labour inputs, for a motivating principle behind the Great Leap Forward was to organize and utilize effectively China's masses of under-employed people.

However, mobilization of surplus resources was not expected to be the only resource base of the new small industries. A complete listing of the sources of funds, equipment and labour for commune industries included: (1) previously existing enterprises, such as hsiang (township) industries, part of the basic-level handicraft co-operatives and enterprises transferred down from the county level; (2) state aid, including financial investment by the state, equipment provided by the state, and equipment provided by state-operated industries; and (3) accumulation by the commune industries themselves and a partial tapping of accumulation carried out by the production brigades below them.

While item 3 was the "normal and basic source of capital funds," item 1 constituted "the foundation on which the rural commune industry secures its equipment and capital in the course of its establishment and development." Thus, commune industries are clearly seen to have relied in their formative stages upon the annexation of assets of local industry and handicrafts. Many press descriptions of commune enterprises mentioned their origins in previously existing activities. Redistribution, or "primitive socialist accumulation" in the Preobrazhenskian phrase, was the principal resource base of the industrial "walking on two legs" movement in the Great Leap Forward.

An important role for "primitive accumulation" in China might have been expected simply on account of the dominant size of the peasant and petit bourgeois population outside the sphere of state-operated production, in comparison with the relatively small modern industrial plant in the hands of the state and capable of self-generated expansion. Yet


59. See, for example, *Ta kung pao*, 15 May 1959, p. 3; and "Explanations of Term 'Native Equipment,'" *Chi-hua yü t'ung-chi (Planning and Statistics)*, No. 8 (23 March 1959), p. 37.

60. Li Ch'eng-ju and Tso Ch'un-t'ai, in HC, No. 8 (April 1961).


62. For one example, see *NF*, 8 June 1961, p. 1, in which all of the industrial enterprises of a commune are described as previously having been handicraft co-operatives or co-operative small groups.

imperative as redistribution must have seemed, China was at a great disadvantage in carrying it out, compared with her predecessors on the development path. China's high man-land ratio and extremely low income per capita meant that the population as a whole was closer to the margin of subsistence.  

Neither the appeal nor the limitations of primitive accumulation under Chinese conditions are surprising, therefore. During the eight years prior to the Great Leap Forward, it was carried out in a number of effective ways, including confiscation, nationalization, collectivization, taxation, and the fixing of prices so as to generate high state profits. The first three were one-shot mechanisms, however, which had been exhausted by 1957. Moreover, it is probable that industry was extracting decreasing and possibly even negative amounts of resources from agriculture as the period of the First Plan ran its course.  

It is in this context that one must view the attempt to find resources for massive rural industrialization in further redistribution during the Great Leap Forward. The cushion of luxury consumption had already been basically eliminated through institutional change and the equalization of incomes. Supplies of idle labour and scrap and waste materials were inadequate to the scale of the movement. The communes found the only remaining source for redistribution in factors of production previously by-passed because their current employment was deemed too valuable to interrupt: resources employed in handicraft and petty industrial production of everyday consumer goods and utensils, agricultural tools and implements, special local arts and crafts with export significance, and in agricultural production itself. These constituted "the foundation on which the rural commune industry began its existence."  

Thus, by May 1959, only some 13 per cent, of the more than five million handicraft co-operative members in China in 1956 were still in the old-type small co-operatives. Thirty-five per cent. were employed in commune factories, 38 per cent. in local industries (probably mostly


65. Ishikawa, Economic Development in Asian Perspective, Ch. 4.  

66. According to one source, handicrafts in 1962 accounted for 67 per cent. of "goods for production and livelihood" sold by the supply and marketing co-operatives, the main organs of rural commerce. Over 80 per cent. of small farm tools were reported to be made by handicraftsmen. See Hu and Yuan, "A Discussion of Handicraft Industry and its Economic Forms," CCYC, No. 7 (1962), p. 5; also JMJP editorial, 7 October 1963, p. 1. Both are cited in Donnithorne, China's Economic System, p. 220.
county-level and municipally operated enterprises) and 14 per cent. in larger, amalgamated co-operative factories.\textsuperscript{67} The extent of interference with the previous organization of handicraft production was thus substantial, and the resulting disruption of production of important rural commodities was quickly noticed.\textsuperscript{68} At least as early as mid-1959, the decision was made to restore as quickly as possible the production of handicraft products to their original standards in variety, quantity and quality by regrouping those handicraft workers and implements that had been transferred to other tasks.\textsuperscript{69} Such calls were issued repeatedly throughout the period 1959–62.\textsuperscript{70} Industry at all levels which had appropriated resources originally belonging to local handicrafts were now to disgorge them and restore them to their former employment.

The similar pattern with respect to the return of agricultural labour initially transferred to industrial and construction employment is well known. As a sidelight, it is interesting to note that the number of workers in Kwangtung Province reported to have been initially transferred out of agriculture over the two years following the autumn of 1958, roughly equals the number returned to the agricultural front in late 1960.\textsuperscript{71} This, too, is an indication of the extent to which the opportunity costs of the redistributed resources had been underestimated.

The practice of financing expansion by “primitive accumulation,” like the excessive preoccupation with heavy industry and the operation of market incentives, was atavistic in the context of the Great Leap strategy. Just as the latter two elements exerted a counter-productive influence on

\textsuperscript{67} Donnithorne, \textit{China's Economic System}, p. 224.

\textsuperscript{68} For examples of criticisms of this disruption, see \textit{JMJP}, 30 June 1959, in \textit{SCMP}, No. 2051, p. 27; \textit{Yang-ch'eng wan-pao}, 18 July 1962, p. 1.

\textsuperscript{69} \textit{JMJP}, 30 June 1959, in \textit{SCMP}, No. 2051.

\textsuperscript{70} For examples, see \textit{NF}, 31 August 1960, in \textit{SCMP}, No. 2365; \textit{NF}, 30 June 1961; \textit{JMJP}, 4 July 1961, in \textit{SCMP}, No. 2538. See also “Nung-tsun jen-min kung-she kung-tso t'iao-li hsiu-cheng ts'ao-an,” (“Revised Work Regulations for Rural People's Communes,”) September 1962, Article 14, which stresses that “the commune management committee should actively promote the development of handicraft production,” and that rural handicraft producer co-operatives and co-operative small groups “are independently managed units, receiving joint leadership from the hsien association of handicraft co-operatives and the commune.” Article 12 of the \textit{Seventy Articles of Industrial Policy}, adopted in December 1961, directed that “all factories amalgamated in 1958 from producer co-operatives to local state operation, excepting those to which special conditions apply, will bit by bit [fen-p'i fen-ch'i], gradually revert to producer co-operatives.”

\textsuperscript{71} About two million workers were shifted out of agriculture over the period between the iron and steel movement of autumn 1958 and the middle of 1960, comprising nearly one million transferred to industrial enterprises at the hsiien level and above, and over one million moved into commune extractive, processing and manufacturing activities (Chao Tzu-yang, “Let the Whole People Develop Agriculture Energetically,” \textit{JMJP}, 23 July 1960 in \textit{SCMP}, No. 2319). Two million is also the number of workers reported transferred to the production teams from “various fronts” and from commune and brigade enterprises, in late 1960 (Ch'en Yu, “Report on Work of the Third Session of the Second Kwangtung Provincial People's Congress (Excerpts),” \textit{NF}, 4 December 1960, in \textit{SCMP}, No. 2419).
the product mix of small industries, so the first sabotaged the Leap's "choice of techniques" strategy, for it was precisely the "small and native" technological character of commune industries which enabled them to appropriate the resources of other small industries, handicrafts, subsidiary production and agriculture.72

The Maoist Strategy for Small Industry

Collectivization was Stalin's key to the problem of realizing "primitive accumulation." The Chinese used this key in the mid-1950s with greater ease but fewer results.73 The Chinese problem survived the Soviet solution, and called for more radical forms of institutional change: communes, labour-intensive methods of production and construction, "walking on two legs," in short, the policies of the Great Leap Forward. Despite their compromise by unplanned and overzealous methods of implementation, as well as by their own contradictions with various older methods and goals inherited from the period of the First Plan, some of those innovations have survived and taken root.

The reasons for this follow from the foregoing discussion. The size of its population and the low inherited level of per capita income have made the problem of capital accumulation exceptionally severe in China. First, unlike the Soviet Union, China could not shield its industrial growth rate from fluctuations in the harvest by keeping the marketed and procured portion of agricultural output growing steadily;74 a bad agricultural year meant a bad industrial one. Whereas Stalin's coinage of the slogan "agriculture as the base, industry as the guiding force" occurred several years before Soviet collectivization,75 the phrase gained currency in China in 1961, after an even more radical form of redistribution via collectivization had been tried through the agency of the communes and the Great Leap Forward. In China, this phrase, which continues to circulate, implies recognition of the inadequacy of an extractive policy towards agriculture and the need for a more vigorous developmental one; in the Soviet Union it was followed by an extremely harsh policy of extraction.

Second, unlike the Soviet Union, whose labour surplus had turned into

72. The persistence of this dependence upon redistribution is reminiscent of William Hinton's village of "Long Bow," whose inhabitants remained obsessed with hunting buried landlord wealth long after returns from such hunts had diminished drastically. See Hinton's Fanshen (New York, 1966), Chs. 21, 22.  
73. See above.  
a scarcity even of unskilled labour by the middle of its First Five-Year Plan. China has been faced continuously, except for the most frenetic periods of the Great Leap Forward, with excess supplies of labour in search of industrial employment. The modern industrial sector, with its general capital-intensive bias, will be unable to absorb this labour for a long time to come.

Finally, the low levels of income per capita in the countryside mean that rapid industrialization will continue to demand sacrifices of income having a high utility value from the rural population. Development policy must therefore be able to obtain continuing sacrifices on behalf of an objective, the fruits of which the sacrificers will share only minimally for some time, without weakening collective forms of production or relying heavily upon market-oriented individual incentives.

Whether there is indeed a coherent “Maoist” answer to these problems which has remained essentially constant at least over the period since the First Plan, and, if so, how it corresponds to the policies actually carried out since that time, are questions still without clear answers. The evolution of practice is equally consistent with changing implementation of policy or with pragmatic evolution of policy itself. The literature of the Cultural Revolution inevitably argues the first, while to outsiders the appearance of flexibility and “learning by doing” implicit in the second is most striking. Whatever the case, small industry seems intimately involved in those clues which the recent polemics offer regarding the nature of China’s approach today.

The principal tenets of the resulting small-industry policy appear to be: (a) to build “small but comprehensive” and relatively self-sufficient industrial systems of dispersed factories operated and controlled by the various localities themselves; (b) to link such systems with the needs of agriculture; and thereby (c) to raise labour productivity in agriculture by means of innovation and technological change, including mechanization.

Various payoffs are expected to derive from such an approach. An authoritative recent summary of economic policy gave weight to its obvious advantages for national defence. Indeed, the importance of dispersed rural industries for Chinese strategies of protracted war can hardly be over-emphasized. Yet other benefits are also expected to obtain which go to the heart of the fundamental problems listed above as well as of the related “contradictions” so central to Maoist thought. Among these

is an amelioration of the "contradiction between cities and countryside" as the dispersion of industry brings the standard as well as the style of life of peasants closer to that of urban workers. The resulting decrease in perceived inequalities of opportunity associated with urban-rural differentiation, and the dispersion of income-earning opportunities correlated with the "benefit-spreading" aspects of the scheme, are intended to prevent the erosion of incentives to work and save in the countryside. Accepting the requirement of "an uninterrupted increase . . . in the income of communes and teams," this strategy seeks to capitalize on the demonstration effect of rural exposure to and control of industry, on the premise that entrepreneurial abilities and the willingness to save are partly functions of the immediacy with which their results are seen and felt.

These objectives imply an emphasis on local industries directly related to rural needs, especially those of agriculture; the choice of techniques which can be widely dispersed and which yield a relatively quick payoff in increased income; and a significant degree of control by each local unit (hsien, commune, neighbourhood (chieh tao)) over its own industrial enterprises. Such characteristics are indeed stressed in recent descriptions of small industrial development. 80

Certain other features of the current approach to small industry deserve mention. First, it focuses upon diffusion of industry as an essential contribuant to aggregate industrial growth because of the effect of diffusion on the attitudes and skill levels of the population. 81 In a related vein, it puts more emphasis upon improving the quality of factors of production, particularly "human capital," than upon the efficient allocation of given quantities in the short run. 82 Po I-po is said to have argued in 1957 for deferring mechanization of agriculture on the ground that


81. Cf. Douglas Fisher's conclusion: "Here, then, is the place of small industries in Indian policy, for it is clearly desired to have a new class of entrepreneur in India, and the diffusion of small units is especially suitable in this respect" (in Hoselitz (ed.), The Role of Small Industry, p. 137). Fisher, after surveying various theoretical justifications for the development of small industry, concludes that the "Myrdalian diffusion thesis," which has much in common with Chinese policy as described above, offers "the best general explanation of the growth process involved" (ibid. p. 148, emphasis in the original).

82. The emphasis on human capital is particularly clear in "Achieve Greater, Faster, Better and More Economical Results in Developing Local Industry," HC, No. 6 (1970), p. 84.
it would be inefficient to replace labour in an economy already suffering from under-employment. Po reportedly advocated instead raising investment in current inputs (such as water, fertilizer, new seed, etc.) which would raise land yields without displacing labour. Such a policy is quite reasonable from the viewpoint of short-run allocational efficiency, but it implies an indefinite continuation of high labour inputs and low levels of labour productivity in agriculture, thus leaving unsolved the problem of motivating the peasantry to increase work inputs and marketed surpluses over a span of many years. Against this position, Mao is quoted as favouring farm mechanization, admitting that it would replace labour, but arguing that such labour could be absorbed by a diversification of the rural economy. The drawbacks of the Maoist position, particularly the magnitude and complexity of the effort required to prevent it from seriously exacerbating the unemployment problem, and the risk of friction and social tension if this effort should fail, are manifest. In its favour is the fact that it boldly attacks the urban-rural dichotomy which Mao senses constitutes a fundamental long-term source of peasant discontent.

**Rationalization of Small Industry: the post-Leap Years**

These and the many other points for and against the current emphasis on small industry cannot be balanced in the abstract. It is sufficient here to have stated the main outlines of the case which can be culled from recent writings. Although this case generally resembles the arguments which supported the “walking on two legs” strategy of the Great Leap Forward, the major structural weaknesses earlier identified in that strategy, as well as the impetuosity of its implementation are, at present, being carefully avoided.

Thus, agriculture has become a prime focus of small industrial production. Throughout the 1960s, the Government attempted to implement the shift in priorities towards agriculture by establishing local industrial networks to take over the burden of supplying agriculture with new types of inputs and equipment and to provide the rural population with needed consumer goods. For example, in Kwangtung Province, the provincial Party committee decided as early as the middle of 1960


84. It is still held that heavy industry must get priority, but that the correct way to do this is to increase development efforts in agriculture and light industry so as to satisfy the demands of the people for consumer goods, and provide raw materials and funds for heavy industry as well as markets for its products. See “China’s Road of Socialist Industrialization,” in *Peking Review*, No. 43, pp. 11-12.
to make provincial industry concentrate upon aiding agriculture by expanding production of 10 major items needed by farmers, of which chemical fertilizer, insecticide, farm machinery and power were the most prominent. By mid-1964, “several tens” of machine-making factories in the province had been “thrown entirely into production of new agricultural machine products.” Such a policy involved the elimination of heavy industrial products ill-suited to the technological capabilities of small industry, as well as the construction and equipping of additional factories. In the dramatic case of chemical fertilizers, complete sets of equipment for installation in small synthetic ammonia plants at the hsien and commune levels were being turned out by Shanghai factories as early as the beginning of 1962.

Frequently citing Mao’s instruction that “various localities should endeavour to build up independent industrial systems,” recent literature describes many efforts to establish “small but comprehensive” systems of industry at various local levels, with carefully planned links between levels. To cite the example of Kiangsi, where such a system seems to have progressed relatively far, a unified plan distributing industries among administrative levels exists, under which the provincial industrial department operates the major plants manufacturing tractors, trucks and machine tools, as well as larger mines and power plants; the special administrative districts take charge of production of hand tractors, diesel engines, simple machine tools and electric motors, and account for “the bulk” of farm machinery produced in the province; the hsien operate chemical fertilizer factories as well as machine shops that do both manufacturing and repair work; and commune machine shops “are mainly in charge of repair and assembly of farm machines.” Each level is to produce equipment for the operation of the ones below. This concept of a graduated local industrial network dates back to the Great Leap Forward, at which time it was spelled out in great detail. Put in abeyance during the hard years which followed, it is now apparently being prosecuted with renewed vigour.

87. NCNA (English) (Peking), 9 January 1962, in *SCMP*, No. 2658, p. 25.
88. The quotation continues: “Where conditions permit, coordination zones, and then provinces, should establish relatively independent but varied industrial systems.” The translation is from “China’s Road of Socialist Industrialization,” in *Peking Review*, No. 43.
89. *Ta kung pao* (Hong Kong English Language Weekly Supplement), 24 April 1969.
90. See Wen Ming-sheng, “Go all out, aim high, faster, better, more economically, strive to realize the industrialization and agricultural mechanization of our province,” *NF*, 14 May 1958.
As a result of the realignment to the service of agriculture, small industry in the 1960s became a major source of the greatly expanded production of agricultural producer goods. By 1966, two-thirds of the gross value of agricultural machinery production came from local medium and small plants. Small plants contributed one-third of total nitrogenous fertilizer production in 1968, and their production capacity is said to have increased to six times that of the early 1960s. In the same period, medium and small hydro-electric power generating plants were widely established throughout the country by rural counties.

The technological approach of the Great Leap Forward has also undergone modification. Establishments have been enlarged to achieve a minimum viable size and non-human power sources added, accomplishing what the Chinese refer to as development from hsiao-t'u (small native) to hsiao-yang (small modern). For example, the commune-operated native power plants of less than 50 kilowatts capacity, of Great Leap Forward origin, have given way to widespread construction of rural power stations of at least 500 kilowatt capacity. In the chemical fertilizer industry, the production originating in small or medium plants as of 1965 are considerably smaller than the figure cited above, although at 10-11 per cent. still substantial.

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tiny limestone-crushing ships of 1958-59 have been replaced by rather sophisticated, small synthetic ammonia plants.\textsuperscript{97} In general, the process of mechanizing the activities of small enterprises has been aided by the spread of electricity, which is particularly conducive to small-scale exploitation.\textsuperscript{98}

We have seen that the Great Leap Forward in small industry faltered partly on the anachronistic concern with heavy industry, "primitive accumulation" and market-oriented incentives. The years following the Leap have seen a re-gearing of small industry to serve agriculture, and a rationalization of technique to enable "expanded reproduction" to replace "primitive accumulation" as the basis for further growth. Neither of these trends appears to have been central points of dispute in the Cultural Revolution\textsuperscript{99}; debate has centred rather upon the motivational question in its broadest forms.

Thus all sides seem to agree on the need to serve agriculture effectively. The most vociferous attacks on the "capitalist roaders" in the agricultural mechanization controversy admit that they ran the state agricultural machine stations "with great vigour," investing large sums of money in them for capital construction, and subsidizing losses. The complaint was that they opposed local production and control of farm machinery. Accepting the inevitability of a relatively flourishing market mechanism, the "Liuists" held that "since the purchasing power of agriculture is low, it is a losing proposition to manufacture agricultural machines" in a manner subject to the effects of the market.\textsuperscript{100} Instead, such production should be centralized under state control, removing it from the sphere of market operations altogether. To the Maoists, such a policy inevitably implied exacerbating the problems of bureaucracy, elitism and class dif-

\textsuperscript{97} One's confidence in the technology employed in these plants is strengthened by United Nations reports of a breakthrough in the technology of producing synthetic ammonia on a very small scale (UNIDO, \textit{Industrialization and Productivity}, No. 7 (1964)). The Chinese claim to have pioneered the technology, asserting that "there is no precedent in other parts of the world for the production of synthetic ammonia in small factories" (NCNA, 7 June 1966). Indeed, they were describing such factories as early as December 1959 (\textit{Hua-hsueh kung-yeh (Chemical Industry)}, No. 21 (6 November 1959), p. 15) and their scale seems somewhat smaller than that of the plants described in the above UNIDO bulletin.

\textsuperscript{98} The development of technologies which do not reflect the relative factor availabilities in advanced, industrial countries, demands a large measure of inventiveness and creativity from technical workers. The line between "rightists" and "revolutionaries" among Chinese engineers, designers and technicians seems to be drawn in part according to their attitude towards such intermediate technologies, at variance with inherited professional knowledge but adapted to Chinese conditions.

\textsuperscript{99} There has been some dispute about the method of rationalization: e.g., large-scale vs. small-scale, relatively comprehensive production vs. relatively specialized, etc.

\textsuperscript{100} "The Peng Chen Counterrevolutionary Clique's Crime is Most Heinous," \textit{Nung-yeh chi-hsieh chi-shu}, No. 6 (18 September 1967), in \textit{SCMM}, No. 610, p. 7. Also "Wipe Out State Monopoly,", No. 6, in \textit{SCMM}, No. 610, p. 15.
ferentiation. They attacked it as “[making it] impossible for the broad peasantry to lay hold of advanced production tools and scientific and technical knowledge,” maintaining the differences between peasants and workers and impeding the consolidation of collective ownership in agriculture.  

This issue is obviously more than a technical problem in programming. It concerns what are usually regarded as parameters beyond the scope of conscious manipulation. The Chinese Communists, who clearly feel they cannot afford such an assumption, have been struggling with the parametric problem of developing a strategy which, in Chinese conditions, is equally hospitable to both the Protestant ethic and the spirit of communism. In the solution whose broad contours are becoming increasingly clear, small industry claims a prominent place.


INDIA’S CHINA WAR NEVILLE MAXWELL

Neville Maxwell, former correspondent for The Times in the Far East, has raised a storm in the Indian Government with his book on the 1962 border war with China, India’s China War (£5). An official enquiry has been launched there to find out how classified information came to be made available in the book when it is strictly inaccessible even to the Indian Parliament. In this country A. J. P. Taylor said in the Observer that ‘his book is magnificent on every count, an historical achievement of the first rank’. The Financial Times found the book to be ‘authoritative and devastating’, while the Times Educational Supplement called it ‘a study that will become a basic source book for students of Indian and Chinese policies’.

Jonathan Cape