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**RURAL ENTERPRISES,
TECHNOLOGY AND ECONOMIC PROSPERITY:**

A CASE STUDY OF WUXI, JIANGSU, CHINA

by

Louise Laliberté

A thesis submitted to
the Faculty of Graduate Studies and Research

in partial fulfilment of
the requirements for the degree of

Master of Arts

Norman Paterson School of International Affairs

Carleton University

Ottawa, Ontario

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ABSTRACT

China's economy is in flux, in a transition state between plan and markets. For most of the People Republic's history, the economy bore dualist characteristics. The decentralization and decollectivization drive allowed a new actor to rise on the scene, and served as a stepping stone between the traditional and the modern sectors of an economy. Rural enterprises, especially in the industrial sector, have emerged as a forceful player whose momentum is influencing the whole economy. In 1992, rural enterprises accounted for more than 30% of China's gross national product and about a third of its gross industrial output value. In little more than a decade, close to a million labourers have been transferred from agriculture to industry and services.

To a large extent, historical and institutional reasons account for this specific evolution. A scrutiny of China's resource allocation system highlights the characteristics and examines the possibilities of survival and expansion of township and village enterprises. Particular attention is paid to their handling of technology research and development, cornerstones of modern time economic growth.

Wuxi, the cradle of China's rural industries, provides the background for this study. Its rural development policies are examined to see whether they truly hold the potential to fulfill the dreams of its leaders to absorb surplus labour, to build rural infrastructure and to promote future economic prosperity while retaining a measure of welfare equalization.

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I alone, of course, am responsible for the shortcomings that remain and the views expressed.

CONTENTS

INTRODUCTION	1
1. SETTING THE BACKGROUND	8
1.1 ECONOMIC THEORIES	9
1.1.1 Dualism and Surplus Labour	9
1.1.2 Resource Allocation Theories	14
1.2 THEORIES ON TECHNOLOGICAL DEVELOPMENT AND CHINESE REALITY	20
1.2.1 Theories of Technological Change	20
1.2.2 China's Technological Setting	22
1.3 INSTITUTIONAL FRAMEWORK AND CHINA'S RURAL ADMINISTRATION	27
1.3.1 Overall Institutional Structure	27
1.3.2 Rural Institutional Structure: the Commune	28
1.3.3 Institutionalizing Labour Immobility	32
1.4 THEORIES AND REALITIES OF RURAL INDUSTRIALIZATION	33
1.4.1 Rural Industrialization as a Development Tool	33
1.4.2 China's Township and Village Enterprises	35
CONCLUSION	39

2. ECONOMIC DUALISM AND CHINA'S DEVELOPMENT STRATEGIES	45
2.1 SURVEY OF EVENTS	46
2.2 THE SOVIET MODEL	48
2.2.1 Unbalanced Growth and Heavy Industry	48
2.2.2 Institutions and Allocation of Resources	50
2.3 DUALISM: DETRIMENTAL TO AGRICULTURE	52
2.3.1 Institution Building: Collectivization	53
2.3.2 Price-Scissor Effect	54
2.3.3 Investment and Dualism	55
2.3.4 Labour Immobility	56
2.4 THE GREAT LEAP FORWARD	58
2.4.1 Rural Industrialization	58
2.4.2 Problems of Communal Agriculture during the GLF	60
2.5 READJUSTMENT YEARS AND THE CULTURAL REVOLUTION	64
2.5.1 Readjustment and Rehabilitation	64
2.5.2 Cultural Revolution	67
2.6 MAO AND BEYOND	69
CONCLUSION	71
 3. BEYOND DUALISM: RISE OF RURAL ENTERPRISES	 74
3.1 DUALISM AND ECONOMIC REFORMS	75
3.1.1 Institutional Changes in Agriculture	75
3.1.2 Institutional Changes in Science and Technology	79
3.1.3 Institutional Changes and Fiscal Reform: the Impetus for reform in Rural Enterprises	83
3.2 THE GROWTH OF A PHENOMENON: RURAL ENTERPRISES IN CHINA	88
3.2.1 Output and Employment	88
3.2.2 Wage Bill, Assets, Profits and Tax Payments	91
3.2.3 Performance Indicators	93
3.2.4 Rural Employment	93
3.2.5 Income, Standard of Living and Positive Spin-offs	97

3.3	JIANGSU PROVINCE	104
3.3.1	Spatial Characteristics	104
3.3.2	Rise of Rural Industries: A Brief History	105
3.3.3	Provincial versus National Figures on Rural Enterpri	106
3.3.4	Jiangsu's Rural Enterprises in Numbers	109
3.3.5	Rural Employment	111
3.3.6	Income, Standard of Living and Positive Spin-offs	113
3.4	SUNAN VERSUS SUBEI	115
3.4.1	Sunan	115
3.4.2	Subei	116
3.4.3	The Sunan Growth Model	117
	CONCLUSION	119
4.	CASE STUDIES: WUXI'S RURAL ENTERPRISES	127
4.1	WUXI SHI AND ITS ADMINISTRATION	128
4.1.1	Spatial Characteristics	128
4.1.2	Rise of Rural Enterprises: A Brief History	130
4.1.3	Wuxi's Rural Enterprises in Numbers	133
4.1.4	Institutional Setting	136
4.2	CASE STUDIES	139
4.2.1	Wuxi Elevator Company	140
4.2.2	Wuxi Taihu Heat-Resisting Casting Foundry	142
4.2.3	Wuxi Diode Transistor Tube Factory	145
4.2.4	Wuxi Taihu Integrated Fishery, Industry and Trade Complex	147
4.2.5	Wuxi Taihu Carton Making Factory	150
4.2.6	Wuxi Kraft Paper Factory	152
4.2.7	Wuxi New Textile Synthetic Fibre Factory	153
4.3	ANALYSIS	155
4.3.1	The Influence of Market Forces	155
4.3.2	Prosperity and Technology	157
	CONCLUSION	159
	CONCLUSION	165

LIST OF TABLES

- 3.1 Basic Indicators of Township and Village Enterprises, 1978-1990
- 3.2 Main Financial Indicators of Township and Village Enterprises, 1978-1990
- 3.3 Performance Indicators of Township and Village Enterprises, 1978-1990
- 3.4 China's Gross Output Values, 1978-1990
- 3.4.1 China's Gross Output Values Indexes Based on Comparable Prices, 1978-1990
- 3.5 China's Labor Force, 1978-1990
- 3.6 Per Capita Annual Revenue and Net Income of Agricultural Households, 1978-1990
- 3.7 Changes in Consumption Structure of Rural Households, 1978-1990
- 3.8 Jiangsu versus China: Comparative Figures on Township and Village Enterprises, 1990
- 3.9 Jiangsu versus China: Comparative Figures on Rural Total Output of Society, 1990
- 3.10 Jiangsu's Economic Progress, 1978-1990
- 3.11 Jiangsu versus China: Comparative Figures on Rural Social Labor Force, 1990
- 3.12 Jiangsu's Per Capita Annual Revenue and Net Income of Agricultural Households, 1978-1990

LIST OF FIGURES

- .1 Map of Jiangsu Province and Wuxi Administrative Region.

LIST OF APPENDIX

- A. Glossary.

LIST OF ACRONYMS AND ABBREVIATIONS

CBEs	Commune- and brigade-run enterprises (<i>shedui qiye</i>), the former name for township and village enterprises.
CCP	Chinese Communist Party.
CD	<i>China Daily</i> , Beijing.
CQ	<i>China Quarterly</i> , London.
CSY	<i>China Statistical Yearbook</i> , Beijing.
DC	Designated city.
FEER	<i>Far Eastern Economic Review</i> , Hongkong.
FYP	Five Year Plan.
GVAIO	Gross value of agricultural and industrial output.
GVAO	Gross value of agricultural output.
GVIO	Gross value of industrial output.
GVO	Gross value of output.
JAS	<i>Journal of Asian Studies</i> .
JJN	<i>Jiangsu Jingji Nanjian</i> , (Economic Yearbook of Jiangsu), Nanjing.
JSSN	<i>Jiangsu Shise Nanjian: 1949-1989</i> , (Forty Years of Statistics of Jiangsu). Nanjing.
RLF	Rural Labor Force.
RMRB	<i>Renmin Ribao (People's Daily)</i> , Beijing.
SOEs	State-owned enterprises.
SSB	State Statistical Bureau, under the State Council, Beijing.

TRSO	Total rural output of society: the sum of the gross value of output in agriculture, industry, construction, transport and commerce.
TVCEs	Township and village collective enterprises, formerly CBEs.
TVEs	Township enterprises and village enterprises, includes rural private enterprises.
ZGTJNJ	<i>Zhonguo Tongji Nanjian</i> (Statistical Yearbook of China), Beijing.

TERMINOLOGY

Considerable confusion has risen, at times, over the definition and scale of China's rural enterprise sector. Much of this confusion lies in the diverse statistical subdivisions which have been created to translate this new phenomenon and their imprecise use. A failure to distinguish between *rural industries* and *rural enterprises* or the *collective sector* and the *rural enterprise sector* can lead to serious data discrepancies and erroneous analyses.

The term *rural enterprises* covers not only industries (representing its largest share), but also commerce, transport, construction and agricultural-industrial firms such as fertilizer plants.

Collective and individual enterprises can be either urban or rural based. Thus, the *Collective sector* includes both urban and rural enterprises under local government control. Fortunately, China's State Statistical Bureau has somewhat simplified data analysis by creating a special category titled *Township and Village Enterprises* which refers exclusively to rural enterprises. However, this term covers more than the collective sector, since 1984, it includes rural enterprises that are both collectively and non-collectively owned (such as partnerships and private enterprises).

Unfortunately, the term has also become somewhat misleading. In some reports, it has been used only in reference with collective enterprises, while in other writings it encompassed all rural enterprises, including private firms.

This terminology problem is linked to the modifications in reporting basis used through the years by China's State Statistical Bureau. In 1984, the term *Commune and Brigade Enterprises* was officially renamed *Xiangzhen qiye* or literally *Township and town enterprises*. At the same time, coverage was expanded to include private as well as joint cooperative enterprises owned by peasant households. (Wong, 1988:14) The awkwardness of this term in English has caused further confusion. Indeed, the term *zhen*, in *Xiangzhen qiye*, refers to small towns of 2,000 to 5,000 inhabitants, most of which belong to the *agricultural population*, by contrast with the *non-agricultural population* category which is mainly made up of urban dwellers.^{1/} The term *zhen*, does not therefore carry the 'urban' connotation of the English term 'town', which accounts for the fact that many writers have preferred to systematically use the term *Township and Village Enterprises*.

In the present analysis, an attempt has been made to clearly express these categories, both in the text and in statistical reporting. The term *Township and Village Enterprises* is used as a generic term in broad discussions. When drawing up the statistical profile of rural enterprises, designations such as *Township Collective Enterprises*, *Township and Village Collective Enterprises* and *Rural Industrial Enterprises*, are used wherever the original source is reasonably clear. The term *Rural Enterprises* is reserved for figures aggregating all levels of ownership and types of firms.

^{1/} For a thorough discussion of the statistical definitions of categories of urban versus rural, agricultural, non-agricultural, countryside and related terminology through time consult: Michael F. Martin, "Defining China's Rural Population" in *China Quarterly*, vol 128, 1992.

Fortunately, this terminological intricacy is simplified by the fact that our micro analysis centers on Wuxi. Most rural enterprises in the region are *collectives*; since private firms are kept at bay and represent a mere 4% of the economy. Most enterprises are also industrial concerns. By the end of 1990, industrial firms accounted for 94% of Wuxi's industrial and agricultural output. Furthermore, Township and Village Collective Industries encompassed more than two thirds of Wuxi's industry.^{2/}

CURRENCY AND MEASURES

The Chinese currency is called *Renminbi*. It is denominated in yuan. Each yuan is subdivided:

$$1 \text{ yuan} = 10 \text{ jiao} = 100 \text{ fen}$$

Exchange rates are fixed but have been changing through the years as follows:

1978	\$US 1.00 = Y 1.661	
1979	\$US 1.00 = Y 1.541	
1982	\$US 1.00 = Y 1.892	
1983	\$US 1.00 = Y 1.976	
1984	\$US 1.00 = Y 2.320	
1985	\$US 1.00 = Y 2.937	
1986	\$US 1.00 = Y 3.453	\$CN 1.00 = Y 2.568
1987	\$US 1.00 = Y 3.772	\$CN 1.00 = Y 2.819
1988	\$US 1.00 = Y 3.765	\$CN 1.00 = Y 3.064
1989	\$US 1.00 = Y 3.765	\$CN 1.00 = Y 3.982
1990	\$US 1.00 = Y 4.783	\$CN 1.00 = Y 4.500
1991	\$US 1.00 = Y 5.220	

Chinese statistics are usually in metric units; in addition *mu* and *jin* are often used:

$$1 \text{ mu} = 0.1647 \text{ acres} = 0.0667 \text{ hectares}$$

$$1 \text{ jin} = 0.5 \text{ kg}$$

Transliteration: The Pinyin system is used in this report.

^{2/} These figures reported in an article in the *People's Daily* of April 12, 1991 are supported by data published in *Jiangsu Tongji Nianjian 1991* (*Jiangsu Statistical Yearbook*).

FIGURE.1: Map of Wuxi Shi, Jiangsu Province China

INTRODUCTION

In any economy, an important aspect of development is the allocation of capital and labour. The movement of these factors from sectors of low productivity to those of higher productivity is one of the primary means by which economic progress takes place. In China, the process was thwarted by thirty years of unbalanced growth. The introduction of a broad range of economic and institutional reforms since 1978 initiated sweeping changes. They modified the balance of power and allowed the movement of labour from the traditional, low productivity sector, to a sector of higher productivity. Rural enterprises became central actors in this process and fostered numerous changes in China's economic landscape.

The purpose of this investigation is to understand the mechanisms and institutions which have allowed rural industries to take such a strong hold. Its aim is to examine how labour is being reallocated, how new technologies are being diffused and how rural

enterprises are growing. It will describe how they have become the channels through which labour is moving out of agriculture, initiating a process whereby the economy is growing out of a two-sector dualist model.

In order to reach this goal and provide a proper framework of analysis, a number of theories and their hypotheses are surveyed in Chapter One. Through this discussion on dualism, resource allocation, technological change, institutions, and rural industrialization, the reader is further introduced to some of China's economic idiosyncracies which have influenced rural development.

An historical review of China's economic strategy and growth between 1949 and 1978, discussed in Chapter Two, leads to the conclusion that China's early development strategies were based on a dualist notion of economic development which emphasized the development of heavy industries to the exclusion of all other economic spheres. This unbalanced growth strategy, once combined with China's unique restrictive labour mobility policies, never permitted the modernization process to occur. With labour trapped in the traditional sector, China's economy stagnated.

Dual economic theories are based on perceived asymmetries of production present in the early stages of development. The industrial modernization process is identified as the motor of economic development. Theorists argue that in a primitive economy, hoards of surplus labour are trapped in the countryside, in a world of low productivity of both capital and labour. Industrialization is identified as the avenue to economic growth and higher standard of living. As industries reinvest their profits, they are assumed to increase a country's capital stock, technical capacity, and demand for labour.

Furthermore, wages being higher in the industrial sector, labour is attracted and transferred to this more productive sector, and standard of living are pulled up.

For many years, this modernization process was viewed as urban-centered, capital-intensive industrialization. Even so, it has proved to be a mine-field for many developing countries. While hinterlands were dying, metropolises with an ample share of human misery, crime, and street kids living in polluted, congested, and unhealthy environments have emerged throughout the world. The golden goose having laid a dubious egg, development specialists searched for new solutions.

In the last decade, rural industrialization became a panacea. Development economists argued that peasants could still become industrial labourers, with all the appended benefits, but within the confines and security of their old hometown. In a reverse flow, capital would move to rural settings instead of labour migrating to overburdened urban centres. Employment would rise and productivity increase, thereby alleviating the problems of rural poverty. In numerous countries, however, theory hardly translated into reality. Research on Bangladesh has shown, for example, that poverty persisted in areas where rural industries had been implemented. (Mukhopadhyay & al., 1985; Hossain, 1984) Observers of the process of rural industrialization thus pointed out that employment is only one of the premises to successful rural development. Increases in wages, welfare, and standard of living of all rural inhabitants must also be experienced. The following research shows that China's rural enterprises, especially those known as collective enterprises and owned by local governments, are inducing such increases.

This positive influence is examined in Chapter Three. The proposition asserting that rural enterprises are the agent forcing China out of a strict dualist pattern is scrutinized and validated. Since 1978, rural enterprises have been asserting their foothold and growing to draw ever greater amounts of labour and other resources to their productive sphere. This significant structural transformation supports and promotes renewed industrial and institutional patterns. Rural enterprises become a channel fostering the transition between an agricultural economy and an industrial one. The process is occurring fairly smoothly, and thousands of peasants have already crossed the bridge to become peasant-workers. This development, based on policies of renewed marketization, is pushing China's economy in new directions.

As the country is slipping out of the corset of communism, markets are replacing planners as the driving allocation force. As China finds its own economic road, the line between socialism and capitalism blurs and new entities are born to support emerging hybrid markets. Numerous *avantgardist* patterns have been experimented with. Many included large doses of rural non-farm activities. While some models closely mimic western private undertakings, others retain stronger attachments to community-based endeavours, whereby local governments actively participate in the growth of rural enterprises.

The organizational structures which have emerged under the guidance of these local governments are unique to China. Collective rural enterprises have been the earliest manifestation of rural industrialization and are still thriving today. Rural collective enterprises have reacted to the economic liberalization by utilizing labour and capital more efficiently while responding to the welfare needs of rural populations.

These collectives have led Jiangsu, itself a pioneer in rural industrialization, to its current economic blossoming. The official's claim that rural enterprises are supporting "*half of Jiangsu's sky*", is corroborated by the statistical profile drawn up in Chapter Three, and collective enterprises are proven to be the pillar of this economic growth. The focus of inquiry thus turns to a specific model, developed in southern Jiangsu and dominant in the Sunan region and the administrative region where case studies have been researched, Wuxi Shi.

Chapters One and Two provide a theoretical framework for the need to improve a country's allocation of resources, and Chapter Three reveals that rural enterprises are an important factor in improving China's economic capacity to employ its labour and capital more efficiently. Yet, there remains a need to go beyond the basic dualist theory and discover whether rural enterprises do indeed perform according to recent studies and official rhetoric. Hence, a final hypothesis is introduced at this point on the merits of rural enterprises and their effects on the economy. Besides the normal resource allocation process described in previous chapters, I posit that future economic development in China is intrinsically linked to rural enterprises' capacity to absorb, effectuate, and diffuse technological progress, which in turn is at the basis of modern economic growth. With rural enterprises producing half of China's industrial output, how successfully these enterprises manage technological diversification is a key issue to its capacity to compete and its future economic well-being.

Consequently, in Chapter Four, I present results from a field research I performed in Wuxi in 1991, where I interviewed managers and technicians of several rural enterprises, as well as officials from Wuxi's Bureau of Rural Industries. The case

studies support Chapter Three's claim of strong performance on the part of rural enterprises. More importantly, this field research also uncovers the role of rural enterprises in the diffusion of technology. Indeed, recent, yet strong networks and relationships have emerged between research institutes and rural enterprises, and are used to facilitate technological improvement and increase production. It appears, however that, although new technologies are being acquired by rural enterprises, the second wave of diffusion to other enterprises and other regions of the interior is not occurring. Once engineers and upgraded production equipments are acquired, the technological capital they represent is jealously guarded. Such aggressive and protective business behavior prevents the widespread diffusion of technology. Paradoxically, although China's new competitive forces have led to a better allocation of technological resources and pushed enterprises to use it efficiently, too competitive an attitude on the part of rural enterprises managers might slow down the expansion of China's overall technological capital.

This field research leads to the conclusion that as markets become even more liberalized, the role of rural enterprises should also gain in importance. Yet, the institutional structures put in place to foster this growth will have to adapt in order to allow a better technological absorption, innovation and diffusion. Both local governments and enterprises managers have strategic choices and decisions to make in allocating resources to technological research, production and training.

Briefly stated, in Chapter One, the topics of dualism, resource allocation, technological change, institutional structure, and rural industrialization, are introduced to provide a framework of analysis. In Chapter Two, the discussion focuses on the People's Republic development strategies and highlights the policies which imposed a

dualist pattern upon its economy. From this historical perspective we move on, in Chapter Three, to examine how the 1978 reforms have bolstered rural industries. This analysis is deepened to examine a specific type of rural development: after examining Jiangsu's overall pattern, the Sunan model of collective rural industrialization is introduced. Finally, in Chapter Four, seven case studies and an incisive discussion on Wuxi's rural development process are used to assess the actual vitality of township and village enterprises and gauge their response to increased technological demands.

CHAPTER 1

SETTING THE BACKGROUND

China's sweeping reforms of 1978 have inspired a gradual but dramatic transformation in the socioeconomic structure of her rural areas. Rural enterprises, fallen into disrepute twenty years ago, have witnessed a renewed flurry of activity and quickly claimed a large share of China's productive capacity.

This study will shed light on the causes and the scope of this transformation by a careful examination of the allocation of resources—past, present, and future—in the People's Republic. Such a survey of the subject of rural enterprises' growth, in as holistic a manner as possible, calls for the support of a framework provided by not one, but many theories.

This first chapter outlines a theoretical framework upon which the investigation will rest. The main themes covered are dualism, resource allocation mechanisms,

technological change, institutionalization, and rural industrialization. This amalgamation of theories from a number of fields sheds new light on the issue, allowing further exploration of the subject from various angles.

The second function of this chapter is to introduce some singularities of the Chinese economy by providing a broad overview on the causes of China's long economic stagnation and sudden blossoming. Assumptions and hypotheses of specific theories, as well as those discussed in subsequent chapters regarding the causes and results of China's rural enterprise growth, are highlighted.

1.1 ECONOMIC THEORIES

1.1.1 DUALISM AND SURPLUS LABOUR

Dual economy models are a subclass of two-sector models of growth. They intend to capture specific characteristics of developing economies in order to trace a more accurate analysis of development paths and policies.^{1/}

There are many views of dualism, ranging from vaguely stated hypotheses regarding differences in social, political and economic behaviour to formal statements highlighting well-defined preconditions on the course of economic development. Different criteria have also been used to distinguish the two sectors contrasted. In some cases, geography has prevailed and the rural-urban or the domestic-foreign divide served as basis for the differentiation. Occasionally, technology became the focal point of dual economic models with capital-intensive techniques of the modern sector contrasted to traditional labour-intensive techniques.^{2/} In most cases, however, the main actors have been identified as industry versus agriculture, or the modern sector against the lagging

traditional economy. In all cases, the share of the work force is expanding in the leading urban capital-intensive industrial sector of the economy, while the traditional rural sector is burdened by surplus labour. (Morgan, 1975:133; Kelly & al., 1972:8) Thus, the distinguishing feature of dualist conceptualizations rests on particular asymmetries between sectors of the economy.

Dualism also rests on a notion of *unlimited supply of labour*, a concept which can be traced back to the classical economists Ricardo and Malthus. Ricardo emphasized the near fixity of land while Malthus stressed the ever-increasing labour/land ratio, with the threat of over-population always looming on the horizon. It also meant that under conditions of stationary technology, with land very intensively cultivated, the workings of the law of diminishing returns will lead to extremely low marginal increments of output when labour is added. Combining these features with the notion of institutionally-determined real wages in the agricultural sector, they introduced the idea that labour, in the long run, might be in perfectly elastic supply at subsistence wage.^{1/} (Ranis, 1989:191)

In the postwar period, society's organizational heterogeneity was translated into a traditional versus a modern sector. In the original model developed by Lewis in 1954, manufacturing is pitted against agriculture. Three factors of production are available: land, labour, and capital. Only labour is shared: land is captured by agriculture and capital is used exclusively in the modern sector. Two factors are thus assumed to be extremely immobile while labour becomes the equilibrating flow. Wages, which are said to be higher in the modern sector, are the motivating force behind this flow.

- *Wages and labour mobility*

It is further assumed that in the traditional sector, many peasants receive wages higher than the value of output which they produce. Thus, although they might be working full time, they represent a pool of *underemployed* labour.^{4/} In a land-pressured environment, in order to survive, some portion of the labour force must receive consumption goods in excess of its marginal product. This anachronistic economic behaviour can occur in traditional economies where the production unit is the household. Since family members cannot be dismissed or starved, an element of sharing prevails. Similarly, in feudal societies or mixed economies, landlords and village heads are assumed to be benevolent and willing to redistribute goods to maintain tenants and support members of their community. In a socialist state, the government can intervene to ensure that a consumption standard is met for society at large. (Bhaduri, 1989:111) Hence, in the traditional agricultural sector, the distribution of goods is made according to social norms. As wages are linked to the average rather than the marginal product of labour, underemployment becomes widespread and any surplus or savings are engulfed into an ever-growing hungry population. (Kanbur & McIntosh, 1989:114)

Hence, Lewis postulates that labour can be transferred to modern sectors of the economy without raising rural wages, and without loss of output in the traditional sector. The real subsistence wage in the traditional sector is thus given. The money wage in the modern sector is much higher, partly allowing for higher costs of living and other disutilities attached to city life, while real wages are also higher, yet stable. This ensures a steady flow of workers willing to detach themselves from their land and be absorbed by the modern sector.

- *Unfavourable terms-of-trade*

The workings between the two sectors must be further qualified. In order to support the newly transferred labour force, the traditional sector will have to export part of its production to the urban area. The consumption-wage bundle of former peasants is transformed into a wage fund. The new worker now earns a wage-income in the form of non-agricultural goods which he or she is prepared to exchange for food. In a closed economy, agricultural goods are thus transferred to the industrial sector which produces consumer goods for sale to the agricultural sector, in order to pay for its own workers' consumption. By maintaining unfavourable terms-of-trade against agriculture, the excess revenues earned by the industrial sector from the transactions can be reinvested in capital purchases. According to theory, manufacturers are, unlike traditional farmers, profit maximizers and will spend their savings on capital goods in order to increase productivity, output, and profits.

- *Capital Formation*

Dual economy theorists further argue that the modern sector can save and reinvest larger amounts than those possible in the traditional sector, since profits increase in the share of income. As capital formation occurs in the modern sector, it requires increased amounts of labour, a coefficient positively related to the investment absorption rate. As long as the fixed real wage holds and the terms-of-trade remain unfavourable to agriculture, industrial growth can rocket. Accumulation of capital not only increases the level of national output, but moves the economy towards the sector of production which is recognized as the most efficient.^{5/} Eventually the supply of labour dries up and the

two sectors start to compete for labour, thereby raising overall real wages. (Gianaris, 1978:195; Kanbur & McIntosh, 1989:114)

The theory posits that, while wages are held constant, any agricultural surplus not siphoned off by consumption or intermediate input requirements will be transferred to capital formation in the rest of the economy. It could thus be said that the *savings* of the agricultural sector represent a crucial link in the development process. They are, in the early stages, almost the only basis that can promote industrial capital formation. Agricultural exports can therefore be viewed as a contribution from the traditional sector to both labour reallocation and industrialization.

- *Critics*

Critics have noted, however, that Lewis's model neglects the seasonality of agricultural work, where most of the traditional labour was withdrawn, as well as the factors of off-farm employment. It also precluded capital investments in the traditional sector, as these would defeat the purpose of the model, and thus assumed that other members are willing to take up the work of the foregone peasant. (Morgan, 1975:134)

Fei and Ranis reworked some aspects of the Lewis model but similarly concluded that successful development requires capital accumulation (to employ the labour in industry) and rising farm productivity, while farmers keep their consumption to constant levels. Their major contribution to the theory was the renewed emphasis they placed on technology as an agent of economic development. They asserted that technological progress, preferably of a labour-intensive nature, and not only capital accumulation, must occur in the industrial sector for economic growth to be promoted and sustained.^{6/}

1.1.2 RESOURCE ALLOCATION THEORIES

Lewis and other dual economy theorists implicitly assume that the modernization process they outlined ensures the efficient allocation of an economy's resources. This is indeed the ultimate goal of any economic structure. The questions of *"how, when, where, and by whom"* resources could and should be distributed, so that optimal output is achieved without wasting any inputs, are basic to the growth of all economies.

On the one hand, specific methods to distribute finite resources of capital and labour between competing ends must be determined. On the other hand, savings and investment decisions have to be made concerning the long-term planning of the various economic sectors, as well as an economy's human resources and technological prospect. Decision-makers must therefore take into consideration how to allocate resources at a point in time, as well as across periods of time.

- ***Between plan and markets***

Economists have identified three broad mechanisms which have been used to accomplish this task: (i) a pure market economy, (ii) market-socialism, and (iii) a command economy.

At one end of the spectrum, in a pure market economy, price and market mechanisms are the process through which labour is transferred from the traditional to the modern sector. Consumers are completely free to buy goods and services according to their own tastes and preferences. Prices and markets translate consumer preferences into an appropriate production mix, while material incentives are used to fuel the system. Market signals will induce enterprises to supply goods according to a specific demand

pattern. Consequently, consumers ultimately determine investment decisions by revealing their preferences for goods.

At the opposite end of the spectrum, governmental authorities are in charge of allocating resources. A country's factor endowments—land, labour, capital, raw materials, and technical and managerial inputs—are distributed according to direct orders transmitted along administrative channels. In a socialist redistributive economy, central decision-makers distribute goods and services through a vertical hierarchy. (Polanyi, 1957) Planners and their preferences govern the entire system. In theory, planners articulate a detailed list of the final goods desired. To be accurate and functional, this system would have to rely on vast amounts of precise and timely statistics gathered by an elaborate and efficient administration. (Eckstein, 1977:37-40; Lardy, 1983:19-30; World Bank [WB], 1981:I:Annex A)

These obstacles hinder the development of a perfect command economy, relegating it to the realm of theory.⁷ Lange conceived a model where centrally planned economies bypassed these problems through a combination of prices and planning mechanisms. In a pure market-socialist society, consumers' preferences are the motivating factor but planners decide the levels of savings, investment rates and income distribution. To achieve their goals, the planners use fiscal and monetary management mechanisms as well as prices. The prices of primary and intermediate goods are fixed by a central marketing board, while consumer goods' prices and wages are determined by market forces. In this system, a large part of decision-making is viewed as being transferred from central planners to enterprise managers. (Lange, 1983; Lardy, 1985)

Even so, as planners remain in control of savings and investments, they are the ones in charge of a country's future economic well being.

- *Allocating resources to technological development*

In all three cases, for an economy to be efficient and produce goods in an optimal fashion, efforts to improve product quality, introduce new products, lower costs, and raise productivity through technological upgrading are essential. The allocation of resources to technological improvements is key to the viability of an economy and its future development.

However, haphazardly introducing modern technology is not an efficient way to reach optimal production conditions. New technologies improve economic results only when carefully selected, properly applied and successfully absorbed. Experience in other developing countries demonstrates that the implementation of new technologies may otherwise increase production costs. For example, when expensive and energy-intensive imported machinery replaces inexpensive and abundant labour power, production costs can soar. Clearly, transfers as well as innovations must be appropriate.

It also appears that technology cannot be packaged in a wholesale fashion. Expertise and know-how can hardly be thoroughly embodied in capital equipment or codified in users' manuals. The absorption of technology, which becomes the basis of further diffusion and economic progress, rests on education. Both investment in human capital and its allocation are determinants of growth.

To increase productivity, then, science and technology, research and development, as well as training and education must be appropriately combined with existing production methods. Furthermore, in a world where technology is increasingly the

cutting edge of competition, these factors must be prioritized in order to ensure future productivity and economic prosperity.

- *Rural industries, institutions, and resources*

Resource allocation is thus at the heart of any economic development strategy. This allocation must be made efficiently at *a point in time* and *across periods of time*. Rural non-agricultural development has been the subject of growing interest among policy makers and development economists. One reason is that, in a number of countries, economic development based on allocating resources to urban-centered, capital-intensive, large scale industries failed to have the desired impact on overall growth, employment and equity. Even so, the Green Revolution, once touted the ultimate development solution, also faltered, unable to solve production problems or to help absorb the ever-increasing labour supply.

Rural industrialization is seen as a more efficient means to allocate resources, especially rural human resources. In areas where rural underemployment is rife, this strategy could help transfer labour from the agricultural to the industrial sector without provoking a mass exodus from rural to urban areas. It is also widely believed that rural industries can feed on local low cost raw materials unavailable to the urban sector, as when they engage in waste recycling activities. Furthermore, the increase in human capital resources gained through the extension and deepening of skills can be important, further helping to increase the technical efficiency and production capacities of the rural economy.

Rural industries can become the engines of localized growth, facilitating a diffusion of development poles throughout the countryside. They can even promote a

better allocation of resources between and across a country's regions by keeping resources, formerly forwarded to urban centres, in rural areas.

The use of rural industrialization as a major component of a growth strategy should also shift the onus of resource allocation from urban-centered agents to local actors. Such a strategy should bestow upon local decision-makers, whether they are at the government or firm level, greater power in the distribution of both inputs and outputs. Correspondingly, the institutions put in place to implement their decisions should become an intrinsic part of this development process.

- *China's resource allocation mechanisms*

Real world economics and allocation patterns diverge from pure theoretical archetypes as numerous variances and distortions are introduced. China did not follow a purely planned economic model; nor is its use of markets, even in today's relaxed environment, strictly fashioned upon market-socialism principles.

Given their initial goals of high growth rate coupled with increased welfare, Chinese leaders relied on intervention to allocate resources over time and throughout the population. They knew that the key to China's growth and wealth was to raise total factor productivity. Labour was abundant but arable land was scarce and capital—both in terms of goods and funds—was in short supply. The investment pie was small and the allocation of available resources to be devoted to the agricultural, light industrial or heavy industrial sector was a point of contention. Different views were expressed on the array of tools needed to accomplish the task. The rate and composition of investment were the focus of debate. As the road to development was believed to lie in rapid industrialization and modernization of the country, arguments put forth by the heavy

industry lobby and the investment demands they imposed won in the end. In line with a theory prevailing at the time among their Soviet allies, many decision-makers concluded in favour of the *predatory* nature of the economy. According to this notion, growth in one sector could be achieved only at the expense of the remaining sectors. (Bachmann, 1985; Lardy & Lieberthal, 1983:xvii)

China's leaders thus vested their hopes in unbalanced growth strategies. Agriculture came to be seen as a static element constituting a reservoir supplying labour, food and financial goods to the urban industrial sector. (Lardy, 1983:15) Rural enterprises were perceived to be mere residuals of agriculture and heavy industry, a card to be played when all else failed. The institutions developed to allocate resources reflected this vision, and extractive organizational structures were implemented.

China did make tremendous strides in industrial sectors since 1949. The price to pay was an average of 92% of investment resources devoted yearly to the industrial complex. It fueled one of the highest sustained industrial growth rates in the world.^{8/} (WB, 1985:110) However, until 1978, close to 80% of the population lived in the countryside on net incomes barely supporting their basic needs.^{9/} Unlike Lewis's model, labour did not flow from traditional sectors to modern ones, and real wages did not rise. These, and other realities exposed in the next chapter, strongly suggests that China's development strategies were based on a *variant of dualism* which, when combined with *restrictive labour mobility policies*, impeded China's overall economic development.

1.2 THEORIES ON TECHNOLOGICAL DEVELOPMENT AND CHINESE REALITY

To add to the problem, only partial modernization followed China's urban industrialization. Although increases in capital per worker did increase labour productivity (output per worker), it was more than offset by a decline in capital productivity. Unlike usual patterns of development where a considerable proportion of growth is due to output growing faster than total inputs, China's total factor productivity of state-owned enterprises actually declined.^{10/} Lewis's expected cycle of growth, led by the dynamic forces of technological upgrading based on proper capital accumulation, did not occur.^{11/} Product innovation and quality improvements were also slow. As technological development faltered, the economy stagnated, and vice versa.

1.2.1 THEORIES OF TECHNOLOGICAL CHANGE

While the technological capabilities of a nation is more than the sum of individual firm-level technological capabilities, it is important to observe how the latter develops in order to understand how it influences the latter. At the general level, a firm will require, apart from entrepreneurial and managerial capabilities to conceive a new project and carry it to commercial success, technological capabilities to sustain its productive facilities.

The literature suggests numerous ways of categorizing the capabilities needed to acquire, assimilate, use, adapt, change or create technology. (Katz, 1984; Dahlman et al., 1987; Lall, 1987; Pavitt, 1984) For the purpose of this research the categories have been divided into three main groups: investment, production/innovation, and linkages.

They serve to illustrate the nature and range of skills involved in operating an industry. Investment capabilities refer to the skills required to identify, prepare, design and set-up new projects. Although consultants are sometimes hired to perform these functions, a firm will require in-house capabilities to evaluate their recommendations, negotiate favourable terms for technology transfer, absorb the new technology to ensure that needs are met and understand how the plant operates in order to upgrade their skills in running the plant.

These skills are identified as production/innovation capabilities. The engineering skills required range from optimizing a given production process and maintaining equipment, to adapting and improving processes, reducing costs by modifying the equipment, extending the life of the equipment and to major process innovation. (Mody, 1989) Process innovation covers both the ability to seek and graft on technologies brought in from the outside and the ability to design and develop new in-house technologies. A firm's production capability will thus be reflected in its technical efficiency, engineering skills and the ability to adapt operations to changing demand patterns. (WB, 1985:119)

Finally, linkages capabilities are the skills required to transfer technology from one enterprise to another, from service firms to manufacturers, and from science and technology infrastructure to industry. (Pavitt, 1984) Too often, these linkages are assumed to occurred automatically and easily. In market based economies, eager buyers get in touch with willing suppliers of products, services and information through efficient markets. (Lall, 1980) In pre-reform China, the *free flow of knowledge* was to ensure that

all firms had access to the technology offered by research centres.^{12/} In both cases, theory does not concur with reality.

A firm will have to display sustained efforts and special skills to set-up linkages. Its technicians will have to be able to formalize know-how into transferable knowledge, help solve supplier's problems, conduct cooperative R&D and so on. Linkages also have to be established with service firms, consultants, universities and laboratories to give and receive information. Finally, linkages should be established with similar firms to transmit technology, set-up turnkey projects or undertake cooperative research. All these types of linkages are necessary to allow technology to be diffused rapidly and efficiently. This key process bolsters a country's overall technological base and thus increase its production capability.

In highly industrialized countries, the interaction between these sectors has given rise to a "rich and variegated institutional structures supporting technical advance." (Dosi, 1988:1148) However, China seems to have encountered difficulties in developing the channels which would ensure adequate technological diffusion and innovation.

1.2.2 CHINA'S TECHNOLOGICAL SETTING

- ***Technological obsolescence***

Planning and resource allocation for technological development had not been a high priority for China's leaders, at least not until the reforms of 1978. In fact, traditionally, the institutional planning and incentive system has been biased against innovation. Although in theory technological diffusion was to occur following the *free flow of knowledge*, the administrative channels which should have helped transmit the

information faltered. The R&D sector had been dissociated from industry in order to ensure that its research and innovations were of public domain. Even so, the system did not ensure that research be synchronized to demand or that efficient modes of transfer be developed. The system, and its institutional setting, led to tenuous and fragmented linkages. (WB, 1985:119) Research institutes followed their own agenda while state-owned industries, pushed to fulfill production targets of physical output, were little inclined to interrupt current production to introduce new products and processes. China's production, investment and innovation capabilities were in shambles.

Conditions in the machine-building sector can be used as indicators of China's overall technological backwardness. The core of the sector was developed through turnkey plants imported from the Soviet Union during the First Five Year Plan. They were in turn duplicated gradually, setting in motion a phenomenon dubbed the *replication of antiques*. In recent years, both Chinese scholars and the press have joined forces to declare that of the 26,000 types of products turned out in the machine-building sector, only 5% reach international standards, 35% are at the level of the 1960's and as much as 60% remain at the levels of the 1950's, 15% of which could be considered as completely obsolete.^{13/} (Liu, 1987:221) Obsolescence is not confined to the heavy machinery sector. For example, the ubiquitous Liberation truck is based on a Soviet model which was originally copied from a 1930's U.S. model. (WB, 1985:110)

Furthermore, a 1985 national science and technology survey discovered that one quarter of all industrial fixed assets are operating beyond their set service life of 25 years and only 13% were deemed to be of international standards. This situation, although appalling, is not always redressed by simply introducing new machinery. As

demonstrated by the installation of new looms in a large cotton mill factory in Shanghai in 1983, old equipment which has been renovated several times might surpass replacements. During the installation of some 240 wide looms, 60,000 parts had to be commissioned and changed, representing a surcharge of 25 % of the original cost of the looms. (Conroy, 1992:142)

- *Absorption, innovation, diffusion: education*

Not only have obsolete equipment and techniques burdened economic progress, but future developments have also been jeopardized. Technological innovation and diffusion rest on education; yet, during more than thirty years few resources were invested in developing human capital. Hence, only a small group of people was trained in the art of inventing and producing the tools and techniques needed to improve and increase production.

Although, in absolute numbers, China appears to have a fair number of scientists, relative figures speak otherwise. At the broadest level, there are a total of 11.5 million people working in science and technology related areas. However, more than half of these are in the health and teaching sectors. If they are excluded, science and technology workers in both state and collective owned units merely represent 0.5% of China's population.^{14/} For each 10,000 workers, there are only 415 engineers, 50 agronomists and 32 researchers. (China Statistical Yearbook, [CSY], 1991:680) Furthermore, due to the disturbances of the Cultural Revolution, which led to the virtual closure of most of China's higher learning institutions and the stigma attached to intellectual professions, the age distribution of technicians and scientists is heavily skewed.^{15/} Russian-trained technicians and scientists are now concentrated in the 52-56 age bracket. The deleterious

effects of the Cultural Revolution are apparent in the slump in the number of technicians and scientists between the ages of 36 and 46. (Conroy, 1992:44 - adjusted figures) It is estimated that China lost the opportunity to train around one million university students and two million vocational students between 1966-1976. (China Daily [CD],26-08-88:4) Such a distribution bodes ill for the period, ten years from now, when most of the Russian-trained scientists will have retired. Not only is the discussed replacement pool much smaller but the educational levels are usually inferior to those of the older personnel.

While reforms have increased the number of trained personnel graduating from higher learning institutions, the rate of increase of personnel in the different professions has been highly uneven. Graduating classes in the engineering professions have almost quadrupled in size since 1978, and agronomists have doubled the number of their graduating students, but increases in the number of students in natural sciences and pure research have been virtually non-existent. (CSY, 1991:634)

Moreover, scientific and technical personnel is highly immobile. Figures released by the State Statistical Bureau indicate that most scientists and technicians have remained in state-owned enterprises. Comparative data gathered in the 1985 survey indicated that collective units (urban and rural) employed a mere 5% equivalent of those working in state-owned enterprises, although they produced 42% of total industrial output value. (CD, 09-12-88:4) By 1991, even with the flow of new graduates, this figure had barely increased, rising to 5.5%. (CSY, 1991:679-681)

The measures used by rural industries to counter this deficiency in technological personnel are examined in Chapter Four. At the outskirts of this discussion it is to be

noted, however, that China's technical human resources are extremely limited and immobile in an era when the gathering pace of technical change in other late industrializing countries is putting great pressure on the country's industrialization process.

- *Current developments*

Policies now emphasize the role of technology as a tool for change and rapid industrial development. Authorities stress the notion that resource allocation in the science and technology sector, both in terms of labour and capital, will greatly affect the country's competitiveness. Priority has been given to the need to upgrade industrial technology and funds have been channelled to this end.

However, it is possible that policy-makers have placed too much emphasis on the power of highly sophisticated imported technology to substantially effect change. Attention should be given to other fields. Strategic choices of how and where to break out of the circle of low productivity and systemic rigidity have yet to be made. Institutions must be reformed; research and production capacities have to be integrated and bolstered; resource allocation decisions favouring technological development have to be made; education must be improved.

It should also be noted that, although cooperation between China's research and production sectors is emerging and more technicians are being trained, science and technology reforms can ultimately be effective only insofar as demand for new industrial technology is raised. (Conroy, 1992:13) As long as the emphasis in state-owned enterprises remains on production targets, the old pattern will repeat itself. The impetus for change is likely to come from enterprises subjected to greater market forces.

Competition being the mother of invention and innovation, industries attempting to outrank their rivals with better, more efficient products will raise technological demands.

With China's economy rubbing against worldwide forces, Dosi's analysis on technological change is becoming increasingly relevant. "The general point is that observed patterns of technological change are the result of the interplay between various sorts of market-inducements, on the one hand, and opportunity and appropriability combinations on the other." (Dosi, 1988:1140) In this respect, rural industries might prove to be, if not at the cutting edge of China's technological development, at least more in tune with its progress. I postulate that their future prosperity will be to a large extent based on their ability to capture and promote technological change—which itself depends upon the extent to which the reforms will modify China's institutional setting.

1.3 INSTITUTIONAL FRAMEWORK AND CHINA'S RURAL ADMINISTRATION

1.3.1 OVERALL INSTITUTIONAL STRUCTURE

The formal institutional framework adopted after 1949 could be thought of as a three-tiered system comprising: the political machine, the Communist Party (CCP); the military machine, headed by the People's Liberation Army; and the administrative machine, the People's Government. (Schurmann, 1968)

While focusing on the administrative structure and how it influenced the allocation of resources, it is essential to keep in mind the fact that in the quasi-totalitarian society which emerged after the proclamation of the Republic, the Party was omnipresent. Juxtaposed with the civil administrative structure, the CCP remains to this day the

influential force behind China's every movement. The management of all sectors of the economy is under a two-track system. Control is exercised along two parallel lines: the party channels act in the political arena, while a governmental administration is in place to oversee the bureaucratic apparatus. Links between the two exist at each level of government. (Eckstein, 1977:130)

The upper most administrative layer is the national government, seat of central decision-making. At the local level, China is divided into provincial regions.^{16/} The local administration has become highly stratified. In traditional times, the imperial administrative system stopped at the county level. Rural communities were largely self-governing, official involvement being limited to informal networks between county magistrates and China's rural gentry. (Fei, 1945) The communist leadership soon realized, however, that the functioning of China as a modern industrial nation required its government to effectively administer the countryside where most of the population lived. (Liu, 1986:116) Their predecessor, the *Kuomintang*, had introduced the *paochia* system and established administrative links at the district, township and village level. These links had proved to be more formalistic than substantive, however. After the revolution, real economic and allocation powers would be devolved to each and every level of the local administration.

1.3.2 RURAL INSTITUTIONAL STRUCTURE: THE COMMUNE

The rural structure which emerged in the People's Republic would be based on the people's communes introduced in the late 1950's. Collectivization and communization were the means by which an administrative structure capable of reaching

deep down into the countryside was established. As a model of development, the commune embodied two main characteristics: a belief in the superiority of collective organization contrasted to the self-reliance of each communes.

The means of production were socialized and placed exclusively under public ownership, which was divided in two major groups; the ownership by the whole people—consisting of state-owned entities, and the collective ownership by the working masses—incorporating communes. (Christiansen, 1990:25) In rural areas, this collective ownership had been preceded by the formation of mutual aid teams followed by agricultural producer's cooperatives. In August 1958, 740,000 cooperatives were merged into 24,000 communes within a period of two months. (Skinner, 1964) In this pristine form, communes were the units in charge of both production and general administration below the county level.

- *Communes, cadres and resource allocation*

Resource allocation choices were vested in cadres of a three-tiered local administrative structure: the commune, the brigade and the production team. The commune was designed as a hybrid organization "combining government and cooperative into one." (Sixty Articles) It was entrusted the functions of local government, local militia and local political party apparatus. By absorbing the administrative functions of the old *xiang* (township), the commune took most of the responsibilities for the provision of welfare services, education, public security and so forth. (Riskin, 1987:120-123; Eckstein, 1977:80) It was followed by an intermediate level, the production brigade, which corresponded to the old natural village, and the production team, which grouped twenty to thirty families of a neighbourhood. Teams provided labour, basic farming

implements and animals. They managed all farming tasks and formed the unit of account for calculating and dividing income. Successive higher levels of organization were in charge of providing access to larger machinery, transport and water resources, general management, and overall planning. (Riskin, 1987:124,173; Skinner, 1964)

The commune collectivized all aspects of peasant life. Land which had been distributed in the early days of the republic was brought under unified management. Ownership of both land and farm instruments was vested in the hands of Commune Management Committees. Along with rural fairs, private ownership of plots was abolished and the whole resource allocation process took place through Supply and Marketing Cooperatives. (Skinner, 1964)

- *Work-point and wages*

Income sharing amongst individuals of the same community was a key feature of the people's commune. A work-point system was instituted to replace wages. Overall commune income was pooled together, and each member received a yearly share according to his work contribution. This egalitarian approach was extended to rural industries. To further ensure relative equal income distribution, jobs were assigned by commune and brigade leaders. The son of a widow could be chosen over a more technically inclined labourer in order to equalize revenues between team or brigade members and their families. Furthermore, wages were not paid directly to labourers, but were returned to the accounting unit of the production team who was in charge, in a year-end exercise, to redistribute revenues among its members.

Rural industries drew—as postulated by the Lewis model—a highly elastic supply of peasant labour at wage rates which were only marginally above the average per capita

income level of peasants of the commune. This wage payment system served as a powerful mechanism for accumulation at the brigade and commune level. The accumulated surpluses served not only to finance administrative expenses or to provide reinvestment funds, but were also redistributed to brigade and commune members through general welfare programs and agricultural improvement schemes.

- *Self-reliance*

Although revenue-sharing prevailed amongst the members of a commune, self-reliance was enforced at the communal level. Communes and brigades were solely responsible for infrastructural investments, subsidiary undertakings and small industries.

Variations in the emphasis placed on different aspects of this structure, and on the extent of peasant activity outside its boundaries, occurred during the twenty years through which communes prevailed. Throughout these years, however, the relative self-reliance of commune and brigade enterprises meant that they were excluded from the state material allocation system. The health of a commune was thus highly correlated to the quality and initiative of its leadership and to available local resources.^{17/}

This arrangement influences China's economic structure to this day. Although the system was overhauled and township governments were reinstated, self-reliance has remained a constant. This goal prevailed not only in terms of material inputs but in terms of human resources as well. Indeed, in order to prevent large movements of population, more specifically rural-urban migration, a household registration system was officially instituted in 1958.^{18/} (Christiansen, 1990) To a large extent, therefore, rural entities have had to rely on the human capital found in their own community.^{19/}

1.3.3 INSTITUTIONALIZING LABOUR IMMOBILITY

Somewhat paradoxical if judged against Lewis's analysis of industrial development, the logic to this restrictive policy is found in China's reliance on urban industrialization. To boost urban development, it was necessary to have terms-of-trade between agriculture and industry that would facilitate the transfer of funds and raw materials to urban areas. As the supply of resources and the accumulation of funds for urban industrial expansion was to come from agriculture, the state saw an interest in limiting urban population to the number needed in industry and administration. The need for migration control appeared in the mid-1950's due to factors including army demobilization, the desire to increase control of the urban labour market and the movement to settle urban youth in the countryside in 1957. Every family received a household registration book listing all family members and categorizing it as either an *agricultural household (nongye hukou)* or an *urban resident household (chengshi jumin hukou)*. This categorization entitled urban dwellers to receive grain rations and other subsidized goods. They also received work assignments through state labour bureaus and usually received access to subsidized housing as well as social and medical insurance. Agricultural dwellers were obliged to provide for their own food while social amenities and benefits were provided by communes, if wealthy enough.^{20/}

Implemented by the Chinese leadership, the overall planning system was envisioned as a preventive method against the disruptive effects of market failures and the negative externalities they engender. It will be shown that their resource allocation decisions also had disruptive effects which further encouraged the perpetuation of a dual economy. Agriculture was perceived, and used, as the sector to uphold the growth of

heavy industries. Resources were siphoned off from the former and invested in the latter. However, unlike Lewis's model, labour was not reallocated from one sector to the other but firmly kept in predefined precincts. The system is thus described in Chapter Two as a *variant of dual economics with Chinese characteristics*.

1.4 THEORIES AND REALITIES OF RURAL INDUSTRIALIZATION

This dualism with Chinese characteristics would be supplanted by a system initiated through the 1978 reforms which came to be known as *"socialism with Chinese characteristics."*^{21/} A major outcome of this renewed socialism has been the spectacular growth of rural enterprises.

1.4.1 RURAL INDUSTRIALIZATION AS A DEVELOPMENT TOOL

Rural industrialization has come to be viewed as a major policy instrument for the reduction of unemployment and the alleviation of poverty. Indeed, the prime objective cited in development works on rural non-farm activities is its capacity to provide jobs for the rural landless poor.^{22/} In many countries, however, it is viewed as a mere supplement to the mainstream process based on modern enterprises. In other cases, countries seem to have adopted a policy of rural industrialization as an alternative to difficult redistributive land reforms. This is the case of a number of Latin American countries.^{23/} As a policy instrument, rural industrialization was well received in the latest structural adjustment round promulgated by major multilateral agencies. It was suggested that such industries would be in line with the comparative advantage of

latecomers on the world scene, and cash in on the entrepreneurial spirit of their population.^{24/}

The development potential of rural industries goes beyond these important yet narrow interests. Development economists postulate a number of positive side effects. Rural job creation is expected not only to lead to an increased standard of living but also to preempt migration into already overburdened urban centres. The pressure on urban infrastructure is thus eased. Large squatter areas, with their lack of hygiene and their abundance of health problems, can be contained. Moreover, extensive rural industrialization prevents the transportation and distribution problems which arise with the transfer of wage-grain which otherwise would have been required to compensate an equivalent increase in urban labour. Furthermore, rural wages should remain lower than urban remuneration even while increasing the standard of living: the labourers do not have to cover the higher living expenses incurred in large urban centres.

Another hypothesis states that investment and talent can be absorbed locally through rural industrialization, thereby decreasing the ill effects associated with a rural-urban "brain drain" or heightened regionalism. Its corollary thus holds that rural industrialization can lead to greater sectoral and regional equality and decentralization. In terms of resource allocation, rural industries would not only distribute resources more efficiently between agriculture and industry, but would also help to fill the rural-urban divide, and would even decrease regionalism by keeping resources in rural areas instead of forwarding them to urban centres.

Finally, rural industries are assumed to beget positive returns to agricultural development. Improvements of the rural infrastructure, such as roads, canals, and

storage facilities, necessary for the successful development of these industries, also benefit agriculture. Such benefits are also amplified by the forward and backward linkages induced by this intersectoral correlation.

In spite of such hypotheses, in a number of developing countries, rural industries have not measured up to these expectations. The linkages are not automatic, and in some cases, rural industries have turned out to be mere branch plants of urban or foreign industries relying on sweat labour subjected to extremely exploitative conditions. From a developmental perspective, it is essential to look at employment as only the first of numerous criteria which should be used to evaluate a rural development program. The linkages should not be merely assumed but assessed. A broader list of objectives is required. Poverty alleviation and increased standard of living are the key objectives, encompassing the worker's welfare and participation, higher productivity and wages, positive spin-offs for the agricultural population not engaged in industry and agricultural development as a whole, rural and local accumulation and investment, and skills formation and technological diffusion.

1.4.2 CHINA'S TOWNSHIP AND VILLAGE ENTERPRISES

Rural enterprises in China have developed at a pace and in a form quite different from those occurring in other developing countries. As the following Chapter will illustrate, their development was at first hampered by the institutional structures upon which rested China's development strategies. However, the economic reforms announced in 1978, which profoundly modified these institutions, fostered an outburst of rural activity.

The term township and village enterprises used in its broadest sense designates all concerns involved in non-agricultural activities in rural areas, excluding those undertaken by state farms. These activities cover the service industries—transportation, construction, commerce—as well as manufacturing and other light industrial works. They can either be private non-agricultural concerns, or township and village collective enterprises.

- *Ownership, management and workers*

Firms owned by individuals and partnerships are termed *private* enterprises. They are the numerous micro-enterprises which have evolved from household and sideline production, or small team production enterprises which have been privatized.

Commune and brigade enterprises have in most cases been taken over by community governments, and thus remained part of the *collective* economy. The ownership of these township or village enterprises has thus been vested in their respective local governments.^{25/} Nowhere else have such corporate organizations been created before; collective township and village enterprises depart from state-owned enterprises as well as any type of private capitalist enterprises.^{26/}

From this perspective, community governments could be compared to investment or holding companies. Their relationship with local enterprises is different the one that existing between the central government and state-owned firms. In fact, as explained in Chapter Three, they are in essence profit-making entities. Following the extensive decentralization and the fiscal reforms which have taken place since 1978, local governments face increasingly hard-budget constraints which prevent them from engaging in deficit financing.^{27/} (Byrd & Lin, 1990:3-6; Interviews)

Collective township and village enterprises are thus under the administrative control of township and village governments. However, day-to-day management is left to directors who are appointed by their respective community governments.

For their part, firms which have been contracted to individual management or to partnerships are developing a managerial system akin to the one existing in western private corporations.

Managers of both private and collective rural enterprises have favoured hiring local labour. Most workers are registered residents of the community where the enterprise is located. The great majority are neighbouring peasants who still sporadically engage in farming activities. In collective enterprises, this privilege is guaranteed by local governments who have decreed periods of time-off during the planting and harvesting seasons. This approach is unique to China, and bypasses the problems arising from the seasonality of rural underemployment underlined by critics of Lewis's model.

Once the local labour pool has been drained, workers from other areas of the province or from other provinces might be hired. Rural enterprises have so far been able to provide fruitful employment to more than 9.2 million workers, ensuring a stable income for some 200 million people living in the countryside. (Xinhua, 6-01-92)

- *Production and the means to produce*

Many of these peasant-workers have become industrial labourers. Textiles, building material, manufacturing and machine building industries are the largest employers. Firms, however, are fairly small in size, a characteristic which has given them the flexibility to capture market niches in areas where state-owned industries are

unable to accommodate selective needs and tastes. This flexibility and adaptability pattern is also present in service industries where numerous rural outlets are often more efficient than large state-owned corporations.

This specialization in services and light industries has the added advantage of requiring relatively low start-up capital.²⁴ This characteristic of rural enterprises has been crucial to their growth and survival. Although community governments have been known to influence the lending policies of local banks to favour rural collective enterprises, general economic overheating has repeatedly pushed the central government to impose credit-tightening policies, discouraging banks from providing funds to rural enterprises. Ultimately, rural enterprises have to rely on themselves, with bonds issued to workers and self-financing constituting the basis of capital formation.

- *Profits and taxes*

This situation accounts for the large part of profits which are directly plugged back into these enterprises. Large percentages have also been transferred back workers through bonus systems. Used as motivational tools, these systems entitle every worker to receive a share of the firms' profits. As production increases, profits grow: as profits grow, personal income increases.

Furthermore, in some areas, local governments have instituted welfare funds, to which every collective enterprise must contribute a share of after-tax profits. These funds ensure the delivery of essential social services to the community.

Communities further partake in the prosperity of local rural enterprises through transfers achieved through taxation. Indeed, local taxes are in large part reinvested in agricultural extension work and rural infrastructure.

In 1988, township and village enterprises throughout the country were already paying 1.168 billion yuan in industrial assistance to agriculture, 2.532 billion yuan for rural collective welfare, and 5.682 billion yuan for various rural undertakings. These three disbursement amounted to 36.2% of township and village enterprises profits for the year. (JPRS,22-08-90)

Local governments thus rely heavily on revenues from rural enterprises to deliver public and social works. It could therefore be said that the prosperity of rural enterprises ensure the viability of community governments. It can further be assumed that the symbiosis between local enterprises and local governments rests on institutional arrangements issued from the reforms. These hypotheses will be further scrutinized in Chapter Three, and will be further validated by figures which underscore China's current rural economic dynamism.

These figures will also underscore China's momentum towards an economic strategy where strict dualist policies are losing ground. They should further validate the thesis at the core of this discussion. Rural enterprises, for the first time permitting labour to move freely from agriculture to industry, are the agents of this change. They have become the equilibrating flow.

CONCLUSION

This overview of dualist and resource allocation theories provides a background to China's dualist development strategies. The necessary conditions to go beyond it have been outlined. On one hand, to bridge the gulf between the traditional and the modern sector, labour must be allowed to flow from one sector to the other. In due course, wage

levels will increase in both sectors and a country's inhabitant will achieve a higher standard of living. On the other hand, if modernization is to occur, savings must lead to increased capital stocks, and technological levels must also improve. It is also suggested that for technological progress, a country must look beyond high-tech hardware. To efficiently boost economic development, technology must in itself be appropriate. Finally, an environment where the capacities for technical innovation, absorption and diffusion are present is essential if the base for future economic growth is to be built.

To understand development strategies and economic growth, it is also important to understand a country's resource allocation mechanism. Communes were the institutional framework which dictated rural allocation for more than thirty years. Even today, their legacies influence rural development schemes, especially rural industrialization.

Since this aspect of development represents the most vital element in China's latest strategy, there is a need to understand the premises in order to understand the outcome. However, institutions are only one of the elements which will ensure a successful rural industrialization strategy. And the measure of this success cannot be judged through output and labour absorption statistics alone. A broader list of objectives should examine workers' welfare, higher productivity and wages, local accumulation and investment, positive spin-offs for peasants and the agricultural sector, skill formation and technological diffusion.

The following chapters review all of these aspects and establish that not only has China been able to break the barriers confining its economy in a rigid dualist pattern, it

has been able to do so due to the positive effects of rural industrialization. Not only has rural industrialization provided jobs, it has helped in countless other ways to increase the standard of living of rural inhabitants and propel China's economy forward.

ENDNOTES

1. While reviewing the evolution of corresponding theories, it is important to distinguish two entwined but nonetheless distinct trains of thought: the analysis of the growth path of a dual economy, in which people move from a traditional to a modern sector, and the analysis of the development potential of surplus labor.
2. Institutions could also be seen as promulgating dualism with the corporate industrialist system organized in a financial system of their own versus the small-scale family based economy and financial system. This commercial sector has also been characterized as a market system based on prices against a traditional barter economy—dualism focusing on the poor integration of these two system with demand and price signals transmitted badly to the subsistence sector.
3. This treatment of surplus labour is different, however, from the concept which would emerge in post-war literature, as it did not imply that increased employment in one sector would not have repercussions on output in other parts of the economy.
4. The notion that wages are equal to a worker's marginal product is a neo-classical notion. The notion of underemployment has been much criticized. It is now commonly recognized that, although labour might seem not to be contributing to the full extent of their productive capacity, their contribution might be much-needed for a production unit to reach its required output. The example of an old woman tilling the familial vegetable plot, while everyone is employed full-time at other productive activities, is often offered in example.
5. One of the caveats included in the analysis refers to the growth rate of industry which must surpass natural population growth in order for development to occur.
6. Nurkse brought a whole new spin to the surplus labour argument by assuming that surplus labour, even if it was seasonal, could be used to create capital. Since part of the population consumed less than they produced, one part of the labour force effectively feeds the other part. Hence, savings needed to create this capital already existed, they were just misallocated. If efficient production was introduced and the remaining peasants were convinced to continue to support the former surplus agricultural labour while they worked on communal construction projects, rural infrastructure could be bolstered. Implicitly, as in the Lewis model, the remaining farm labour is assumed to work harder. This model is hardly conceivable in capitalist societies. However, many observers claim that socialist economies, where such a labour transfer could be enforced by the authorities, have followed Nurske's principle. (Maxwell, 1979:436)
7. For a more complete discourse on the problems faced by a command economy, please see Gregory and Stuart, 1986.
8. An average of 8.5 percent per year between 1957 and 1982.
9. A detailed historical and statistical account is provided below.
10. Index of total factor productivity in State-owned Industry (World Bank, 1985:111)

Measure	1952	1957	1978	1982
Net Output	37.6	100	673.4	98.4
Labour Input	68.2	100	406.6	68.3
Capital Input	44.3	100	948.7	1299.8

Total Factor Inputs (40% labour, 60% capital)	53.9	100	751.8	967.2
Total Factor Inputs (60% labour, 40% capital)	58.6	100	623.5	800.9
Labour Productivity (1 divided by 2)	55.1	100	165.6	170.5
Capital Productivity (1 divided by 3)	84.9	100	71.0	61.4
Total Factor Productivity (1 divided by 4)	69.8	100	89.6	82.5
Total Factor Productivity (1 divided by 5)	64.2	100	108.0	99.7

Source: State Statistical Yearbook of China 1983

11. For a discussion on Lewis and technology see: Ranis and Fei, 1982, "Lewis and the Classicists" in Gersovitz and al. (eds.), *The Theory and Experience of Economic Development*. London: George Allen & Unwin.
12. See section below: 1.2.2, Technological obsolescence.
13. Since any press article has to be sanctioned by China's leadership, figures published in China's dailies are widely viewed as official acknowledgement of the situation.
14. Figures calculated from data given in China Statistical Yearbook, Beijing, 1991, p. 679 and 681.
15. Although data is available for state-owned units only, former regulations ensured that most personnel with any technical qualifications remained in this domain. They can thus be used as a fairly accurate proxy.
16. It is divided into provinces, provincial-level municipalities (zhixiashi) and autonomous regions.
17. If enterprises entered into a sub-contracting partnership with an urban state-owned enterprise, the latter could distribute some of its state allocated materials to this quasi-subsidary.
18. As in any other domain, China experimented with the policies during a period of time before the adoption of the national policy. Different aspects of the new system had been introduced and tried since 1953.(Christiansen,1990)
19. Rustication programs have brought urban youths to the countryside, but their overall influence on local communities has usually been minimal.
20. Please see the article of Flemming Christiansen, "Social Division and Peasant Mobility in Mainland China: The Implications of the Hukou System". *Issues and Studies*, Vol 26, No.4, April 1990, pp.23-42.
21. For a detailed explanation of the term, please see: Zhao, Ziyang (1987) "Advancement along the road of Socialism with Chinese Characteristics," in *Major Documents*. Beijing: Foreign Language Press.
22. Works include publications by:

- Deolalikar, Anil (1986) "Rural employment creation programs in India and Nepal: a review." Paper prepared for the Joint ABD/ILO Inter-regional Workshop on Rural Employment Creation in Asia, Manila.
 - Ho, S.P. (1983) "Off-farm employment and farm households in Taiwan," Paper prepared for the conference on "Off-farm Employment in the Development of Rural Asia," Chiangmai, Thailand.
 - Hossain, Mahabub (1984) "Employment generation through cottage industries: potentials and constraints: The case of Bangladesh," in *Asian Employment Programme Working Papers*, ILO/ARTEP, Bangkok.
 - ILO, (1983) *Promotion of Employment and Incomes for the Rural Poor, Including Rural Women, Through Non-farm Activities*. ILO: Geneva.
 - Islam, Rizwanul (1983) "Off-farm employment in the development of rural Asia: issues and evidence." Paper prepared for the conference on "Off-farm Employment in the Development of Rural Asia," Chiangmai, Thailand.
 - Mukhopadhyay, S. & Che P.L. (eds.) (1985) *Development and Diversification of Rural Industries in Asia*, APDC: Kuala Lumpur.
 - Yang-Boe, Choe (1985) "M-Cycle hypothesis, non-farm activities and rural industries in Asian Monsoon economies: A theoretical generalization," *Paper prepared for the International Seminar on the Role of Rural Industries for National Development in the Asian Region*, Seoul, Korea.
23. Potential political problems which arise when the interests of the latifundia gentry are tampered with can be bypassed with a policy which does not affect them negatively.
 24. Moreover, considering the global scene, it can be assumed that such policies would dovetail into the relocation strategies followed by multinational corporations and national industrialists in search of cheaper labour.
 25. For further explanation, please see section: 4.1.3 below.
 26. In the words of Stanford economist Robert McKinnon and MIT economist Stanley Fisher.(Speaking at the American Economic Association's annual meeting, January 1993)
 27. For a discussion on soft- and hard-budget constraints in a socialist economy, please refer to: Janos Kornai (1980) *The Economic of Shortages*. North Holland.
 28. Indeed, the employment created by rural enterprises, being by nature more labour-intensive, requires lower levels of capital investment than those of heavy-industrial state-owned enterprises. Please see below, Chapter Three.

CHAPTER 2

ECONOMIC DUALISM AND CHINA'S DEVELOPMENT STRATEGIES

This chapter focuses on the overall economic strategy followed in China during the period 1949-79. It is argued that throughout these three decades, dualist policies reign supreme.

Indeed, despite the Party's rhetoric, the peasants were to bear the brunt of China's rapid urban industrialization concentrated in urban centres. Under Mao's dominance, the Chinese Communist Party rode to power at the head of a peasant revolutionary army. It revelled in the ideology of a proletarian-peasant alliance and enshrined the toiling peasant as the archetype of the *new socialist man*. Paradoxically, however, the prosperity and economic development which occurred after October 1949 did little to lighten the burden of the peasantry. In fact, as demonstrated, the synergy between the

institutional system which emerged after the revolution, the dualist policies advocated as well as the growth of the communes reinforced the dichotomy between the traditional and the modern sector of the economy. Furthermore, the restrictive labour mobility policies introduced in 1958 effectively prevented the natural flow of labour which, according to theory, should have occurred between the agricultural and the industrial sectors. When combined, these policies froze China's economy into a two-sector model of growth.

Economic policy and development strategies made several abrupt twists and turns since 1949; even so, as shown in the following pages, China's leaders steadfastly envisioned the country's economy in dual terms.

2.1 SURVEY OF EVENTS

A quick glance at the periodization offered by the Five Year Plans (FYP) will help the reader frame this discussion in the overall context of Chinese development strategies. During the First FYP (1953-1957) the foundation chosen for China's economic development was the Soviet model. It stressed high investment and rapid growth in heavy industry at the expense of agriculture, light industry and services. The Second FYP (1958-1963) crashed in the debacle of the Great Leap Forward (1958-1960) when the pace of industrialization quickened and collectivization was thrust forward with the creation of the communes. When combined with bad weather and natural disasters, the policies resulted in widespread famine. A period of adjustment and rehabilitation ensued (1961-1965), which saw the return of centralization and, at first, somewhat more emphasis on agriculture and related industries. The Third FYP (1966-1970) was disrupted by the Cultural Revolution, which sent China's youth on a rampage in 1967

and 1968. Industrial output suffered but, interestingly enough, the turmoil fostered, in some parts of the country, new and lasting ties between the city and the countryside. Havoc rocked the economy during most of the Fourth FYP (1971-1975). Towards its end, Zhou Enlai put forward an outline for economic modernization. It was not readily implemented but would serve as the basis for Dengist reforms. The Fifth FYP (1976-1980) was marked by the death, in 1976, of both Zhou and Mao. A mighty power struggle ensued. As the uproar abated, major economic reform policies were mapped out and launched. China's *opening* to the outside world, announced in 1978, brought the country into a new economic era.^{29/} The Sixth FYP (1981-1985) saw the blossoming of this "*readjustment, restructuring, consolidation, and improvement*" policy, and marketization began to defeat old dualist barriers.

The domain of science and technology did not follow, however, this five year plan pattern. In fact, throughout these four development decades, considerations regarding scientific and technological developments were often disregarded. Such plans have had at best a chequered history. The first attempt, a twelve year plan announced in 1956, was put on hold during the period of retrenchment in the early 1960's. The inception of the Cultural Revolution caused the abrupt end of the second plan, formulated in 1963, which was to cover a decade. A third attempt at long-term planning came in 1978 and was to include developments until 1985. Along with the first reform package promoted by Hua, it quickly fell into oblivion and was replaced by annual plans until 1981. The Sixth FYP included a science and technology development chapter. At the same time, the State Council approved a report to draw plans up to the 21st century.

While a draft outline has been worked on, it remains unpublished. The most important improvement brought about by this tentative plan was the publication, in 1986, of the Blue Book covering twelve technology policy guidelines.^{30/} Although this exercise represents a serious attempt to map out key industrial technology policies, the details remain unpublished. Their effects on targeted sectors and on resource allocations are thus difficult to assess. (Guangyuan, 1984:chap.XI-I; Conroy, 1992:67-68)

Historical evidence suggests that, following the wisdom of the unbalanced development strategy, research and technological resources were the dominion of heavy industry. This tendency was further reinforced by the militarization of research, which was buttressed by the Third Front policy enacted in 1965 and which lasted for almost a decade. Very little was spent on agricultural extension research or in the consumer goods and light industrial sectors. Furthermore, although military research produced numerous high-tech goods, the knowledge, the blueprints, and even the equipment were all jealously guarded. Technological diffusion was hindered and, unlike Fei and Ranis's hypothesis, technological developments did not push the economy out of its dualistic pattern.

2.2 THE SOVIET MODEL

2.2.1 UNBALANCED GROWTH AND HEAVY INDUSTRY

The basis for China's dualist policies had been transferred in a wholesale fashion from the Soviet Union, imbedded as they were in its organizational structures and operational mode. As such, a central planning system reliant on material balances and planner's advice was introduced to oversee the resource allocation requirements of the

entire economy. The Soviet model's emphasis on capital-intensive heavy industrialization was duplicated. The extensive growth strategy called for a *big push* approach and all available factors of production were mobilized towards this sector. Under the First FYP plan, of the total state investment in capital construction, only 7.8% went to agriculture. Of the investment in the industrial sector, 88.8% went to heavy industry, leaving only 11.2% to light industry. (Barnett, 1968:135; World Bank, 1983, Annex II:6) This strategy would unbalance the economy for a long time to come, affecting agricultural output, labour productivity in both urban and rural sectors, consumption, and employment patterns. (Riskin, 1987:74)

- *Acquisition and allocation of resources*

Technological advances were primarily based on the transfer of Soviet equipment and expertise. A 1950 treaty provided for fifty industrial units to be supplied under the Sino-Soviet agreement, and in 1953 further importations were agreed upon. A total of 157 turnkey plants were bought from Russia. (Liu, 1987: 215) The focus being on heavy industry, the total included only one tractor plant and three chemical fertilizer plants. (Yang & Li, 1980:199) Technical expertise was also imported. Although some 6,000 Chinese scholars and workers were trained in Russia, the real apostles of change were the Soviet experts who relentlessly supervised the assembly process, worked on blueprints, and initiated research. During the golden years of Sino-Soviet relations, over 12,000 Russian and Eastern European engineers and technicians were transferred to the People's Republic. (Meisner, 1986:123) Their sudden departure in 1960 left numerous gaps which proved hard to fill. Fortunately, before this exodus, China had been able to

establish some 840 research organizations (some attached to university departments), including the renowned Chinese Academy of Sciences. (Guangyuan, 1984:621)

2.2.2 INSTITUTIONS AND ALLOCATION OF RESOURCES

At this early stage in China's development, both the apparatus put in place to oversee these agencies as well as the production and distribution processes were directly linked to the centre: local governments remained uninfluential. State ownership of the means of production was completed by the end of 1956. (Spence, 1990:547) The accelerated rate of acquisition heralded numerous managerial problems. With the elimination of private owners, planners had to deal with a large number of newly merged enterprises. Moreover, the output of these enterprises had to be handled by state marketing channels. With the underdevelopment of China's transport and communication systems, compounded by an overall scarcity of technical, engineering, accounting, and even planning personnel, central planning was bound to be fraught with many obstacles. Nonetheless, the regime was slowly creating an administration which was gradually capable of covering the entire society. The emerging vertical hierarchical structure attempted to penetrate sectors traditionally free from governmental influence. Their scheme would become reality in the next development phase.

In the meantime, the accent placed on capital formation in industry was unequivocal and overwhelming. A strong emphasis was placed on the development of large-scale metallurgical and machine-building industries. Investments in medium- and small-scale projects associated with light industry, although given lip-service in the official plan, were set aside. Consumer goods were soon deficient. Agricultural growth,

for its part, was to serve the industrialization race. (Bachman, 1985:101; Dernberger, 1980:95)

Planned rapid industrialization, the cornerstone of the First FYP, led to direct state intervention in agriculture. Essential capital goods, needed to build China's industrial base, had to be imported from the Soviet Union. They were financed by agricultural exports, mainly grain and cotton. According to a Chinese economist writing in 1957, agricultural products accounted for as much as 75% of the total value of exports. (Liu, 1986:290) Furthermore, agriculture had to provide raw materials for both heavy and light industry. Over one half of the total value of heavy industrial output was dependent on the supply of agricultural materials, and in light industry this proportion increased to 80%. Some of the goods were purchased with the revenues gathered from rural taxes or with rural savings transferred to industrial loans, but the great majority was ultimately obtained at low prices through government procurement quotas.

- *Procurement prices and Supply and Marketing Cooperatives*

Grain constituted the major wage good for the urban industrial work force. In the first five years, industrial employment rose by some 6,000,000 workers while overall urban population jumped from 70,000,000 to 100,000,000 inhabitants. (Meisner, 1986:124) The authorities understood that if grain and raw materials prices could be kept low, unequal terms-of-trade would secure a direct subsidy to urban industries. Moreover, in order to maintain high industrial accumulation rates and freeze wages while maintaining the urban worker's contentment, it became imperative to control the price and delivery of grain. State procurement prices were instituted and compulsory delivery was introduced in 1953. To strengthen these measures, the government put in place

Supply and Marketing Cooperatives and Federations, which were in charge of buying and selling agricultural produce. To further their claim, a mid-1954 decision prohibited the sale of surplus grain on private markets and deprived peasants of alternative outlets.¹⁷

Markets and rural fairs had, through the centuries, developed an extensive network and constituted the main rural resource allocation mechanism. (Skinner, 1964) Since ancient times, traders gathered at fairs to exchange agricultural products, daily necessities, and locally-produced consumer goods. These private markets were slowly asphyxiated. With their disappearance, state monopolies depressed the price paid to peasants who had no recourse but to sell to the state. This new system raised the share of government involvement in wholesale agricultural marketing to three quarters of total output, thereby greatly boosting the net flow of resources, minus labour, out of rural areas to urban industries. (Lardy, 1983:30)

2.3 DUALISM: DETRIMENTAL TO AGRICULTURE

Nonetheless, agricultural surpluses flowing back to the state and urban centres were still too small. Although land reform had increased the share of the poorest members of society through income redistribution and increased peasant incentives to invest, production patterns remained unchanged. The constraints faced by Chinese peasants had always been quite stringent. Land improvement schemes such as small-scale irrigation had been carried out long ago. China's geography through the centuries had compelled the vast majority of its population to live on only a small fraction of its land mass. The unusual demographic explosion which marked the 18th century further contributed to worsen the land scarcity problem, constraining an ever greater number of

people to live off the same small viable area. (Bianco, 1971:91) Reportedly, 90% of its inhabitants lived on one sixth of its territory. (Riskin, 1987:22) Consequently, on the dawn of Revolution, only 8% of farm households had more than 3.3 hectares of arable land. In this land-scarce country, the ratio per agricultural worker was a mere 0.62 hectares. (Lardy, 1984:5; Riskin, 1987:31).

Even with land reform, poor peasants did not gain much acreage. At the same time, ownership rights made rents obsolescent. Economic theory posits that the poorer segments of a society have a higher income elasticity of demand for food. Validating this hypothesis, China's grain surpluses, which had been previously transferred to landlords, were now consumed at home. In a speech on July 1955, Mao warned that: "...the level of production for commodities, food, and industrial raw materials in our country is very low, but the needs of the state for these raw materials grow from year to year... (I) If we cannot resolve this contradiction... we shall not be able to complete our socialist industrialization". (cited in Fernald, 1971:121) The leadership's answer to the increasing needs for agricultural surplus came under the guise of collectivization.

2.3.1 INSTITUTION BUILDING: COLLECTIVIZATION

Investment decisions were taken away from individual producers and vested in cooperatives. This institutional transformation was an attempt to build control mechanisms into China's economic fibre in order to induce high rates of savings. Commune cadres were to manage accumulation and investment funds, pursue yield increases, and blaze the trail for the technological revolution needed to further increase agricultural output. The government hoped that the inherent element of control present

in the structure of collectives would enable them to siphon off larger shares of agricultural output. The process was to foster larger transfer of resources to the industrial sector thereby setting the stage for more direct planning.

The Collectivization effort, which began with the introduction of mutual aid teams in 1955, was thus envisioned to fulfill a number of tasks meant to transform China's society into a fast-growing economic entity. It was believed that by regrouping arable land, new production and resource allocation patterns resting on economies of scale could be initiated. For example, cash crops could be introduced to replace subsistence farming. Mechanization could take place more rapidly and community resources could be pooled to acquire (or produce) equipments. Unfortunately, impressive improvements in agricultural technology—such as high yield varieties of rice, irrigation, and fertilizers—which ought to have raised yields and factor productivity were all but wiped out by various forms of bureaucratic misallocation. (Lardy, 1983 & 1985)

2.3.2 PRICE-SCISSOR EFFECT

Purchase prices for grain were a direct transfer from the agricultural to the urban sector, where low grain prices enabled the state to freeze wages despite an annual three percent increase in productivity and four-fold rise in the value of output of state-managed enterprises. (Lardy, 1983:122) This policy was to be long-term, and between 1958 and 1978, procurement prices paid for agricultural products were only adjusted twice. These unfavourable terms-of-trade against agriculture had two aspects. Between 1957 and 1976, grain yields increased by 36%, while production costs went up 54%. (Ip & Wu, 1983:310) The low price the state paid for produce like grain and cotton, and the high

prices peasants paid for industrial inputs such as fertilizer and machinery, combined to create a *price-scissor* effect.

Sales of manufactured inputs of farm machinery, electric power and fertilizer soared after the adoption of the *agriculture first* policy in 1961. The value of producer goods sales to the farm sector doubled between 1961 and 1970, and again between 1971 and 1977. Hence by 1978, producer goods sales exceeded 60 percent of the sector's gross commodity sales to the state. (Lardy, 1983:106) Estimating real prices paid by Chinese farmers is difficult but Lardy has produced comparative estimates for nitrogen fertilizer and small tractors. Profits on fertilizer were high, the nitrogen-paddy price ratio of 4.39:1 in 1976, was the highest in Asia. Such high prices constituted a substantial indirect tax on agriculture. Machinery was also overpriced, even more so if quality is taken into account. A 28 horsepower *East is Red* tractor sold for the equivalent of 35.5 tons of rice equivalent, while in Japan a comparable 20 hp tractor sold for the equivalent of 5.5 tons of rice. Discounting the Japanese government's subsidy which priced rice at three times world levels, the Chinese model remains over twice the world price for such a tractor. (Lardy, 1983:115)

2.3.3 INVESTMENT AND DUALISM

The dual policy between the traditional and the modern sector was carried further. State investment in agriculture was minuscule in proportion to the contribution made by this sector to the national economy and the work force it employed. Capital construction investment—more or less equivalent to domestic gross investment—typically accounted in the agricultural sector for 10 to 12% of the state budget. (WB, 1983:Vol II,55)

Ishikawa estimates the sectoral investment allocation coefficient for heavy industry, light industry and agriculture at 50.9, 5.9% and 11.2% respectively. (Ishikawa, 1983:259)

In the First FYP, as little as 7.8% was earmarked for agricultural capital and the all time high occurred in 1979 when 14% was allocated. (Ip & Wu:310; WB, 1983; Vol II:55) Lardy further argues that reported levels of state investment in agriculture might be overstated, since figures for forestry, fisheries, and meteorology were included under that heading. For instance, two thirds of total state funds earmarked for agriculture between 1949 and 1979 went into *water conservation* projects (dams, canals, water supply, and drainage systems). These benefited agriculture but also contributed to the urban sector supply of water. Moreover, the amounts allocated to capital-investment for cropping and animal husbandry appear to have been almost completely absorbed by state farms, which were capital-intensive with a low man to land ratio. State farms employed by 1978 only 1.6% of the rural labour force on 4.4% of cultivated land but owned more than 13% of combined state and collective agricultural fixed assets. Clearly, collectives had to rely almost exclusively on self-investment to increase their ratio of fixed assets to labour, with little help from banks or state transfers. (Lardy, 1983:132-138)

2.3.4 LABOUR IMMOBILITY

Labour allocation was also subject to the forces of dualism. As suggested by theory, the growth rate of the industrial labour force should largely be a function of the rate of accumulation in the industrial sector, which is itself governed by the rate of profit on industrial capital. In China, this profit rate appeared to be inversely related to the level of state prices of agricultural commodities. As we have seen, high agricultural

prices would have adversely affected urban labour costs and the cost of raw material inputs such as cotton. (Putterman, 1991:469) Measures were thus taken to ensure low agricultural prices resulting in high extractive rates. Through the years, agricultural labour was mobilized to increase investment, to improve agricultural extension, to provide grain to feed urban population, and for exports. (Perkins, 1975:93) So far, China's case does not differ very much from the pattern described in dual economic theories. Wages were, in the industrial sector, higher than those of the traditional sector, and resources were transferred from the low productivity sector to the higher productivity sector.

However, in order to prevent a rural-urban exodus, and keep the amount of urban labour to the smallest denominator, leaders introduced the household registration system (*hukou*). Furthermore, job assignments were made the exclusive jurisdiction of the state: very few farmers were allowed to become workers. These policies impeded labour to act as the equilibrating flow between land and capital, and negated the positive effects which, according to theory, large investments in the modern sector should have initiated. This *immobility* of China's overall labour force froze the economy into a dualistic pattern where all resources, except labour, were allocated to heavy industry.

Yet, the attempt to extract resources from agricultural sources will at some point show diminishing returns. If agriculture is permitted to become extremely depressed, the extractive policy will backfire, as agriculture will prove incapable of supporting industrial growth.^{32/} This phenomenon has repeatedly influenced the People's Republic history. An investigation showed that crop production strongly affected industrial output growth in China between 1949 and 1958. (Tang, 1984) However, the phenomenon of

low agricultural performance bringing down industry in its wake might be more dramatically illustrated by the Great Leap Forward.

2.4 THE GREAT LEAP FORWARD

2.4.1 RURAL INDUSTRIALIZATION

By the summer of 1957, production and transportation bottlenecks were plaguing the system. Local governments had been asking central government agencies for larger shares of energy resources, industrial raw materials and heavy industrial products. However, given the circumstances, members present at the National Planning Conference contended that a large share of the responsibility for coping with shortages could be transferred to localities themselves. (Bachman, 1985:132) National decision-makers legitimized their decision by intimating that small-scale plants could economize on a number of scarce resources. It was argued that rural enterprises could expand overall industrial production, reduce transportation costs, and rationalize production while fulfilling the task at a low opportunity cost. They were to mobilize resources which had little alternative usage. These included raw materials unwanted by the modern industrial sector—due to their poor quality or removed production sources—as well as unskilled labour seasonally underemployed. Henceforth, discharged of perennial obligations, the central government could concentrate on pursuing its capital construction drive in heavy industry. (Rawski, 1980:218)

- ***Self-reliance and backyard furnaces***

Rural industries, for their part, became the epitome of Mao's decentralized vision, based on the mobilization of the masses' will and energy. Complete self-reliance was

to be their ultimate goal. The ensuing decentralization decision led to a downward transfer of most of China's light industrial sector and called for the rapid build-up of regional industries. Rural enterprises mushroomed throughout the Chinese countryside.

Backyard iron and steel factories were to be the hallmark of the movement. According to Mao, they were to help China "*overtake Britain in 15 years.*" (cited in MacFarquhar, 1989:377) The first nine months of 1958 saw the establishment of 7.5 million new factories and workshops. (Riskin, 1987:117-119) Rural communes set out to establish a large number of enterprises by siphoning off materials, funds and labour which brigades had been formerly investing in other traditional sideline production. They annexed, or coopted, 30,000 handicraft cooperatives which had previously nourished the economy of small towns. (Byrd & Lin, 1990:9) The new enterprises engaged in casting iron and steel and supplying the agricultural sector with chemical fertilizer and farm outputs such as oil, sugar, textiles, and other goods designated for urban markets. The corollary to this expansionist drive meant that as light industrial outputs grew, China's raw material base, which provided its inputs, had to increase proportionately.

Thus, although the new policy championed the growth of small rural industries scattered through the countryside, the dichotomy between the traditional and the modern sector endured. China's dualist pattern had a logic of its own and was well ingrained. Farmers had still to fulfill the needs, in raw material inputs and wage grain, of China's urban industrial complex. Instead of being lightened, their burden was further increased by the new provisions, as peasants now had the added task of providing for the needs of small-scale rural industries.

Defying Lewis's predictions, labour was transferred from fields to furnaces, but wages remained frozen at low levels, both in rural and urban sectors. Furthermore, since little modern capital was left to invest in light industries, localities had to rely on themselves to develop their capital resources. (Schurmann, 1968:203) Yet, although large amounts of savings were invested in the expansionist drive, the quality of the capital goods acquired was questionable. The self-reliance drive was pushing local leaders to rely almost exclusively on *native* and labour-intensive techniques.

Throughout this process, the sudden expansion clamoured for an ever increasing amount of raw materials. Collectivization, which had been conceived as a means to increase the pace of the extractive process, was promptly followed by communization, meant to further accelerate this process. Collectives were pooled to become communes formed of thousands of households. By December 1958, China's 740,000 rural collectives had been merged into 26,000 communes, containing approximately 5,000 households each. (Riskin, 1987:123) All private property was turned over to the state and rural fairs were abolished, annihilating the last bastions of market mechanism. This Leap, and its *mobilization* movement attempted to advance the revolution by promoting a fundamental transformation of peasants' working habits and social organization.

2.4.2 PROBLEMS OF COMMUNAL AGRICULTURE DURING THE GLF

- ***Redefining social structures***

The main source of rural industrial labour came from the fields; the capital, from handicrafts industries. As every locality was meant to establish small-scale industries by using its own financial resources and local labour power, large numbers of male peasants

were transferred to the industrial sector. In 1960, the number of peasants working in the fields had been reduced by 40 million compared with the 1957 figure. The ration of industrial to agricultural workers, which had been 1:13.8 thus plummeted to 1:5.6 by 1960. (Liu and Wu, 1986:267) To counter the agricultural labour shortages which ensued, thousands of women were mobilized to work in the fields. Even children were affected by the new social structures which accompanied communization. Older women were in charge of the communes' progeny, gathered at communal daycare centres. Mess halls, where cooking was performed by special work teams, fed the entire population. Nuclear family ties, which unlike kinship affiliations had so far survived the forces of change, were placed under great stress. With women working in the fields, no one was left at home to care for private businesses and household handicrafts fell into oblivion. (Schurmann, 1968:472) Work methods were militarized and loudspeakers appeared in almost every village, dictating the schedule and appropriate conduct of its inhabitants.^{33/}

- *Cadres allocating resources*

Concepts of comparative advantage were totally disregarded. Peasants were told to *take grain as the key link*. Fields, better suited to grazing than wheat production, were nonetheless recklessly plowed and sowed. (Lardy, 1983:183) Unfortunately, a record harvest, in 1958, led the leadership to believe its own fairy tale. Increased expectations were placed on the peasantry. Although total cultivated area decreased—to a large extent due to massive hydraulic projects also pursued during this era—higher procurement quotas were issued.^{34/} Multiple cropping and deep plowing were hoped to compensate for the lost of cropland. The import of food grain was virtually curtailed while export of cereals raised between 1957 and 1959 from 1.9 to 4.2 million tons.

(Dreze & Sen, 1989:210) The foreign exchange thus gained was invested in the industrialization process of the modern urban sector. With all these factors, and with procurement rates well above the levels of the 1950's, rural cereal consumption fell by 23.7%. (Lardy, 1983:153; Ibid:211)

Resource allocation choices were vested in cadres of a three-tiered local administrative structure. The decentralization and mobilization effort required a large supervisory personnel. Over two million cadres were assigned downward. Since the slightest notion of opportunity cost and comparative advantage was subdued by the drive for self-reliance, the allocation choices made by these cadres baffled reality. In the overheated, politically charged atmosphere, production targets were set in a haphazard and increasingly ideological manner, far removed from an analysis based on factor endowments or feasible growth rates. Each hierarchical level set targets higher than those exacted by their immediate superior. By the time grassroots cadres were commanding production, targets had been multiplied numerous times. These circumstances induced a production drive which drained both natural and human resources. This situation, combined with bad weather, doomed over 30 million peasants to death by starvation. (Dreze & Sen, 1987)

- *The great famine*

By 1959, the strains on the Chinese economy were very clear. The total output value of agriculture dropped by 13.6% from the previous year while national income plunged from 23.1% to a mere 8.2%. (Yang & Li, 1980:190) Per capita food consumption in 1957 in calorific terms had been about the same as in 1930. During the 1959-61 famine, there was a massive fall in consumption. Grain production in 1960 was

about that of 1951, while throughout the decade population growth rates had averaged 2.2%. The brunt of the decline was borne by the peasantry, whose average grain consumption in 1960 was a mere 163 kg. It represented a 25% decrease from 1957 (1930) levels, whereas urban consumption fell by only two percent. (Yang & Li, 1980:193) "The Chinese Communist Party chose to insulate urban consumers from the effects of famine...by stepping up forced deliveries and drawing down state controlled stockpiles."³⁵/

During this time, rural industries which had spread so prolifically had merely competed to fulfill quotas. It was recorded that backyard furnaces produced some 3 million tons of steel of such low quality that it was virtually useless. (Kraus, 1979:103) The drain such ventures imposed on resources which could have been used productively elsewhere was staggering, and the repercussions of these policies can be felt to this day. The most eloquent example resides in the wholesale deforestation which occurred in many parts of the country, in order to fuel steel and iron furnaces.

As agricultural output drastically declined, the deep depression spilled over into the industrial sector. The linkages existing between agriculture and small-scale industry meant that an output decline in the former led to a shortage in the latter. In other words, small-scale industrial demand for input could not be met by agricultural output. Gradually, this situation forced the consumer goods manufacturing sector to curtail its operations. Industries began to operate below capacity, new construction projects were terminated and machines and equipment orders from producer industries were canceled. The capital goods sector was not spared from the effects of this depression and heavy industry was soon also engulfed in the deep economic crisis. The industrial economic

system suffered a final blow in 1960 when Soviet authorities, displeased by the political and economic initiatives of the Chinese leadership, called for the withdrawal of all Soviet experts within one month. It tore up the 348 construction contracts it had signed with China, canceled some 257 scientific and technological cooperation projects and halted the supply of all materials and equipment. (Liu & Wu, 1986:269)

Trade between the two powers dwindled and projects, such as the Nanjing Bridge, which was to link for the first time the north and south shores of the Yangtze River, were literally left standing in mid-air. This massive recall of Soviet experts, combined with the economic depression which followed the Great Leap, dealt a severe blow to the science and technology sector. Scarce resources were redistributed away from research into productive sectors: national science research expenditure would fall by nearly 30% during the recovery years.^{36/}

The national grain reserve had been depleted. The birth rate slumped and the death toll recorded remains the largest to have occurred in peace time. Clearly, the resource allocation channels which had been put into place and the administrative structure set up to manage production and distribution of goods had gone astray.

2.5 READJUSTMENT YEARS AND THE CULTURAL REVOLUTION

2.5.1 READJUSTMENT AND REHABILITATION

Although disruptive both at the social and economic levels, the Great Leap Forward had provoked the spread of industrial techniques throughout the countryside and the rise of small-scale rural enterprises on an unprecedented scale. The organizational structure based on a hierarchy of local cadres had grown stronger and its decision-makers

had embraced the concept of local capital accumulation. The rehabilitation period would impose a temporary recentralization of power and compel numerous industries to close. It instilled, however, notions of profitability and competitiveness among the emerging new managerial force.

- *Re-allocating resources*

The Chinese economy was put into the hands of party pragmatists, headed by Chen Yun. (Bachman, 1985) Moderation was the keyword of this period. Investment in capital construction was reduced by 85% between 1960 and 1962. (RMRB, 14-06-85:5) The Party decreed that, starting from January 1961, profits retained by enterprises would be reduced from 13.2 to 6.9%. The funds retained were not to be used on capital construction projects, but rather on the welfare of the work force. The savings rate, which had climbed over 40%, was reduced to 10% in 1962. (RMRB, June 14, 1985:5)

The *Seventy Articles of Industrial Policy* promulgated in December 1961 forced all industrial units registering losses to cease operation. (Riskin, 1987:129) Furthermore, a statutory 90% of China's labour force was to remain in the agricultural sector in order to ensure the survival of its productive forces. (Riskin, 1987:129) These and other readjustment policies helped to restore the economy. From 1962 to 1965, the overall economic situation improved gradually, and by mid-1966 the economic revival was a reality.

- *Losing ground*

However, rural industrialization was not doing nearly so well. The decrees of the Seventy Articles focusing on economic delinquency had been the death knell for many

rural industries. In other cases, shortages of agricultural manpower had compelled many commune and brigade enterprises to terminate non-agricultural projects. From the heights small-scale industries had reached during the Great Leap Forward, total output value plummeted from 10 billion yuan in 1959 to a mere 1.98 billion yuan in 1961. It plunged further to 410 million in 1963, a level well below estimates of pre-liberation handicraft production. (Byrd & Lin, 1990:10)

A counter-trend was operating, however. The Party Central Committee had issued regulations, in June 1961, which stipulated that handicraft groups which had been amalgamated into large state or commune-owned enterprises be switched back, and their production be restored to light industrial goods. Moreover, in order to restore and develop the production of articles in daily use, the government gave these producers priority in the supply of fuel, energy and raw materials.

These policies contributed to the revival of numerous trades, and the survival of an industrial core in the countryside.^{37/} The renewal of rural market fairs, which had been reinstated in May, gave an added impetus by providing outlets for its merchandise. (Donnithorne, 1967:232-234; Liu and Wu, 1986:279)

In time, with the increasing tendency of craftspeople to utilize the equipment and work methods of a technical level higher than those of traditional times, handicrafts would disappear as distinct entities and be amalgamated to the light industrial sector. Small-scale producer industries were thus allowed to re-emerge. Fortunately this time, with planners stressing the importance of accountability, rural industrialization would be based in the realm of reason rather than the realm of emotion.

2.5.2 CULTURAL REVOLUTION

However, by 1966, another upheaval was in the offing. Although the economic situation had improved substantially, the political atmosphere was overheated. The third and fourth FYPs were to be carried out amidst the violent Cultural Revolution (1966-1976), which was sparked by a leadership struggle over Mao's decision to adjust industrial targets upwards. This policy was to reverse once more the investment flow, with heavy industry grabbing 61% of total capital construction. (Yang & Li, 1980:191)

This time, however, the new movement proved to be an impediment to urban industrialization. In the wake of the Cultural Revolution, the urban industrial system was held hostage, with factories being torn by internal power struggles and workers being called upon to join the revolution. Shortages began to be felt as production runs of numerous state-owned enterprises ground to a halt. Between 1966 and 1967, industrial output sank by about 14.8%. Only by mid-1968 would production be restored to semi-normal conditions. (Kraus, 1982:196; CSY, 1991:394)

- *Making a come-back*

This situation could have been disastrous, and could have even forced the economy into a second depressionary slump. However, some rural communities took advantage of this situation to set up factories in their area. The self-reliance movement and the decentralization drive, which were an integral part of the Cultural Revolution, empowered lower level cadres. Local governments regained the rights to allocate all output from local small-scale industries according to their own preferences, tastes and needs. (Wong, 1985:260) *"Whoever builds and manages the enterprise has the use of*

its output" became the official slogan and many local governments eagerly followed its dictum.

These operations were simultaneously castigated, and hailed as *tails of capitalism*, by the mounting ultra-leftist forces. (Byrd & Lin, 1990:10) Under these leaders, grain production was emphasized at the expense of other rural activities. The first three years of the Cultural Revolution were particularly debilitating to the expansion of rural industries. However, thanks to the 1970 Northern Agricultural Conference, the activities of some of these enterprises were endorsed when they provided agricultural support and produced agricultural machinery and tools. (Sen, Byrd and Lin, 1990:119)

- *Third Front policy*

During this time, investment in state-owned enterprises was affected by the wave of paranoia which overwhelmed China. Its leaders initiated a massive relocation of *sensitive* industries towards the interior known as the *Sanxian* (Third Front) region.⁶⁸ The Third Front policy was rooted in the safeguard of productive and research facilities to create a capacity to support protracted warfare. The idea had first appeared in the early 1960's when Russia had become an enemy. Due to security reasons, little information has been published regarding the true extent and effects of this policy. Yet, as a military priority, the sector must have been allocated important resources. It is assumed to have had major investment repercussions until the mid-1970's. Recently published numbers would indicate that it accounted for 53% of national investment in 1966-70 and 41% in 1971-75. (CD, 20-10-88) In the last twenty years, some 200 billion yuan would have been invested with an industrial capacity representing 25% of national total industrial output value. It is estimated that in addition to over 1,000 key industrial

enterprises, some 200 research units would have been located in these frontier areas to support production. (CQ, 1988:351-86)

A large percentage of China's educated elite was relocated to the Third Front, with the best minds devoted to military developments. The research and innovations they achieved were for the most part highly confidential, an important exception to the *free flow of knowledge* principle. Few practical industrial applications were leaked to the civilian sector. This hiatus in technological transfer, which otherwise could have led to an upgrade of the country's productive forces, was reinforced by the treatment reserved to intellectuals during the Cultural Revolution. Universities were closed and youngsters remained untrained, while scientists and professionals were sent down to be reeducated by the peasantry.

After the conclusion of the most violent phase of the Cultural Revolution, the Chinese economy momentarily picked up. In 1970, agricultural production increased by 11.5%, while industrial output production jumped by 30.7% from the preceding year. This positive departure was unfortunately mistaken for another leap forward, and by 1975 investment in heavy industry once more amounted to 59% of all new construction. (Liu, 1986:292; Yang & li, 1980:191)^{39/}

2.6 MAO AND BEYOND

In September 1976, an era died along with its hero. Soon after the death of Mao, the political landscape changed drastically. The ultra-leftist Gang of Four was tried and used as a scapegoat for the problems which had engulfed China during the Cultural

Revolution. The new leadership, headed by Deng Xiaoping, put revolutionary politics and class struggle aside and embarked on a journey to make the nation a wealthy one.

The results of the one-sided development of China's five-year plans is shown dramatically in the country's overall growth figures. According to a Chinese economist writing for the officially sponsored Red Flag in 1981, from 1949 to 1978, the heavy industry sector in China increased 90.5%, light industry 19.7%, and agriculture 2.4%. (Song, 1981:6) In 1949, the value of industrial output was 30% of the total output value of industry and agriculture; by 1978, industry had increased its contribution to 74%. (RMRB, 02-10-79) In pre-liberation China, 14,078 enterprises were established in major Chinese cities employing some 680,000 workers. The number of these enterprises had reached 400,000 in 1978, employing more than 40 million workers. These figures represent a daily average of 21 new enterprises entering the Chinese economy. (Ibid.) Nonetheless, at the dawn of the 1978 economic reforms, more than 80% of China's population were still farmers whose standard of living had barely increased from pre-liberation days.

These figures underline serious imbalances leading to qualitative weaknesses. For thirty years, the emphasis was placed on the production of crude steel to the detriment of light industry and consumer goods, while constant extractive pressures were kept on agriculture to supply the materials and funds needed for such an expansion. Investment funds, which accumulated at rates far superior to those of most industrialized countries, were distributed ineffectively. They were spread over too many large heavy industrial projects, which took for too long to complete, and which resulted in an astonishing waste of funds, materials, technological developments, and labour power.

However, since the Gang of Four and misguided mass campaigns had been identified as the cause of China's economic problems, Mao's economic strategy had not yet been rejected. Thus, although a renewed call for the Four Modernizations was formally included in the CCP's constitution adopted in August 1977, the early reforms which ensued were based on a hefty dose of urban capital-intensive investment. Hua Guofeng's original program, in early 1978, had the State budget for capital construction increased by 32%. His 120 large-scale pet projects were either of a heavy industrial or infrastructural nature. They were to include: ten iron and steel complexes, nine non-ferrous metal complexes, eight coal mines, ten oil and gas fields, thirty power stations, six new trunk railways and five key harbours. Eleven of twenty-two turnkey plants were planned to be purchased from Japan and Western Europe. Cost overruns quickly doomed the project and Hua Guofeng was forced by Deng Xiaoping and other pragmatists to cancel his ambitious plan. (Ho, 1987:7; Hsu, 1989:21)

China's leaders gave their approval to radical reforms which would move the country's economy beyond dualism. The historical turning point came at the Third Plenum of the Eleventh Central Committee of the CCP in December 1978, and is the subject of the following chapter.

CONCLUSION

Development strategies have lasting effects on a country's economy and the lives of its inhabitants. In the early years of the People's Republic, its leaders chose a strategy of unbalanced growth, with high investment in urban capital-intensive industries. Exploiting agriculture to generate increased savings for industrial investment, the central

government fortified the industrial sector while little care was taken to improve rural areas. Dualist dichotomies prevailed for more than thirty years, while the restrictive labour mobility policies, institutionalized in the *hukou* system, impeded agricultural labour from moving to sectors of higher productivity.

Ironically, the institutional system implemented in the countryside, meant to strengthen extractive practices, eventually became its ally. Communes, left to fend for themselves, gradually invested in local enterprises whenever central authorities relaxed and decentralized administrative procedures. With rural surplus labour providing a highly elastic supply of workers, paid at wages only marginally above the average per capita income, the system became dynamically cumulative. Since large portions of surpluses were reinvested in product development and new industries, the foundations of rural industries strengthened as years went by.

Another positive feature of this institutional arrangement was the full integration of the industrial and agricultural sector. With some of the industrial surpluses earmarked for welfare equalization transfers and agricultural development schemes, no one was left out of the growth process. The legacy of the communal system, even after its complete dismantling, arguably helps rural industrialization.

ENDNOTES

29. The *duiwai kaifang zhengce*, "policy of opening up to the outside" refers to a set of Chinese policies implemented after 1978 that invite but control external influence upon the Chinese economy. The Chinese dislike the term "open door" (*menku kaifang*) adopted by Western media, which bears pejorative connotations from the Opium War days. "Opening up" is a closer translation. (Kleingberg, 1990:3)
30. They cover the following areas: energy, transport and communications, telecommunications, agriculture, consumer goods, machine-building, materials, urban construction, rural construction, housing, and environmental technology. In 1988, two sectors were added: biotechnology and information technology. (Conroy, 1992:68)
31. Transactions at rural fairs declined but a number of other commodities were still traded. Their effective elimination would come later.
32. Due to the adverse land-labour ratio, the gap between farm production requirements and subsistence needs are quite small, and the margin of manoeuvre is quite slim.
33. For an account of these times, please refer to *Chen Village* written Anita Chan, Richard Madsen & Jonathan Madsen (1984) Berkeley: University of California Press.
34. Please see endnote 6 in Chapter One, on Nurske's insight in this phenomenon.
35. Nicholas Lardy (1985) "State intervention and peasant opportunities," in W. Parish (ed.), *Chinese Rural Development*. New York: M.E. Sharpe, p. 41.
36. Science and Technology Funding: National Science Research Expenditure

1st FYP:	1953-57:	14.37
2nd FYP:	1958-62:	97.42
	1963-65:	70.05
3rd FYP:	1966-70:	109.32
4th FYP:	1971-75:	183.33
5th FYP:	1976-80:	260.50
6th FYP:	1981-85:	406.93
7th FYP:	1986-90:	457.89

As per Conroy, p.56 - from 1953-1957 & from CSY:1987-1991.
37. The ministry at the helm of handicraft organizations was the Ministry of Commerce. The *Daily Worker* of November 1961 lavishly praised these traditional domestic organizations.
38. The Third Front region was a large area in the interior southwest which centered on Sichuan.
39. In value terms, industrial output value represents a 27% increase from 1969 and a 65% increase from 1968. (CSY, 1991:394)

CHAPTER 3

BEYOND DUALISM: THE RISE OF RURAL ENTERPRISES

In this chapter, the reform policies and the institutional changes which unlocked China's economy and brought it beyond the confines of dualism are examined and discussed. Institutional changes in the agricultural, scientific, and fiscal sectors together contributed to make rural enterprises the catalyst fostering economic growth throughout the country. The interplay between these factors opened a window of opportunity. Finally, as Lewis had theorized, traditional labour could enter the modern sector.

National economic statistics are eloquent on the subject.^{1/} As rural industrialization observers noted, however, employment is only one of the criteria which validate a rural development strategy. Workers' welfare, wages, and standard of living must also be assessed. The statistical profile of China's rural enterprises offers an overview of the tendencies influencing rural economic growth.

At the provincial level, Jiangsu, a pioneer province and stronghold of rural enterprises, provides an ideal example of the unevenness of their takeoff. The contrast between its northern and southern subdivisions exemplifies numerous regional variances, and underlines some of the causes which might help or hinder the growth of rural enterprises. Geographical factors and institutional structures are singled out as major causes of regional discrepancies. Systemic variations, man-made and therefore the only ones open to change, are further examined by a careful scrutiny of the rural development model which has taken hold in southern Jiangsu, best known as the Sunan model.

3.1 DUALISM AND ECONOMIC REFORMS

The early reform program proposed by Hua Guofeng had thrown the economy into serious imbalance. It incensed Deng Xiaoping and other reformists to sharply criticize the neglect of a comprehensive balance which had prevailed since the foundation of the Republic. They denounced the former rural economic strategy as being excessively devoted to grain self-sufficiency. They also condemned industrial strategies that relied too heavily on heavy industry. These views would be reflected in the document presented at the Third Plenum of December 1978. It called for the traditional order of priority given to heavy industry, light industry and agriculture to be reversed. The readjustments and reforms which followed contained an implicit attack on the dualistic character of the Chinese economy.

3.1.1 INSTITUTIONAL CHANGES IN AGRICULTURE

The reforms in China have operated on three fronts: the rural sector, the urban sector and the open-door policy.^{2/} Reforms in the rural sector can be divided into two distinct phases. The first, from 1979 to 1984, was concerned with agriculture and the creation of rural non-farm work. The 1984 *Decision of the Central Committee of the CCP* concerning reforms of the economic system disclosed a blueprint for creating "socialism with Chinese characteristics" based on a "socialist commodity economy". This document would extend the reforms to other areas of the economy as well as to urban centres, reaching well beyond the confines of pure rural restructuring. (Zhao cited in Major Documents, 1990:405)

- *Procurement prices and Responsibility system*

The first major step of this rural restructuring had seen, in early 1979, an increase in state procurement prices. It was the first-ever attempt to redress rural-urban terms-of-trade and diminish the price-scissor effect. Procurement prices paid to farmers were increased by some 20% for grain procurement, and 15% for cotton production. (Ibid.:14) Excess deliveries above state quotas were rewarded on a premium basis, ranging from 30 to 50%. Edible oil and pork prices were adjusted upward by 25%. Furthermore, new schemes of *negotiated prices* (*yijia*) and *free-market prices* (*shijia*) were introduced in order to increase peasant incentives. (Kueh, 1984:355; Johnson, 1988:230)

These measures were closely followed by the introduction of the agricultural production responsibility system (*nongye shengchan zeren zhi*), the cornerstone of post-1978 rural reforms, in which resource allocation decisions regarding cropping patterns

and production levels were devolved to the family unit. Collectives' property was parcelled out to families under various contracting arrangements. The evolution of the responsibility system and its various guises are complex, with different kinds of associations of work groups, households and individuals. Two main forms of responsibility system emerged: the *baochan daohu* and the *baogan daohu* or *da baogan*. The *baochan daohu* retains a collective unified management system similar to the structure of former production brigades. The household, or work group, is still part of the collective and can call on it for inputs of capital and labour. The harvest belongs to the collective, and household-farmers are paid for their labour input. In contrast, the *baogan daohu* contracts tasks directly to the household. It approximates private farming in which the contracting household is wholly responsible for production, with no inputs from the collective. After fulfilling the contract agreement, the household is free to sell its surplus. Originally the *baogan daohu* responsibility system was only permitted in poor areas, but by 1984 it had become the major form all over China. (Kueh, 1984:355; ZGTJNJ, 1984:131)

- *Decollectivization*

In its speed and importance, the decollectivization of Chinese agriculture which occurred in 1982-1983 parallels the collectivization efforts of 1955-1958. (Nolan, 1987:221) For China's 800 million peasants, the post-1978 reforms brought changes as profound as those of collectivization. The burst in disposable income resulting from the introduction of the responsibility system reached an average of 11.4% between 1978 and 1981.^{3/} (Travers, 1989:112) The accumulation drive of the commune era was replaced

by an equally vigorous campaign to increase levels of peasant consumption. (Nolan and Paine, 1985)

Finally, in a bid to overcome the reluctance of peasants to invest in land or equipment, the CCP Central Committee issued the 1984 *Document One* on rural policy. It legitimized the responsibility system and relaxed conditions on hiring labour. It further extended the contracting of land for periods up to 15 years. As well, it limited the obligations of households to tax payments, contribution to social funds and quota procurements. (Johnson, 1988:242) For all intents and purposes, collective agriculture had ceased to exist. Moreover, Supply and Marketing Cooperatives were substantially revamped.

Indeed, the huge increase in grain production which followed the 1978 reform policies strained storage, transport, and processing capabilities. The state's commitment to buy surplus grain at guaranteed prices became onerous. The system of unified procurement of grain had been adopted at a time of grain shortage to ensure deliveries necessary to sustain the urban industrial work force. However, it quickly became clear that the existing practice no longer served the interests of the state.

Following the record harvest of 1984, institutional changes were enacted as leaders declared that the state would disengage itself from purchasing above-quota production. By early 1985, the entire procurement system, which had been in place for some 30 years, was scheduled for abolition.⁴ State procurement agencies turned to more indirect methods to regulate agriculture. Apart from introducing more flexible pricing, they replaced mandatory quotas by voluntary contracts. (White, 1987:417)⁵ It was a

measure designed to improve the market system by deregulating prices, reinforcing market regulation and streamlining production in rural areas.

Free rural markets which had survived the Cultural Revolution were allowed to flourish. Vital nodes in the rural economy, these trade fairs provided an outlet for goods produced by farmers on their private plots, as well as for the sale of grains which were now permitted to reach markets at negotiated prices. (WB, 1981:1-43) They were to play a decisive role in the development of rural industries. Market forces were recognized as a positive element, enhancing the production process through increased opportunities. Rural markets became an integral and essential component of the *commodification* or *commercialization* of the countryside, of which rural enterprises are a key input.

3.1.2 INSTITUTIONAL CHANGES IN SCIENCE AND TECHNOLOGY

The winds of change brought by marketization also altered China's science and technology sector. As outlined in the first chapter, technology has finally gained prominence in China's development strategy. While modifications came somewhat belatedly, and accommodations are still being made today, greater freedom of action has already been gained, allowing for a flurry of minor innovations. The major document stating the importance of science and technology and outlining reforms to its management system was disclosed by the CCP in March 1985. (Major Documents, 1991:448)

The reforms were to affect the operating mechanism, the organizational structure, and the human resources allocation system. The operating mechanism was to be

remodeled by the introduction of a technology market, and reforms in the funding and planning system of research institutes. (Conroy, 1992: chap. 3)

In 1984, technology was recognized as an official and therefore tradeable commodity. The state permitted technological equipment, research and development, and blueprints to be commercialized.

One key issue resulting from this marketization, ownership rights for intellectual work, was the next item on the agenda. The implementation of a patent law in early 1985 was the first step in recognizing a basis for intellectual property. The patent system developed at a fairly rapid pace. In 1990, a total of 41,469 applications for Chinese and foreign patents were handled, an increase of 26% over 1989. Of this amount, applications by factories, mines and enterprises rose by 59.9% suggesting that innovation and product improvement are increasingly occurring on the shop floor. The approved number of applications reached 22,588, up 31%. (Xinhua, 21-02-91)

- *Operating mechanisms: funding reforms*

A law on technology contracts was also instituted in 1987.^{9/} When the concept of contracts had first been experimented with in the early 1980's, arrangements were made in an exclusive fashion between parties through vertical linkages. Demands were administratively channelled from the ministerial department to the research institute. The addition of fees, in 1987, ushered in a new era. Commercial transactions between parties of various entities were soon vigorously encouraged. Other activities, such as direct technology transfers or the sale of products manufactured by research institutes, strengthened horizontal linkages.

2

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

The funding reforms, initiated in 1985, were intended to provide incentives and pressures on the formal research sector to find alternative sources of investment by responding to market needs.^{7/} Survival instinct quickly led institutes to engage in a growing number of transactions. A wide range of institutions sprang up in order to participate in and service this technology trade. Organizations, often sponsored by local governments, were developed to bring together potential suppliers and customers. Incidentally, a number of technology exchange fairs have since taken place throughout the country, some becoming annual events and others assuming a quasi-permanent nature.

- *Organizational structure*

Authorities also realized that a disproportionate number of research institutes were estranged from the production sector. Institutional modifications were suggested to alleviate this problem. The organizational structure was recognized as deficient. Partnerships between research laboratories, institutes of higher learning, and enterprises were encouraged. *Ad hoc* and volunteer basis arrangements were allowed to develop into economic ventures. Research institutes were also entitled to develop their own enterprises. Furthermore, profit-oriented research and technology development companies were allowed to emerge in the private and collective sector, providing a competitive edge to the market. (Wang & Li, 1989:150) The survival of these last two types of enterprises was difficult, due to numerous controversies and contentious legal issues regarding their role in technology transfers. Between late 1985 and 1986, some 800 science and technology personnel were arrested and many companies were closed down on counts of improper technology transactions or acting as intermediaries. (China

Market, 1988, No. 11:5) Yet by 1990, large and medium-sized enterprises had set up 9,156 research institutes for developing new technology,^{8/} and organized 46,500 technological development projects, an increase of 11,500 over 1989. (Xinhua, 21-02-91)

● *Human resource allocation*

The third major aspect of the 1985 reform paper on science and technology pertained to human resources. The two most important reforms were made with respect to labour mobility, plus increased living standards and working conditions for scientists. A call for appropriate policies and preferential measures to encourage personnel to move to small and medium-size cities was made. Research, design, and higher learning institutes were encouraged to experiment with direct recruitment of personnel. A policy of "giving the proper person the proper position" was also advocated and differential pay scales—according to education, ranks and achievements—were introduced. (Wang & Li, 1989:151-152)

Although a proper labour market has yet to develop, the flow of technological personnel has now been facilitated. Liberalization and marketization further ignited the entrepreneurial spirit of scientists and engineers. Today, a new breed of technological worker has emerged: the *Sunday Engineer*. During their free time, state workers are now permitted to sell their expertise to any firm requiring their services.

3.1.3 INSTITUTIONAL CHANGES AND FISCAL REFORM: THE IMPETUS FOR REFORM IN RURAL ENTERPRISES

When Mao died in 1976, most of the population still lived in the countryside where agricultural production was plagued by decreasing labour productivity. While it would be wrong to overlook the improvements scored in the area of basic needs since 1949, the challenge to increase living standards to par with middle-income countries remained.^{9/}

In China, agriculture provides employment for more than 400 million people and livelihood for more than 800 million rural inhabitants. It is estimated that by the turn of the century, some 200 million new rural workers will have entered the labour market.^{10/} It is clear that China's land/labour ratio, already stretched to the limit, cannot accommodate such an increase.

- *Greater labour mobility*

The extent of rural surplus labour existing in the Chinese countryside was quickly revealed with the introduction of the responsibility system. Indeed, surge of goods reaching rural markets made food rations, linked to the residency permit, quasi-obsolete. Workers could, after the reforms, buy grain and other essential commodities almost anywhere, even if they are not officially recognized as local residents. Although the *hukou* system had not been abolished, the government feared an exodus of peasants in search for an urban industrial job. New slogans quickly appeared in the countryside: "*Leave the land but not the countryside*" (*li tu bu li xiang*), "*Expand industry but not the cities*" (*kuo ye bu kuo cheng*).

After 1981, many restrictions were lifted on non-agricultural activities and industries were permitted to develop spontaneously. As they grew in strength and number, rural enterprises came to be hailed as the catalyst for change, a change based on the growth of small towns and rural areas.^{11/}

Surplus agricultural labour could be transferred to the industrial sector while remaining bottled up at the lowest level of the urban structure. These rural industries have been held up as a Chinese development strategy which would pave the way for progressive and orderly urbanization, through the growth of small-towns, while avoiding the pitfalls of large cities associated with rapid economic growth.^{12/}

The role assigned by the Chinese leadership to rural enterprises was based on a number of hypotheses and assumptions related to rural industrialization theories. Apart from attracting surplus labour, they were to strengthen their symbiotic relationship with the agricultural sector. As small-scale enterprises of the 1950's and 1960's, they were to use agricultural raw materials as inputs while producing goods that would accelerate the growth of the agricultural sector. They were to provide the funds for the upkeep and expansion of the rural infrastructure. They were, finally, to help China progress on its path towards modernization by introducing technology to the countryside. Even so, no grand strategy was ever formulated, and rural enterprises developed as unique economic entities born in what might be called the *cracks* of the old economic structure.

● *Institution building*

The reforms brought an overall decentralization of responsibilities which led to the restructuring of China's administration. In China, the upper most administrative layer is the national government, the seat of central decision-making. At the local level,

its territory is divided into 30 provincial level regions.^{13/} The administrative level immediately below the province was the prefecture; as the reforms proceeded, more and more cities (*shi*) gained prefectural status and thereby became responsible for surrounding rural areas. The central municipality of the former prefecture thus acquired administrative authority over the surrounding counties as well as over the town itself. This is the case for Wuxi, the locality under investigation in this research.

Counties (*xian*) are directly subject to a city's jurisdiction, and below them are townships governments and urban districts (*zhen*). The former structures of communes, brigades and production teams were abolished and replaced by townships and villages. In 1983, townships (*xiang*) were restored and became the lowest level of formal rural administration. Local levels gained greater discretionary powers in economic activities, including accumulation of assets and resource allocation. Below townships are administrative and natural villages (*cun*), formerly designated as brigades.^{14/}

Each of these levels have bureaus in charge of agriculture and rural industrial affairs. Enterprises can be sponsored by any level of government, from the highest hierarchy down to the village. Furthermore, it has become possible for private individuals to engage in trade and services or industrial concerns. State-owned enterprises, those "*owned by the whole people*", will be administered by the upper administrative levels whereas rural enterprises are understood as being those sponsored at below city level (usually by townships or villages). Furthermore, by 1985, 90% of former collectives had modified their management system and ownership structure following the contract responsibility system first introduced in Jiangsu province. (Byrd & Lin, 1990:126) In broad terms, such agreements between rural enterprises and local

governments state that contractors are to be given total authority in the organization of production, as well as management and employment decisions of the enterprise, in return for a promise to remit a set percentage of their annual profits to the state.^{15/} This flexible rural managerial environment allowed rural enterprises to become masters of survival.

- *Fiscal reforms*

This administrative restructuration was accompanied by a collateral force buttressing the growth of rural industries. Fiscal reforms were to increasingly link local revenues to local industrial profits.^{16/} Before the economic reforms, the central government laid claim on virtually all surpluses generated by industry. Directly molded on the Soviet fiscal system, its revenues were based on an overwhelming reliance on industry, and especially on the remitted profits and taxes exacted from state-owned enterprises. To accelerate the pace of industrialization in the 1950's, China pursued a high rate of extraction and accumulation.

Through the price-scissor effect, agricultural savings were transferred to the industrial sector, resulting in artificially high profits. The central government further enforced Lewis-type industrial savings by retaining high profits and taxes, the monies from which became fiscal revenues used to further finance capital investment and industrialization. This self-feeding process accounted for the astronomical part of government revenues coming from the industrial sector: in 1983, it represented over 95 % of China's fiscal revenues.^{17/} Although this share has decreased, it still represent 70% of budgetary revenues.

For their part, although acting as collection agents, local governments were permitted to retain only a portion of profits from selected local enterprises. (Wong, 1991) They enjoyed little budgetary autonomy, allocation powers or possibilities to manipulate the economic environment.^{18/}

With the recent advent of marketization and increased competition that came with the introduction of the reforms, monopoly profits of state-owned enterprises steadily declined. Starved for funds, the central government enacted increasingly stringent decentralization policies, whereby each administrative level had to become self-sufficient. Each local government was allowed to retain a larger portion of enterprises' remittances and taxes, but each was to bear the full financial burden for housing, infrastructure, social services, and its own administration.

With profits and taxes to be retained according to the level of ownership, the new system provides strong incentives for local governments to invest in sectors with low entry barriers and quick returns. Enterprise ownership acquired new importance, especially since the latest system of contract and enterprise management responsibility system—whereby taxes are negotiated between enterprises and local authorities—allows them to effectively control industrial tax rates.

The outcome of this new system has direct implications on the structure of China's economy. As fiscal reforms have strengthened the link between local revenues and local expenditures, local government budgets have become highly reliant on the financial health of local enterprises.

3.2 THE GROWTH OF A PHENOMENON: RURAL ENTERPRISES IN CHINA

Early agricultural reforms dramatically increased peasant's disposable income. Apart from increasing the pool of available investment funds at the local level, they propped up the demand for consumer goods and created a ready market for new entrants in the rural industrial sector. The driving force behind China's rural industrial boom was the lifting of various restrictions, which permitted access to materials and equipment formerly exclusively channelled to state-industries. In this new liberalized environment, local cadres and local entrepreneurs learned to recognize market opportunities and respond to market signals.

For its part, reconstruction of the state sector has faced numerous problems, not the least important of which is the very organizational structure upon which the system is built.^{19/} Reforms in state enterprises came belatedly, starting only in 1984. Rural enterprises, more flexible and market oriented, benefited from a head start in the early years of reforms. (Tidrick and Jiyuan, 1990:7) The total number of enterprises increased from 1.5 million in 1978 to 18.5 million in 1990, registering more than a tenfold increase.

3.2.1 OUTPUT AND EMPLOYMENT

The signs of their spectacular growth are everywhere and can be measured by output, employment, assets, or profits. In 1990, China's rural enterprises produced a gross output value of 846 billion yuan. (Table 3.9) This represented over 54% of the country's total rural output value, and around one quarter of its national output value.

(Table 3.9) There was a slow down in growth in 1989 caused by the credit squeeze of late 1988 and the deflationary policies followed in 1989. As the policies were relaxed in 1990, the growth trend of previous years quickly reasserted itself. In terms of annual rate of increase, gross output value grew at a nominal average rate of 12% between 1978-83, increasing to 22.8% between 1984 and 1990.^{20/}(Table 3.1)

Exclusively taken, the industrial component of township and village enterprises' gross value (GVIO) amounted in 1990 to 605 billion yuan, accounting for 71.5% of rural enterprises' output, or nearly 16% of China's overall gross output value. (Table 3.4) Clearly, industry has taken the lead in the economic outburst witnessed in China's countryside. Its gross output value grew by more than 22.5% per annum in nominal terms over this period.^{21/} Since accurate industrial price deflators are lacking, real growth rates are difficult to calculate. Even with generous assumptions about inflation though, real output growth has been in the 20% per annum range.^{22/}

Since the beginning of reforms, the work force of township and village enterprises has grown by nearly 65 million persons to reach more than 92 million workers. According to official calculations, workers engaged in rural enterprises occupied more than 62% of the net increment in the rural labour force, or one half of the 1991 total surplus rural labour force. (Jingi Ribao; 17-04-91)

TOWNSHIP AND VILLAGE ENTERPRISES ^(a)
BASIC INDICATORS

Year	Firms (Million)	Workers (Million)	GVO ^(b) (Billion)	Annual ^(c) % Increase	GVIO ^(b) (Billion)	Annual ^(c) % Increase
1978	1,52	28,26	49,30		38,53	
1979	1,48	29,09	54,84	11.22	42,35	9.93
1980	1,42	29,99	65,69	19.78	50,94	20.28
1981	1,33	29,69	74,53	13.46	57,93	13.73
1982	1,36	31,13	85,30	14.46	64,60	11.51
1983	1,35	32,35	101,68	19.20	75,70	17.19
1984	6,07	52,08	170,99	--	124,53	--
1985	12,22	69,79	272,84	59.57	182,71	46.72
1986	15,15	79,37	354,07	29.78	241,34	32.08
1987	17,45	87,76	476,43	33.95	324,38	34.40
1988	18,88	95,45	649,57	36.95	452,94	39.65
1989	18,69	93,47	742,84	14.36	524,41	15.78
1990	18,50	92,65	846,16	13.91	605,02	15.37

(a) Rural enterprises are classified as township-run (xiang ban) or village-run (cun ban) and are collectively known as township enterprises (xiangzhen qiye). They include: 1) enterprises previously run by communes and production brigades; 2) cooperative enterprises run by rural laborers; 3) individual-run enterprises and enterprises of other ownership at or below the township level.
From 1958 to 1984, Gross Output Value of Industry (GVIO) included enterprises run by townships, formerly people's communes. Gross Output Value of Agriculture (GVAO) included enterprises run by villages, formerly production brigades and teams. Since 1984, village run industries were transferred from agriculture to industry. Figures for 1978-1983 include only township and village collective level enterprises, since 1984, the figures cover all kinds of township and village enterprises, including private concerns.

(b) Figures are expressed in current yuan. Note that in summing up the output value of enterprises to get Gross Output Value (GVO) and Gross Value of Industrial Output (GVIO) the value of intermediate goods is double counted.

(c) Increases between 1983 and 1984 are not calculated since the change in the definition of the category increased the number of firms, and therefore their output, drastically.

Sources:
Figures 1978-1989: China Statistical Yearbook, Beijing, 1990, p. 386 for number of enterprises, p. 387 for number of workers, p. 388 for output value in current prices.
Figures 1990: China Statistical Yearbook, Beijing 1991, p. 346 for number of enterprises, p. 347 for workers, and p. 347 for output value in current prices.

Table 3.1: Basic Indicators of Township and Village Enterprises, 1978-1990

3.2.2 WAGE BILL, ASSETS, PROFITS AND TAX PAYMENTS

Data further indicate that township and village collective enterprises' wage bills, assets, profits and tax payments all increased rapidly, in line with the growth of output and employment. (Table 3.2)

China's township enterprises pay peasants annual wages totaling 100 billion yuan, with an average of more than 1,100 yuan in annual wages for each peasant. (Xinhua, 21-02-92) Wages in rural enterprises are more closely tied to individual and enterprise performance than those in state-owned enterprises. Piece-rates have become the norm; furthermore, many firms pay a year-end bonus linked to the enterprise's profits.

Average wages in rural enterprises, including bonuses, rose by more than 17.6% per annum, faster than the official average inflation rate of 6%. They rose far more rapidly than in state enterprises between 1978 and 1983, at a rate of 15% versus 9%. However, this trend was soon reversed, after the decision to remodel state industries: in 1984 state workers' annual earnings grew one percent faster annually than those of rural workers.

Capital productivity—defined as a measure of the fixed assets required to produce output—showed that, while in 1978, 418 yuan were required to produce every 1,000 yuan of goods, by 1990 only 260 yuan were needed.^{23/} Finally, in 1990, managers were investing an average of 1,341 yuan worth of fixed assets for each job, while in the state sector some 2,508 yuan was required to accomplish the same purpose.^{24/}

TOWNSHIP AND VILLAGE ENTERPRISES ^(a)
MAIN FINANCIAL INDICATORS
 (Billion yuan)

Year	Total Revenue	Total Wage Bill	Total Taxes	Original Value Fixed Assets	Net Value of Fixed Assets	After Tax Profits
1978	43.14	8.66	2.20	22.96	18.18	8.81
1979	49.11	10.38	2.26	28.02	22.61	10.45
1980	59.61	11.94	2.57	32.63	26.60	11.84
1981	67.04	13.06	3.43	37.54	30.40	11.28
1982	77.18	15.33	4.47	42.93	34.24	11.55
1983	92.87	17.58	5.89	47.57	37.30	11.78
1984	126.82	23.93	7.91	57.50	44.57	12.87
1985	182.74	30.41	10.86	75.04	58.97	17.13
1986	222.36	35.55	13.73	94.67	74.32	16.10
1987	293.41	42.77	16.81	122.66	95.98	18.78
1988	423.22	54.12	23.65	158.43	123.45	25.92
1989	482.16	58.07	27.25	192.07	148.62	24.01
1990	521.86	60.68	27.55	220.20	166.87	23.27

(a) Figures for 1978-1983 include only township and village collective level enterprises, since 1984, the figures cover all kinds of township and village enterprises.

Figures are expressed in current yuan.

Sources:
 Figures 1978-1989: China Statistical Yearbook, Beijing, 1991, pp. 347-348.

Table 3.2: Main Financial Indicators of Township and Village Enterprises, 1978-1990

3.2.3 PERFORMANCE INDICATORS

Despite these positive statistics, the profit rate, both on gross earnings and as a portion of fixed capital, has steadily declined, however. (Table 3.3) This can be partially imputed to increased competition. As market opportunities are more fully exploited, super normal profits naturally decline to normal levels, as prices are driven down. Moreover, the annual percentage increase in state taxes has grown more rapidly than annual percentage increase in profits. (Table 3.3) This observation suggests that part of the explanation rests in an increasing share of township and village collective enterprises' profits being channelled into direct support of agriculture and rural infrastructure development. The contribution of township and village enterprises to state coffers has been quite impressive. Although many enterprises still benefited from tax reductions schemes in 1984, they already contributed 8 billion yuan in state revenues. This figure jumped to 28 billion by 1991, and accounted for three-quarters of collected taxes.^{25/} (Table 3.2) If indirect taxes and diverse management fees received by the state are added to this figure, Chinese authorities claim that total taxes have reached 41 billion yuan.^{26/}

3.2.4 RURAL EMPLOYMENT

These performance indicators substantiate the claim that rural enterprises are the *ideal vehicles for rural development*.^{27/} Their small scale and low start-up investment costs have made them a relatively inexpensive way to create rural employment producing higher value-added goods. One survey, in 1984, found that the gross return per unit of

TOWNSHIP AND VILLAGE ENTERPRISES ^(a)
MAIN FINANCIAL RATES AND RATIOS

Year	^(b) Rate of Profits / Revenue	^(c) Profits Annual % Increase	^(c) Taxes Annual % Increase	^(d) Ratio of Profits / Fixed K	^(e) Capital Output Ratio	^(f) GVO Divided Per Worker
1978	20.4			38.37	0.53	1744.15
1979	21.3	18.62	2.26	37.29	0.57	1885.00
1980	19.9	13.30	13.72	36.29	0.55	2189.91
1981	16.8	- 4.73	33.46	30.05	0.56	2509.80
1982	15.0	2.39	30.32	26.90	0.56	2740.46
1983	12.7	1.99	31.77	24.76	0.51	3143.56
1984	10.1			22.38	0.45	3283.13
1985	9.4	33.10	37.29	22.83	0.41	3909.41
1986	7.2	- 5.95	26.43	17.02	0.43	4461.16
1987	6.4	16.57	22.43	15.31	0.42	5404.38
1988	6.1	38.02	40.69	16.36	0.37	6804.97
1989	5.0	- 7.37	15.22	12.50	0.40	7930.56
1990	4.5	- 3.08	1.10	10.57	0.42	9133.16
<p>(a) Figures for 1978-1983 include only township and village collective level enterprises, since 1984, the figures cover all kinds of township and village enterprises.</p> <p>(b) The rate of profit shows the yield on gross income as a percentage, given by (net profits / gross income) * 100.</p> <p>(c) The annual increase for 1984 is not shown as there was a major change in the definition and category encompassing township and village enterprises.</p> <p>(d) The rate of profit on fixed capital is the profit return to investment, given by (net profits / fixed assets) * 100.</p> <p>(e) The capital-output ratio is a measure of fixed asset investment needed to produce one yuan of gross earnings, and is the quotient of fixed assets and gross income (total revenue).</p> <p>(f) Gives a measure of output produce by each laborer given by (gross output / total workers).</p> <p>Sources: Previous tables.</p>						

Table 3.3: Performance Indicators of Township and Village Enterprises, 1978-1990

Labour input was 4.9 yuan for crop farming, 4.4 yuan for animal husbandry, 8.4 yuan for processing of agricultural products, 8.6 yuan for commerce and catering, and 15 yuan for transport and industrial processing. Such differences in returns to labour provided a strong incentive for peasants to shift their labour to non-agricultural activities. Furthermore, these differences in returns to labour were paralleled in returns to capital. By 1989, a survey found that the net returns per yuan invested were 1.38 yuan in the primary sector, 2.71 yuan in the secondary sector and 14.58 yuan in the tertiary sector. (Findlay & al., 1993:34) Such high returns on invested capital enable a quick payback for rural investors.

Any change in the pace of economic life and type of economic activity on the scale seen in China since the late 1970's will alter the structure of output and employment patterns. Between 1978 and 1991, the relationship between light and heavy industry changed from 1:1.29 to 1:1.03. (Table 3.4) During the same period, the share of industrial output value of the state sector has declined by 23%, more than 12% of which was picked up by China's 7.72 million rural industries.²⁸ (Table 3.4) Increases in absolute output levels support these figures and underscore the dynamism of township and village firms.

By 1991, China's rural enterprises carried out an annual gross production of roughly 1,100 billion yuan. It was the first time the 1,000 billion mark had been surpassed and it represented an 18% increase from 1990, well above the 6% official inflation rate. It has taken only 8 years to increase annual gross production from 100 to

TOTAL OUTPUT VALUE OF SOCIETY AND GROSS VALUE OF OUTPUT
(Billion yuan)

Year	Total Output Value ^(a)	GVAO ^(b)	GVIO ^(c)	GVIO Light ^(d)	GVIO Heavy ^(e)	GVIO SOEs	GVIO TVEs
1979	764200	169760	468130	204500	263600	328918	42352
1980	853400	192260	515426	243000	272400	391560	50941
1981	907500	218062	539978	278100	261900	403710	57934
1982	996600	248326	581122	291900	289200	432600	64602
1983	1113100	275000	646044	313500	332600	473940	75709
1984	1317100	321413	761730	360800	400900	526270	124535
1985	1658200	361949	971647	457500	514100	630212	182719
1986	1904500	401301	1119426	533000	586400	697112	211340
1987	2303400	467570	1381299	665600	715700	825009	324388
1988	2980700	586527	1822458	897600	924500	1035128	452938
1989	3451900	635473	2201706	1076100	1125600	1234291	524411
1990	3799600	766269	2392436	1181293	1211143	1306375	605025
<p>(a) The sum of Gross Output Value of Agriculture, Industry, Transportation, Construction, and Commerce, the five material production sectors of the economy, is defined as Total Output Value of Society.</p> <p>(b) Since 1980, the value of handicraft products made for sale by individuals has been added to sideline occupations. From 1984, industries run by units at the village level and below have been included in the sector of industry.</p> <p>(c) From 1958 to 1984, Gross Output Value of Industry included enterprises run by townships, formerly people's communes. Gross Output Value of Agriculture included enterprises run by villages, formerly production brigades and teams.</p> <p>(d) Light industry produces consumer goods and hand tools.</p> <p>(e) Heavy industry produces capital goods.</p> <p>Figures are in current prices.</p> <p>Sources: China Statistical Yearbook, Beijing 1990, p. 43 for Total Output Value, p. 286 for GVAO, p. 356 for GVIO, p. 47 for light and heavy industry GVIO, p. 356 for state-owned and p. 347 for township enterprises.</p>							

Table 3.4: China's Output Values, 1978-1990

**INDEXES OF TOTAL OUTPUT VALUE OF SOCIETY AND
GROSS VALUE OF OUTPUT**

(1978 = 100 or Preceding year = 100 **)

Year	Total Output Value ^(a)	GVAO ^(b)	GVIO ^(c)	GVIO Light ^(d)	GVIO Heavy ^(e)	GVIO SOE ^{(f) ***}	GVIO Collectives ^{(f) ***}
1979	111.6	107.5	108.6	110.0	108.0	108.8	108.6
1980	124.7	109.1	116.7	130.8	110.0	105.6	119.2
1981	133.0	115.4	122.0	149.5	105.0	102.5	109.0
1982	145.6	128.4	132.7	158.2	115.5	107.0	109.6
1983	162.6	138.4	146.3	172.9	130.6	109.4	115.5
1984	192.4	155.4	168.5	200.8	152.0	108.9	134.9
1985	242.2	160.7	196.4	246.3	182.7	112.9	132.7
1986	278.2	166.1	215.4	278.5	201.4	106.2	118.0
1987	336.5	175.7	247.7	330.5	235.1	111.3	123.2
1988	424.9	182.6	290.5	403.5	280.8	112.6	128.7
1989	504.2	188.3	312.4	436.5	305.8	103.8	110.5
1990	555.0	202.6	336.6	476.8	324.8	103.0	109.2
<p>(a) The sum of Gross Output Value of Agriculture, Industry, Transportation, Constructin, and Commerce, the five material production sectors of the economy, is defined as Total Output Value of Society.</p> <p>(b) Since 1980, the value of handicraft products made for sale by individuals has been added to sideline occupations. From 1984, industries run by units at the village level and below have been included in the sector of industry.</p> <p>(c) From 1958 to 1984, Gross Output Value of Industry included enterprises run by townships, formerly people's communes.</p> <p>(d) Light industry produces consumer goods and hand tools.</p> <p>(e) Heavy industry produces capital goods.</p> <p>(f) These figures are based on preceding year comparable basis = 100.</p> <p>(g) Based on preceding year comparable basis = 100. Note that this is the figure for the Collective sector, which thus included both urban and rural enterprises. Figures for TVEs were unavailable, and figures differentiating between urban and rural enterprises only available from 1981.</p> <p>Sources: China Statistical Yearbook, Beijing 1990, p. 44 for Total Output Value, GVAO and GVIO (adjusted figures from index 1952 = 100), p. 48 for light and heavy industry GVIO, p.357 for state-owned and collective enterprises.</p>							

Table 3.4.1: China's Output Values, Indexes Based on Comparable Prices

1,100 billion yuan, 60 billion of which now represent export sales value. In value-added in net terms, rural enterprises represented 30% of gross national product.

This dynamism provoked a major shift in rural employment: a large part of the work force moved out of the agricultural to the industrial and service sectors. The non-agricultural labour force in rural areas (industry, construction, transportation and commerce) grew by more than 10% per annum between 1978-1990, for a total increase of more than 40 million people.^{29/} While 89.7 % of labourers were peasants in 1978, only 79.4% of the rural labour force is now tending crops. (Table 3.5) This decline in agricultural labour occurred in contrast to the absolute size of China's rural social work force, which rose by more than 110 million. (Table 3.5)

The industrial sector has remained in absolute terms the largest employer of township and village enterprises, accounting for two-thirds of all rural enterprise workers. It is followed by construction, which has employed a fraction more than one-sixth of the work force.^{30/} Dwelling on labour force figures, it is also interesting to note that for every addition to the ranks of urban salaried workers, three extra labourers joined the ranks of the rural work force.^{31/}

3.2.5 INCOME, STANDARD OF LIVING AND POSITIVE SPIN-OFFS

This restructuring of China's rural economy brought about numerous improvements in rural livelihood. Official estimates report that, calculated at current consumption standard in rural areas, rural industry has guaranteed a stable income for nearly 200 million people in the countryside. (Xinhua, 06-01-92)

LABOR FORCE IN CHINA
(million)

Year	Total Labor Force ^(a)	Social Labor Force ^(b)	Staff and Workers ^(c)	Rural Labor Force ^(d)	Percentage of which in Agriculture	Percentage of which in Industry ^(f)
1978	--	--	--	306.38	89.71	5.65
1979	--	--	--	310.25	89.71	5.65
1980	--	--	--	318.36	88.99	6.10
1981	--	--	--	326.72	88.69	6.06
1982	566.83	425.95	87.28	338.67	88.76	6.12
1983	583.37	464.36	117.46	346.90	87.48	6.24
1984	601.57	481.97	122.29	359.68	83.62	7.08
1985	621.14	498.73	128.08	370.65	81.88	7.39
1986	640.66	512.82	132.92	379.90	80.20	8.26
1987	656.07	527.83	137.83	390.00	79.15	8.45
1988	669.60	543.34	142.67	400.67	78.50	8.51
1989	683.64	553.29	143.90	409.39	79.24	7.95
1990	697.32	567.40	147.30	420.10	79.35	7.63

(a) Labor Force resource refers to all persons who are within the working age range (16-59 for men; 16-64 for women) and able bodied excluding military personnel, prisoners and disabled. -- The new system classification of 1985 has been used for all figures.

(b) Social Labor Force refers to people currently employed.

(c) Staff and Workers includes: Staff and workers of state-owned units, of urban collective-owned units; of Other ownership units (including joint-ventures) and of Urban individual laborers.

(d) Rural Social labor force includes: Rural collective and individual laborers working in Agriculture (Farming, Forestry, Husbandry, Fishery and Water Conservancy), Industry, Construction, Transportation, Commerce and Foods Services and Other areas (Management, Health care, Education, etc.).

(e) Agriculture includes: Farming (cultivation of crops); forestry, animal husbandry; sideline production (collection of wild plants, hunting of wild animals, handicrafts) and fishery.

(f) Industry includes: extraction of natural resources (including mining and lumbering); processing of agricultural products; manufacture of industrial products; repair of capitalgoods; electricity generation and supply, water purification and gas production.

Note: The percentages are the arithmetic protion of agricultural workers to rural labor force; and industrial workers to rural labor force.

Sources:
China Statistical Yearbook, Beijing 1990 and 1991, pp. 107 & 121 and 78 & 94.

Table 3.5: China's Labor Force, 1978-1990

Since 1978, a peasant's income has increased rapidly. Between 1978 to 1990, the farmers' nominal average per capita income increased from 133.6 yuan to 629.8 yuan. (Table 3.6) After taking inflation into account, average annual increases were around 8%. For instance, the 1990 per capita income expressed in 1978 remimbi would be approximately 336.4 yuan, representing a real increase of 250% over 12 years.^{32/}

A large portion of overall income increases, especially those which occurred in the early years of reform, are attributable to earnings from higher foodstock prices. Even so, the share of peasants' income coming from non-agricultural activities has increased steadily through the years. In 1978, it accounted for only 7%, while now it constitutes more than one fourth of net income.^{33/} Of this figure, the share of income contributed exclusively by earnings and benefits from township and village enterprises—excluding rural private earnings but including collective bonuses and welfare funds—represented 6.6% in 1990, up from 2.3% at the beginning of the reforms. For their part, private earnings derived from non-agricultural activities boosted a farmer's average income by 130 yuan. (Table 3.6) Rural non-agricultural enterprises have thus greatly influenced Chinese peasants' income, both at the micro and the macro level. Concurrently, the scale of peasants' savings increased rapidly. In ten years of reforms, the balance of peasant households' savings accounts was 15 times greater than at its beginning.^{34/}

Also to be noted are the changes which took place in the structure of China's peasant households with different income levels. In 1985, the official poverty line was set at 200 yuan for the rural population. Figures adjusted for inflation show that the

**PER CAPITA ANNUAL REVENUE AND NET INCOME
OF AGRICULTURAL HOUSEHOLDS**
(yuan)

Year	Total Revenue (a)	Net Income (b)	From Collectives Business (c)	From Coll. of which is TVCEs (d)	From Households Business (e)	From HH of which is Non-Agri. (f)	From Others
1978	151.79	133.57	88.53	3.16	35.79	—	9.25
1980	216.22	191.33	108.37	7.93	62.55	9.11	20.41
1985	547.31	397.60	33.27	20.22	322.53	100.11	38.01
1986	593.02	423.76	36.15	23.27	345.28	76.41	39.41
1987	653.58	462.55	42.09	28.41	383.57	92.52	33.40
1988	785.30	544.94	49.72	35.36	453.40	118.37	38.20
1989	874.97	601.51	56.62	40.70	494.22	133.29	47.22
1990	916.50	629.79	60.31	41.97	518.34	131.11	48.70

(a) Total Revenue of rural households is composed of revenues from Collective Businesses; Rural Economic Associations; Household Businesses and Others.

(b) For rural household; net income is equivalent to disposable income.

(c) Net income from Collective Businesses regroups income from: Collective united accounting units, township and village enterprises; collective welfare funds and collective bonuses.

(d) The portion of rural households' net income coming from Township and Village Enterprises includes: income from TVCEs, collective welfare funds and collective bonuses.

(e) Household Business net income includes revenues from: Farming; forestry; animal husbandry; fishery; handicraft; industry; construction; transportation; productive services; commerce, food services; service trade and others.

(f) The non agricultural portion of household business revenues is composed of: handicraft, industry, construction, transportation, productive services, commerce, food services, service trade and others.

Note: In current yuan.

Sources:
Calculations from data from China Statistical Yearbook, Beijing 1991; pp. 267-268.

Table 3.6: Per Capita Annual Revenue and Net Income of Agricultural Households, 1978-1990

percentage of household below an equivalent poverty line went from 45.3% in 1980 to 18.9% in 1990.^{35/} Hence, the scope of poverty has shrunk throughout the nation.

An increased standard of living is apparent in the trend of consumption figures. In real terms, it rose twice as fast for rural than for urban households.^{36/} Increases in expenditure, in all categories of a rural household living expenses, were experienced. Furthermore, as shown in Table 3.7, the consumption structure has changed markedly. Between 1978 and 1990, the share of basic necessities (staple food, clothing and fuel) in total expenditures declined, whereas the non-basic items (non-staple food, housing, daily goods and others) and services increased. In real terms, the share of expenditure spent on staple food fell by almost 60%, the share for fuel also decreased markedly, while income spent on clothing remained fairly stable. The share of expenditure spent on non-staple food increased by almost 40%.

The most significant increase was registered in housing expenditures: the peasant's share of dwelling expenditure increased by 380%, while the share spent on services increased by 150%. The leap in housing figures is explained by the construction boom which spread throughout the countryside in the 1980's, when peasants invested heavily in what is widely considered to be their major and most important lifetime asset.^{37/} As for the other major increase, it reflects the greater access and broader range of services now offered in rural settings.

Finally, in the past five years alone, township enterprises have not only paid wages and helped to increase net peasants' income, but they have also footed a bill of 45 billion yuan of rural construction projects and supplied agricultural departments with

**RURAL HOUSEHOLDS
CHANGES IN CONSUMPTION STRUCTURE
(expressed in %)**

	1978 in 1981 Prices	1981	1985 Current Prices	1985 in 1981 Prices	1990 Current Prices	1990 in 1981 Prices
Material Expenditure	96.82	97.6	97.1	97.3	92.6	93.1
Food	67.40	59.7	57.8	55.4	54.9	51.7
Staple	44.22	32.1	26.2	24.8	18.4	18.0
Non-Staple	23.45	27.6	31.5	30.6	36.5	32.3
Clothing	12.68	12.4	9.9	11.6	8.4	11.0
Housing	3.16	9.8	12.4	11.7	12.9	12.0
Fuel	7.12	5.6	5.7	6.0	4.5	4.5
Daily Goods	6.56	10.2	11.4	12.5	11.9	14.0
Services Expenditure	2.72	2.4	2.9	2.8	7.4	6.9
Total (yuan)	116.06	190.8	317.4	276.0	538.1	282.0
<p>Note: Figures in 1981 prices were calculated by deflating individual expenditure items in current prices by their respective consumer price indexes (rural retail consumer price index and farmers cost of living index) as given in China Statistical Yearbook, Beijing, 1991, p. 215.</p> <p>Sources: China Statistical Yearbook, Beijing, 1991, p. 215 and p. 721.</p>						

Table 3.7: Changes in Consumption Structure of Rural Households, 1978-1990

funds totaling more than 27 billion yuan, with an average annual expenditure for these two sums totaling more than 14 billion yuan in nominal terms.^{38/} (Xinhua, 21-02-91)

National aggregates in a country the size and diversity of China are often misleading. They obscure the vast disparities within and between regions. G.W. Skinner's studies showed that China's economy of past centuries rested on a set of regional economies based on geographically isolated river basins. Economic growth was limited to specific regions each with a peculiar rural and urban substructure which served as the dynamic apex of its local systems. (Skinner, 1964) This spatial pattern can, to a large extent, still be observed today.

Aggregates also belie the fact that diverse development patterns have emerged after liberalization. With the extensive decentralization which ensued, rural non-farm enterprises with a multiplicity of ownership and operating structures mushroomed. Numerous patterns were eventually given the status of growth models.^{39/} An experiment gave birth to three special economic zones in South China, boosting the economies of Guangdong and Fujian province. In Wenzhou, Zhejiang province, predominance went to private household industries aimed at commerce and services. In Fuyang, Anhui province, specialized commodity markets have grown alongside the jointly run household cultivation of land. (Sen, 1990:172)

The model explored below is substantially different from these examples. It emphasizes the growth of collective enterprises at the township (*xiang*) and village (*cun*) levels, and their coordinated development under the guidance of industrial corporations

administered by local governments. It fostered a new form of ownership and a new breed of rural enterprises.

3.3 JIANGSU PROVINCE

3.3.1 SPATIAL CHARACTERISTICS

Jiangsu is a coastal province in central China. The province belongs to the Yangtze Delta Economic region. The Yangtze river flows from west to east through southern Jiangsu and extends across provincial boundaries to include Shanghai and most of Zhejiang.^{40/} Economic, geographic, and historical developments have contributed to the Delta's unique contemporary economic development. Natural endowments, or lack thereof, contributed largely to the rapid expansion of township enterprises and manufacturing industries after the movement towards a more liberalized economy.

This region has long been characterized by high population density,^{41/} high agricultural output, as well as an advanced level of market, industrial and urban development. The Yangtze river was the main transportation route between Nanjing, Jiangsu's provincial capital, and Shanghai, both of which had been designated treaty ports following the Opium War. A rail line was built between the two cities in 1908. The Grand Canal, dating from the Sui dynasty (589-617 AD) and still in use today, facilitated north-south traffic. Jiangsu's proximity to Shanghai, plus its transport advantages, allowed its inhabitants to trade extensively, both with compatriots and foreigners. Early on, commercialization transformed the province's subsistence economy by enabling the development of cash crops and handicraft industries. Raising silkworms and silk or cotton weaving were activities shared by many families. Jiangsu's present economic

well-being is thus rooted in the legacies of an extensive pre-1949 handicraft sector and a well-developed transport network, based on an intricate maze of canals linking most towns and villages of the Delta. (Huang, 1990)

3.3.2 RISE OF RURAL INDUSTRIES: A BRIEF HISTORY

The Delta's rural industrialization, as distinguished from handicraft production, began at the dawn of the Great Leap Forward. Another important phase of Jiangsu's rural history occurred during the Cultural Revolution. As documented by Chinese sociologist, Fei Hsiao-Tung, chaos prevailed in urban centres like Nanjing and Shanghai and numerous workers and industries migrated to more stable countryside locations. (Fei, 1986:39-40)

A number of enterprises, administered by communes or brigades, planted strong roots in the region well before the advent of the reforms. Their gross output value had, by 1978, reached 6.34 billion yuan, a tenfold increase from the 609 million yuan of the early 1970's.^{42/} (FEER, 08-07-85:93-95) Their value accounted for almost 13 % of the national commune and brigade output figure, which had reached 49.3 billion yuan. (Byrd & Lin, 1990:10) Thus, the combination of a long history of handicraft manufacturing, plus the establishment of commune and brigade enterprises during the Cultural Revolution, gave Jiangsu a strong economic head start. (Fei, 1986:37-40)

However, in these early years, the existence of its rural enterprises was, as anywhere else, rather precarious. They often had to operate in a furtive manner. (Fei, 1989:45) *As agents of capitalism*, they were highly, criticized along with the practice of private plots and household sideline occupations. It is important to recognize, though,

that since Jiangsu was densely populated, its soil, although intensively exploited, was insufficient to maintain adequate standard of living for its population. As a result, in many localities, authorities were inclined to fight to retain the right to develop secondary industries. In 1977, Jiangsu's newly rehabilitated provincial secretary, Xu Jiatun, was the first to legitimize their status and promote their development. (FEER, 11-07-85:54-57)

With the Party's declaration in 1978 heralding a new era, a period of economic diversification ensued. It accelerated commodity circulation, and annihilated the major obstacles which had obstructed the growth of rural enterprises. During the following five years, annual growth rates averaged 20.1% a year, compared with 10% in state industries. (JJN, 1990, sec.3:45-46) These rates reached their peak between 1984 and 1988, with annual growth figures hovering around the 40% mark.^{43/}

3.3.3 PROVINCIAL VERSUS NATIONAL FIGURES ON RURAL ENTERPRISES

A comparative analysis of the 1990 national and provincial figures demonstrates the strength of township and village collective enterprises in the region.^{44/} As demonstrated in Table 3.8, Jiangsu's rural enterprises represented over 9% of China's total enterprises and they employed 15% of the labour in all of China's townships and villages collective enterprises (TVCEs). Financial indicators show that Jiangsu's rural enterprises produced more than 18% of national gross earnings of township and village

TOWNSHIP AND VILLAGE COLLECTIVE ENTERPRISES ^(a)
Jiangsu versus China -- 1990

	(b) Enterprises	(b) Persons Employed	(c) Gross Earnings	(c) Wage Bill	(c) State Taxes	(c) Net Prof.its	(c) Fixed Assets
National	387.830	45.924	521.861	60.675	27.545	23.271	220.200
Jiangsu	35.018	6.729	95.136	7.323	4.450	1.367	32.520
Jiangsu vs China	9.03 %	14.65 %	18.23 %	12.07 %	16.16 %	5.08 %	14.76 %
<p>Note: For some categories data given by the Jiangsu Jingji Nanjian, 1991, differ marginally from those given here for the province. However since statistical bureaus and officers do not always define categories similarly, it was preferable to use the data gathered in the same volume.</p> <p>(a) Data does not include individual private enterprises. (b) Enterprises and Persons are in thousands. (c) In current 1990 billion yuan.</p> <p>Sources: Figures calculated from data from China Statistical Yearbook, Beijing, 1991, for national figures: pp. 144, 205; for figures on Jiangsu: 382-384, 392.</p>							

Table 3.8: Jiangsu versus China: Comparative Figures on Township and Village Enterprises, 1990

RURAL TOTAL OUTPUT OF SOCIETY
Jiangsu versus China -- 1990

	Total Rural Output of Society (TRSO)	Agriculture versus TRSO	As a percentage of TRSO	Industry versus TRSO	As a percent of TRSO	Construct Commerce Transport
National	1661921	766209	46.10 %	671973	40.43 %	13.46 %
Jiangsu	207269	58053	28.00 %	125195	60.40 %	11.58 %
Jiangsu vs China	12.47 %	7.57 %		18.63 %		10.73 %
<p>Note: Rural Social Output does not include figures from the non-material production sector of the economy.</p> <p>In current 1990 billion yuan.</p> <p>Source: China Statistical Yearbook, Beijing, 1991 p. 295.</p>						

Table 3.9: Jiangsu versus China: Comparative Figures on Rural Total Output of Society, 1990

enterprises, paid about 16% of all state taxes levied on township and village collective enterprises, spent 12% of the national rural enterprises wage bill, and realized 6% of national net profits. As well, the province has invested more than 12% of its fixed assets in township and village collective enterprises: at the national level, only 8.6% of total investment went to this sector. (CSY, 1991:141) Hence, relatively speaking, Jiangsu's contribution accounted for a little more than 14.7% of the nation's capital investment in rural enterprises.

Provincial township and village enterprises' contribution to the national rural output value of society approached 13%. (Table 3.9) As shown in Table 3.9, industry was Jiangsu's strongest sector. While agriculture accounted for some 45% of the national rural output value, it barely represented 28% of this province's figures. Industrial production took up 60% of the province's gross rural output value.⁴⁵ A look at the bigger picture indicates that Jiangsu's rural industries accounted for nearly 19% of the national rural industrial output value. Media reports indicate that by the end of 1991, their share had increased to 22% of this figure. (Xinhua, 04-05-92)

The dynamism of Jiangsu's rural enterprises is indisputable, and their influence on society remarkable. Many benefits ensued from rural industrialization, and provincial authorities have emphasized four major positive aspects: it improved the livelihood of the rural population and subsidized agriculture; it complemented urban industrial production; it provided funds for the construction of rural infrastructure and social amenities; and it helped to check migration towards Shanghai. (Interview)

3.3.4 JIANGSU'S RURAL ENTERPRISES IN NUMBERS

A closer look at provincial figures sheds light on these assertions, revealing the strength of Jiangsu's economy and the contribution made by its rural enterprises. International trade and domestic commerce have grown rapidly. Since the reforms, exports levels, according to calculations summarized in Table 3.10, increased at an average of 21.5% per year, compared to 15.5% from 1952 to 1978. (JSSN, 1990:163) Average annual domestic retail sales grew at an average of 16.9% since reforms began, compared to 6.1% before 1978. (JJN, 1990:III-67) As well, every year since 1981, Jiangsu has ranked first among Chinese provinces as measured by the gross value of agricultural and industrial output (GVAIO).

The year 1985 was a landmark year for the province. Jiangsu was the first and only province to reach double figures of GVAIO, accounting for 10.4% of the national figure with only 6.2% of the population. Incidentally, the province also overtook Shanghai and its suburbs as the leading industrial producer. By 1989, the gross value of industrial output (GVIO) of township and village enterprises was 94.9 billion yuan which was close to 15 times higher than 1978 levels (based on 1980 constant prices). In little more than a decade, rural enterprises had raised their share of the province's GVIO from 18% in 1978 to 48% in 1989; substantiating the claim that rural enterprises support "*half of Jiangsu's sky*". (Table 3.10)

Although rural industries once depended heavily on peasants and the agricultural sector for initial investment, the tables have quickly turned. Since 1980, Jiangsu's township enterprises have used nearly 3 billion yuan in funds to *subsidize agriculture*

**PROVINCIAL FIGURES
JIANGSU'S ECONOMIC DEVELOPMENT**

Year	Provincial GVIAO (\$ 1980)	Provincial GVIO (\$ 1980)	TVCEs GVIO (\$1980)	GVIO TVCEs/ Province	Exports (From 1952 = 0.47 B. yuan)	Retail Sales (From 1952 19.20 B. yuan)
1978	485.90	345.02	63.79	18 %	19.86	106.49
1980	622.76	475.11	110.25	13 %	34.55	154.48
1981	673.90	514.60	125.74	24 %	35.37	--
1982	737.23	554.17	134.19	24 %	39.99	--
1983	824.96	631.06	162.09	26 %	41.19	--
1984	1003.75	777.97	236.33	30 %	43.78	--
1985	1270.50	1037.66	383.32	37 %	53.89	307.68
1986	1458.17	1210.75	496.31	41 %	75.05	355.76
1987	1754.59	1499.51	665.37	44 %	99.65	422.01
1988	2156.50	1884.49	905.55	48 %	134.52	548.56
1989	2245.12	1972.17	949.49	48 %	169.51	597.32
<p>Average Annual Increase in Export figures: 1952-1978 = 15.48 % 1978-1989 = 21.50 %</p> <p>Average Annual Increase in Retail figures: 1952-1978 = 6.0 % 1978-1989 = 16.47 %</p> <p>Averages are calculated according to the formula: $\log \text{Export 1978} = \text{Export 52} * (1 + g)^{(26)}$</p> <p>Note: Gross output figures are in constant 1980 yuan. Figures for exports and retail sales were not deflated as deflators were unavailable.</p> <p>Sources: Jiangsu Jingji Nianjian (JJN), Nanjing, 1990; Jiangsu Shise Nian (JSSN), Nanjing, 1990. For provincial GVIAO, JJN, p. III-21; for provincial GVIO, JJN p. III-40; for TVCEs GVIO, JJN, p. III-40; Export figures in JSSN, p. 163 and Retail Sales in JJN, p. III-67.</p>						

Table 3.10: Jiangsu's Economic Progress, 1978-1990

with industry. Furthermore, the output value of township enterprises using agricultural products as raw materials reached 28.42 billion yuan in 1985, more than 30% of the total industrial output value of township enterprises. (Liaowang, 26-11-90:14-15)

3.3.5 RURAL EMPLOYMENT

China's general diversification of the economy, the turn to household farming, and the rapid growth of township enterprises, have had a greater impact on rural employment in Jiangsu than in other provinces. By 1989, 39.1% of the rural labour force was working outside agriculture, as compared to 20.8% in China as a whole. (Christiansen, 1992:76) While industry accounted for 7.7% of the national rural labour force, in Jiangsu it accounted for close to 19%. In other words, the province which contained only 6.6% of the national rural labour force, accounted for more than 16% of the national rural work force engaged in rural industry. (Table 3.11) In aggregate terms, township and village enterprises absorbed nearly 10 million surplus labourers, accounting for 30% of the total labour force in rural areas. According to official estimates, this would represent employment for about half the province's surplus agricultural labour force. (Liaowang, 26-11-90:14-15)

An inescapable conclusion resulting from an examination of the composition of employment and the ratio of industrial production to agriculture in Jiangsu is that this change in the economic structure was largely due to the rapid growth of non-farm economic activities in the form of township enterprises. In a sense, parts of this region

RURAL SOCIAL LABOR FORCE
Jiangsu versus China -- 1990

	Population (million)	Total Rural Labor Force	Of which is Agriculture	Percentage Total RLF	Of which is Industry	Percentage of Total
National	1143.000	420095	333364	79.35 %	32287	7.68 %
Jiangsu	65.358	27869	17145	61.51 %	5207	18.7 %
Jiangsu vs China	5.71 %	6.63 %	5.14 %		16.13 %	
<p>Note: Agriculture includes: farming, forestry, animal, husbandry, fishery and water conservancy. Industrial labor force includes workers in enterprises run by village and lower level units.</p> <p>Source: China Statistical Yearbook Beijing 1991 p. 313.</p>						

Table 3.11: Jiangsu versus China: Comparative Figures on Rural Social Labor Force

have passed through the economic transition from agrarian to industrial society in the space of one decade.

3.3.6 INCOME, STANDARD OF LIVING AND POSITIVE SPIN-OFFS

This transformation has greatly influenced the standard of living of Jiangsu's agricultural population. Net average nominal income per capita has increased from 152.10 yuan in 1978 to 883.77 yuan in 1990. (Table 3.12) After taking inflation into account, average annual increases were around 9%. For instance, the 1990 per capita income expressed in 1978 remimbi would be approximately 427.8 yuan, representing a real increase of 280% over 12 years.^{46/} Slightly faster than the national rate of peasants' income increases, this rate enabled Jiangsu's peasants living standards to moved up from eighth to sixth place in cross-provincial comparison.^{47/} (CSY, 1991:269) At the provincial level, funds and benefits provided by township and village collective enterprises represented, in 1985, 15.7% of the per capita income received by Jiangsu's rural population.^{48/} Only four years later, Jiangsu's TVCEs directly contributed to 21.5% of the province's peasant annual income, while their average contribution at the national level was of 6.8%.

Township and village enterprises have furthermore become an important source of government revenues. For the year 1989 alone, they paid 4.6 billion yuan in taxes, which represented over 30% of the province's financial revenues. Finally, they have been an important supporter of rural construction. In recent years, they have contributed more than 300 million yuan for education and over 200 million for construction, family

**PER CAPITA ANNUAL REVENUE AND NET INCOME
OF AGRICULTURAL HOUSEHOLDS**
(In current yuan)

Year	Total Revenue	Net Income	From Collectives	From Coll. of which is TVCEs ^(d)	From Households Business ^(e)	From HH of which is Non- Agri. ^(f)
	(a)	(b)	(c)			
1978	176.3	113.9	108.2	4.1	56.0	--
1980	252.5	217.9	138.6	18.2	92.8	4.0
1985	681.7	492.6	95.9	76.6	528.1	4.7
1986	301.2	561.3	116.1	99.0	620.0	--
1987	864.6	626.5	138.5	121.5	677.7	--
1988	1098.0	796.8	181.4	165.2	858.2	120.4
1989	1203.4	875.7	205.8	188.1	929.9	161.6
1990	--	883.8	214.7	--	609.3	--
<p>(a) Total Revenue of rural households is composed of revenues from 'Collective Businesses'; 'Rural Economic Associations'; 'Household Businesses' and 'Others'.</p> <p>(b) For rural household; net income is equivalent to disposable income.</p> <p>(c) Net income from Collective Businesses regroups income from: Collective united accounting units; township and village enterprises; collective welfare funds and collective bonuses.</p> <p>(d) The portion of rural households' net income coming from Township and Village Enterprises includes: income from TVCEs collective welfare funds and collective bonuses.</p> <p>(e) Household Business net income includes revenues from: Farming; forestry; animal husbandry; fishery; handicraft; industry; construction; transportation; productive services; commerce; food services; service trade and others.</p> <p>(f) The non agricultural portion of household business revenues is composed of: industry; construction, transportation; productive services; commerce; food services; service trade and others.</p> <p>Sources: Calculations from Jiangsu Shise Nianjian, Nanjing, 1990, p. 181 and Jiangsu Jingji Nianjian, Nanjing, 1991, section 3 p. 90.; China Statistical Yearbook, Beijing, 1991, p. 270</p>						

Table 3.12: Jiangsu's Per Capita Annual Revenue and Net Income of Agricultural Households

planning, bridge and highway construction, public security and other cultural and social development programs.^{49/} (Liaowang, 28-11-90:14-15)

3.4 SUNAN VERSUS SUBEI

3.4.1 SUNAN

Provincial figures, however, disguise significant regional variations. Much of the growth of township and village enterprises is concentrated in a narrow corridor in southern Jiangsu. (Fig .1) South of the Yangtze, it stretches eastward some 300 km from Nanjing to Shanghai, along the Grand Canal and the Nanjing-Shanghai railway line.^{50/} In contiguous provinces, the growth is felt in the southwest area extending from Shanghai to Zhejiang's capital, Hangzhou, encompassing the Delta proper formed by the plain surrounding Lake Tai. Northern Zhejiang cities such as Shaoxing and Ningbo can also be identified as fast growing centres.

The four municipalities at the forefront of economic development in southern Jiangsu are Suzhou, Wuxi, Changzhou, and Nantong. (Fei, 1989:42) They are also the area where the first Chinese industrial revolution took place when the traditional household textile industry of silk and cotton was replaced by an organizational structure centered around workshops. Commercialized production expanded in the second part of the 19th century.^{51/} (Shih, 1992:123) Furthermore, in the early 1930's, Shanghai business people, backed by foreign technicians, set up modern textile mills in the region. It has been said, in official reports, that their suburbs and surrounding counties hold the highest concentration and greatest diversity of rural enterprises in China.

The four cities have been granted special authority by the Ministry of Foreign Economic Relations and Trade to control their own exports, previously a privilege strictly reserved to provinces. In the Sunan area proper—comprising Suzhou, Wuxi, and Chanzhou's administrations—this *development zone* status enabled the opening to foreign trade of 232 towns at county level or below. The three cities oversee thirteen counties. They include the three counties of Wuxi, Jiangyin and Yixing, under the administrative control of Wuxi City, six counties under Suzhou City, and a further four counties under Changzhou City. This region, regarded as a cohesive entity has been designated by the authorities as one of the first development models of rural enterprise. (Sen, 1990:152)

Traditionally, southern Jiangsu was known as the land of "*fish and rice*" and the home "*of silk and brocade*", a centre of rural prosperity celebrated by axioms proclaiming that when "*Suzhou's harvest fails, half the country goes hungry*". It was an area where "*men toil the land and women do the weaving*". Handicraft industries have been developed early on, and prospered throughout the centuries. (Fei, 1986:152-154)

3.4.2 SUBEI

In contrast, northern Jiangsu, Subei, has through the centuries been synonymous with poverty, flood, famine, and beggars.^{52/} Even the areas surrounding large urban concentration have failed to see a major increase in township and rural enterprises and industries.

For example, post-1949 coal mining in Xuzhou grew by leaps and bounds due to the nation's increased energy demand. In 1985, more than 12 million tonnes were mined annually. Even so, the extraction process remained labour intensive. Furthermore, the

extracted coal is exported to other provinces for processing. Cottage industries could hardly arise from such a feeble base. (Fei, 1986:152)

The nature of the industry has proved to have a marked influence on the development of its sub-centres and surrounding areas. In this regard, Xuzhou's situation can be contrasted to Shanghai's influence, where light industry flourished even prior to liberation and spread eastward. Yet, the very lack of industrial minerals in the Sunan area also influenced its development. The name *Wu-xi*, which literally means *without-tin*, originated from the Han Dynasty (206BC - 220AD) when its local tin became exhausted. (Cummings & Storey, 1991:419) Only the Changzhou area and Yixing mountains hold a few quarries, and can extract pottery and clay suited to the development of building construction and porcelain industries. Due to such a lack of natural resources, industrial entrepreneurs have chosen to follow Shanghai's model and develop manufacturing industries. (Interview, 1992)

3.4.3 THE SUNAN GROWTH MODEL

The main feature of the township and village enterprises system which evolved in Sunan lies in the ownership and management structure. The ownership structure of its industries is based on collective economy.^{53/} Since the abolition of the commune as an administrative entity, collectively-owned enterprises have been taken over by township governments. Neither public (state-owned) nor private, today's collective firm is based on community property. Thus, in theory, the property belongs to the inhabitants within the jurisdictions of a township or village. Managerial duties are, however, distinct from these proprietary rights. Day-to-day decision-making powers are devolved to a director

who reports to local government authorities as he or she would to a board of directors.^{54/} In numerous cases, local governments have instituted agencies who play an emissary role between the agents involved. These governments retain the right to make decisions on broad economic matters, but their economic departments have no direct control over rural enterprises' profits, and losses. (Interview)

In this new environment, the career profile of appointed managers has been profoundly altered. Instead of lifetime tenure, managers are now appointed by local governments according to a fixed term contract averaging three years. Criteria for appointments have shifted away from considerations of class background and political qualifications. Increasingly, attempts are made to designate technically proficient cadres. Managers have further become solely responsible for their enterprise's losses and profits and, unlike their state-owned counterparts, face hard budget constraints. This responsibility bears directly on the manager's earning power, the enterprise's economic performance determining both the labour force's wages and his or her own income.

Within the enterprise, managers have gained freedom to organize the production process according to profit seeking behaviour. Most have moreover remained unencumbered by the necessity to deal with unions since they are usually non-existent at the local government level. External relationships have also been modified and, as enterprises gained independence, managers came to perceive and respond to forces in a manner much closer to those of western entrepreneurs. (Wu, Wang & Xu, 1990:330-333; Nolan, 1987: 223; Interview) Marketization of the economy has allowed rural enterprises' managers to learn and exert skills for which anyone would have been labeled a capitalist high-roader not too long ago.

In fact, the rise of township enterprises has occurred in tandem with the renewal and growth of small-market towns. The area of some of these *zhens* has been expanded tenfold as compared to the 1960's. (Sen, 1990:156) Pseudo labour markets have also appeared in some areas as surplus labour has virtually been eliminated.^{55/} Labour influx from the Subei area and provinces as far as Sichuan or even Yunnan has occurred. (Interview)

Epitomizing this local government based development model is the administrative region of Wuxi, where the field research for this study has centered.

CONCLUSION

After 1978, decentralization and decollectivization, combined to create higher agricultural prices and increased marketization, jolted China's economy into high gear. After thirty years of unbalanced development strategies centered on urban heavy industrialization, the terms-of-trade between China's rural and urban sector were redressed.

Through a series of increases in agricultural procurement prices and the introduction of responsibility systems, peasants saw their disposable income rise markedly. Due to shortages in consumer goods, savings followed suit, thereby creating a pool of rural investment capital.

Fiscal reforms further modified China's economic landscape. Local governments were to rely exclusively on the funds they could generate in their own regions. Their survival thus became intrinsically linked to the vitality of rural enterprises which provided the largest share of income taxes. The rise of these enterprises was thus

actively encouraged. In some regions, private enterprises became the dominant feature, with peasants' savings directly reinvested into cottage industries. In other areas, where commune and brigade enterprises already had a strong hold, collective township and village enterprises asserted their foothold.

Hard-budget constraints and increased competition have brought in the efficiency that was lacking to rural industrialization strategies of the Great Leap era. Both government officials and rural enterprises managers have learned that in order to survive one must remain competitive, and to do so, one has to intensify production patterns. Thus, technology has become a crucial factor in an enterprise performance record and future prosperity.

Following the fiscal reforms in the science and technology sector, technology has further become a tradeable good. Research institutes also became independent economic entities, and were prompted to sell their expertise. Bankruptcy laws, unheard of in the state-owned sector, have even been written for institutes and rural enterprises unable to perform in this new marketized system. This new structure has led to increased collaboration between the research and the productive sectors of China's rural economy and strengthened its technological capabilities at all three stages of investment, production/innovation and linkages. It has also rejuvenated the diffusion channels within and between research institutes and enterprises.

National and provincial statistics are witnesses to the vitality of the overall system. Not only do rural enterprises respond to Lewis's hypothesis—which states that employment in the modern sector of an increasing portion of labourers—will induce higher productivity and eventually higher wages, they are also meeting the criteria used

by rural development observers to judge the overall impact of a policy. Not only have output and employment increased, but income and standard of living have also risen.

However, these positive results have occurred to varying degrees throughout the country. Numerous causes account for these differences. Jiangsu's example shows that locational factors are not to be dismissed. Even so, systemic variations are crucial to the allocation of resources and the economic growth of a region. The Sunan collective-based model is thus the point of departure for further inquiry. Chapter Four will detail the reasons why this collective system has ensured that a rural entrepreneur's investment decisions and incentive for risk taking correspond to the needs of the larger community. As will be seen, higher productivity and profits ensure managers higher bonuses, but also greater power in the community and among local government leaders—the real basis of further career promotion. Higher productivity also means higher output, higher revenues and ultimately higher taxes. Higher spending thus follows as local government leaders, whose power and legitimacy increases with the number of services offered to their community, redistribute a share of the income made by rural enterprises.

ENDNOTES

1. It is important to note a few peculiarities on the data published by China's statistical authorities. It is understood, however, that if these intricacies diminish the accuracy of the data, they do not invalidate the trend like results.
 Observers of China's economy had to wait until 1979 for the State Statistical Bureau to publish annual figures, a service which had been curtailed since 1958. The renewed emphasis on statistics can be seen as part of China's effort to modernize as well as to expand economic and trade links. Moreover, having joined the IMF and the World Bank, they were pressured to publish more economic information. While the accuracy of the figures is constantly improved, the difficulties encountered in data gathering for a country the size and the economic level of China are very real. As well, many of the categories used by Chinese statisticians do not correspond to Western methods of reporting. Furthermore, through the years, nomenclature and coverage of categories has sometimes been modified. Finally, the state statistical reporting network is not implemented below county administrations. Below this level, the system relies on the collective administration to provide the information. However, fortunately for our analysis, 'xiang' industrial enterprises are required to submit monthly reports to the statistical system. For non-industrial enterprises and enterprises at the 'cun' level, data is compiled from estimates based on sample surveys. (Wong, 1988:17 - Interview)
2. For further details, please see: Chinese Communist Party Central Committee (1984) "Decision of the CPC Central Committee on reform of the economic structure," in *Major Documents*. Beijing: Foreign Language Press, pp. 395-428.
3. For further discussion and more complete statistics please see below.
4. Please see the detailed discussion of economic and political implications in J.C. Oi, "Peasant grain marketing and state procurement: China's grain contracting system" in CQ No. 106, June 1986:272-290.
5. It would, however, be erroneous to believe that a capitalist peasant economy was born. The contracts proved to be similar to quotas when the State needed more grain in 1987-1988. Furthermore, most of the planning for fertilization or access to larger or mechanized tools was still the jurisdiction of the communal unit. (Huang, 1990:196)
6. It would be reworked in 1989 to define more precisely a number of terms which had remained vague.
7. For further discussion, please see: Wang & Li (1989) *China Towards the Year 2000*. Beijing: Foreign Language Press, pp.151-152.
8. In 1989 alone, the added number of new research institutes was 1,941.
9. The Chinese government hopes to have reached this goal by the middle of next century.
10. This is the official estimate. However, the figure is reviewed upwards by most analysts and observers of Chinese demographics.
11. This proposition was strongly supported by the celebrated and influential anthropologist and sociologist of the Chinese Academy of Sciences, Fei Hsiao-Tung. He published a number of papers promoting the growth of small towns.

12. Fei Hsiao-Tung has stressed over and over again this issue of small-towns. For a definition of their size and population, refer to: Martin, Michael (1991) "Defining China's rural population: concepts and methods," in CQ, Vol.126.
13. Of these 30 provincial level regions, 22 are provinces, 3 are provincial-level municipalities (*zhixiashi*) and the other 5 are autonomous regions.
14. Villages are regarded as communities rather than governmental entities.
15. This system has been modified, and a full-scale tax system has been implemented to replace profit remittances. Please see Note 15 and Wong, 1991.
16. There are a number of good articles on the subject, as well as World Bank documents investigating the changes in fiscal reform and their influence on finance and investment. See:
Christine Wong articles: "The Maoist model reconsidered: local self-reliance and the financing of rural industrialization", in *New Perspective on the Cultural Revolution*, (1991); "Central-local relations in an era of fiscal decline: the paradox of fiscal decentralization in post-Mao China," in CQ 128 (1991); and "Fiscal Reform and Local Industrialization: the problematic sequencing of reform in Post-Mao China," in *Modern China*, Vol 18, No.2. (1992).
Barry Naughton articles: "False start and second wind: Financial reforms in China's industrial system", in *Political Economy of reform in Post-Mao China*, (1985); "Implications of the state monopoly over industry and its relaxation," in *Modern China*, Vol 18, (1992)
World Bank Country Study documents: *Finance and Investment* (1988) and *Revenue Mobilization and Tax Policy*, (1990).
17. In a circular fashion, increased industrialization led to higher profit remittances and taxes, which in turn allowed higher capital investments and higher industrialization and remittances, to the point where industry's contribution to total revenues changed from 34 percent in 1950 to 95.5 percent in 1983. (Wong, 1991)
18. Please see Tong: "Fiscal reform, elite turnover and central-provincial relations in post-Mao China," in *Australian Journal of Chinese Affairs*, Vol 22, 1989.
19. Making drastic changes in the focus of any of its subsector implies a monumental restructuring.
20. Calculations are in logarithms instead of the arithmetic average.
21. The definition of rural industries changed in 1984. All form of non-state industries below the township level, including private firms were added to the former commune and brigade enterprises, which had been renamed township and village enterprises. Thus, in calculating an average annual percentage increase, I followed a two step method calculating first the average for 1979-1983 which was 14.5 percent, and then for 1984-1990 which was 30.6 percent, for an overall average of 22.5 percent.
22. Jefferson, Rawski and Zheng have calculated deflators for collective industries in their paper "Growth, efficiency and convergence in China's state and collective industry", in *Economic Development and Cultural Change*, Vol 40, 1992, pp. 239-266. If one calculates real output industrial growth for TVCEs between 1980-1988 using the price deflators they give for collectives (urban and rural - excluding individual), it amounts to 24.4 percent [using a two step method, cf. Note 20]. Since rural collective industrial output value represented 62 percent of total collective industrial output in 1990 and private owned industries have grown rapidly after 1984, the assumption is reasonable.

23. Rural enterprises fixed assets to output ratio shows that by 1990 only 420 yuan of capital invested was needed to produce every 1,000 yuan of gross earnings.
24. State-owned enterprises total investment in fixed assets was in 1990 in the order of 253,548 billion yuan while the sector had 101 billion workers. Total investment in fixed assets for township and village industries (according to the 1984 category) was arrived at by adding investment in rural collectives and investment in rural individual firms for a total of 124,257 billion yuan for 92.64 billion workers. (Figures as per CSY, Beijing, 1991, pp. 78, 141 and 346).
25. Of this figure, some 25% can be attributed to income taxes from rural enterprises and their workers.
26. Figures for TVCEs tax rate from the CSY, 1991:347. For overall taxes, *China Daily*, 01-08-92.
27. This is the sentiment expressed in: Chinese Communist Party Central Committee (1985) "Ten policy measures adopted by the CPC Central Committee and the State Council for further reinvigorating the rural economy," in *Major Documents*. Beijing: Foreign Language Press, pp.328-440.
28. It should be noted that most of state-owned industrial output is still concentrated in heavy industrial goods. Thus, if the share of state owned value of industrial output has declined, heavy industry will have proportionally declined compared to light industry.
29. These calculations are based on China's official rural labour force statistics, compiled by the State Statistical Bureau, which appear to seriously underestimate the number of people involved in part-time or seasonal off-farm activities and those employed by very small firms. The Ministry of Agriculture's township and village enterprises bureaus figures estimate the increase of non-agricultural workers (including part-time and seasonal workers) to have increased by 55 million between 1978-1986. (Byrd and Lin, 1990:18)
N.B.: Some of the workers of TVEs are not considered 'rural employees' (which accounts for the discrepancy); if the township is large enough it might be categorized as an 'urban' area, and they therefore become urban workers even if they are working in a designated rural enterprise.
30. It accounts for 11 percent of production.
31. Qinquennial summary of figures: Workers of SOEs vs Workers TVEs, CSY, 1991: for SOE figures and 346 for TVEs figures.
32. This estimate is arrived at using the inflation figures calculated by Hussain and Stern referring to the retail index from CSY, 1990:249. (Hussain and Stern, 1991:34) It is to be noted however that these inflation rates are not calculated specifically by using the 'rural retail index'. The basket of goods to calculate inflation rates in the urban and rural sectors will not be the same. Furthermore, inflation rates tend to vary depending on geographic location. Nonetheless, this estimate gives a good indication as to the trend of increase in per capita income. — The Xinhua of 21-02-91 gives a more modest figure, estimating average annual per capita annual increases of 4% (it is unclear however whether this estimate pertains to per capita peasants' income or to overall per capita income).
33. Stated otherwise, of the increase in peasants' income, non-agricultural activities accounted for over one third of the change.
34. In 1980, rural households' year end saving were in the order of 11.7 billion yuan. By 1990, they reached 184.16 billion yuan. (CSY, 1991:342)

35. Those figures are estimates, although the figures are not accurately representing the exact percentage of families below the poverty line, it indicates a definite trend. The figures for 1980 were derived from calculation cited in S.J. Burki "Development strategies for poverty alleviation", *Asian Development Review*, No.1 (1990), p.16. It was weighted for inflation according to the rural consumer retail price index. (given in CSY 239-241 and 250) Percentages were calculated from figures published in CSY, 1991, p.267.
36. Averages: (Calculations: $\log C78 + \log C57 + 21 \times \log(1+g)$).
Consumption figures deflated through a rural price deflator derived from Chinese linked index (index in current prices / index in comparable prices) as given in CSY, 1991: 43.
See also: Chai, Joseph (1992) "Consumption and living standards in China," in CQ, Vol. 131.
37. In the early years of reform, farmers did not have a guaranteed access to farmland. Contracts were only signed for three years, and there were no regulations as to whether the contract could be passed on to a member of the family. Faced with the eventuality of not farming the same plot, farmers preferred to invest in assets that they would retain, whatever happened to the reforms. Housing was the obvious choice. Moreover, since consumption goods were lacking, many other durable goods simply could not be purchased. Houses also became a status symbol.
38. These figures appear in nominal terms since they were given in aggregate terms and one would not know which deflator is appropriate to use.
39. For more detailed discussion, please see N.C. Sen (1990) *Rural Economy and Development in China*. Beijing: Foreign Language Press, pp.137-199.
40. The uniqueness and geo-economic integration of the Yangtze is emphasized by the fact that it is the only special region extending across provincial boundaries recognized in PRC atlases. This zone originally comprised nine cities in the lower Yangtze delta. Late in 1984, the State Council decided to expand the zone to include the whole of the provinces of Jiangsu, Zhejiang, Jiangxi and Anhui, at the apex of which would be the Shanghai municipality. CD 20-03-85 and *Asian Business*, November 1985.
41. Total population has climbed from 35,120,000 in 1949 for an average of 342 persons per square kilometer to 58,343,300 at 569 persons per square kilometer in 1978 to reach 65,358,500 in 1989, with 637 persons per square kilometer (these figures excludes the 'migrant labour' population). (JJN, 1990:III-22)
Dramatic in its reality, is the staggering figure which describes its consequences. Comparing the land-to-labour ratio between Jiangsu and the nation, we find that in 1987, it stood in Jiangsu at 0.77 mu of the total sown area to each farm labourer, compared to the national average of 6.9 mu per farm labourer. Fortunately, the province was able to push rural industrialization. By 1989, 39.1 percent of the rural labour force was working outside agriculture compared to 20.8 percent in China as a whole. (Christiansen, 1992:75-77)
42. Inflation was almost imperceptible during this period.
43. Officials of the Jiangsu Bureau of Rural Industries predicted in 1984 that rural industrial output would top 20 billion yuan, (it reached 22.6 billion yuan) and forecasted that its production by the year 2000 would reach 86 billion yuan to represent 35 percent of the estimated GVAIO. It reached that percentage share as early as 1986.(CD, 25/9/84)
44. These figures excluded private enterprises.

45. Note that in rural areas, township and village industries output value of 605,025,000 yuan represent 36.40% of China's total rural output of society. This is thus to say that SOEs industrial output represents a mere 4% of the country's rural output of society. If Jiangsu's rural industries (which are overwhelmingly non-state-owned) were compared to the first figure, their share would rise to 20.69% of the national non-state rural industrial output.
46. Refer to note 31, for a discussion on inflation rates, retail indexes and basket of goods used to obtain this estimate.
47. The figure given by the JJN was for 1978 of 155 yuan.
48. Zhu mentions that if all benefits and social services provided by the local government (derived from TVCEs contributions to local coffers) are added, the portion of income derived from TVCEs contribution to a peasants' net income per capita was in 1985 closer to 30%.
49. Unfortunately, since figures are aggregated and yearly contribution are not mentioned, it is quite impossible to put the figures in real terms.
50. This line goes through the cities of Changzhou, Wuxi and Suzhou.
51. Nantong was the site of the first Chinese-capital financed modern cotton mill at the end of the nineteenth century and all the region where higher yield American cotton was first introduced.
52. For a detailed discussion, please see Elizabeth Perry, *Rebels and Revolutionaries in North China 1854-1945*. Palo Alto: Stanford University Press, 1980; and Philip Huang, *The Peasant Economy and Social Change in North China*. Palo Alto: Stanford University Press, 1985.
53. The competitive capacity of household-run enterprises has remained weak throughout the area.
54. Although the analogy helps Westerners understand the relationship between these partners, a fundamental distinction exists. The board of directors of a capitalist firms does not include members committed to income redistribution, and its intervention in the daily affairs of an enterprise is constrained by custom and law. In China, the system is in flux and boundaries are unclear. A township enterprise can rely at best on informal constraints on bureaucratic interventions from local industrial corporations officials. This is specially important with regard to investment decisions. Under the present system, they are wide open to political influence.
55. For further discussion, please see: Flemming Christiansen, 1991

CHAPTER 4

CASE STUDIES: WUXI'S RURAL ENTERPRISES

In a period of worldwide restructuring of industrial manufacturing and trade, a country's technological capabilities are crucial. In this chapter I go beyond party rhetoric and decrees to observe how rural policies, research and technological development interact to lead China's rural economy further.

Wuxi was chosen from the diversity of China's economic regions for three reasons: its claim to be the cradle of rural enterprises, its special proprietary, and management system and the already well-developed state of its rural economy.

To gain an insight on the initial forces which drove the advent of rural enterprises, it seemed appropriate to investigate the oldest region to champion rural industrialization as a development strategy. Its institutional system was also intriguing. Although decentralization played a major role in the rise of rural enterprises, the ultimate

form of decentralization—privatization—remains almost unheard of in Wuxi. The responsibility for industrial growth has remained in the hands of local authorities. They have devised a system responsive and suited to an economic environment picking its way between plan and markets. In China's transitory state, they seem to have been able to retain the humanitarian aspect of socialism, while allowing the more flexible and efficient markets to take care of allocating resources.

Yet, as any other element of a transient state, their township and village enterprises will have to adapt if they are to survive and face the next challenge. To an economy already well developed, this challenge comes in the form of technological change and the means devised for its absorption, promotion and diffusion. Wuxi, a successful growth area, can be viewed as being at the vanguard of technological research and diffusion in rural settings. The seven cases examined in the second section of this chapter have each been singled out for the particular insights they bring to the multifaceted phenomenon of rural enterprises and their response to the technological challenge.

4.1 WUXI SHI AND ITS ADMINISTRATION

4.1.1 SPATIAL CHARACTERISTICS

Wuxi, located in southern Jiangsu, lies directly on the Nanjing-Shanghai railway line, some 177 kilometers from the provincial capital and 128 kilometers northwest of Shanghai.^{1/} Since 1983, Wuxi City has administered three counties: Wuxi, Jiangyin and Yixing.^{2/} To avoid confusion, these four administrative units will be grouped together

and referred to as the Wuxi region. Wuxi itself is a *designated city* (DC), a title conferring it *prefectural* local government status.^{3/}

Wuxi and its surroundings have been highly developed since the Song Dynasty (960-1279 AD). Located in the fertile plain of the Yangtze Delta and on the banks of Lake Tai, its agricultural base was rich. It fostered first the development of handicrafts and then of local industries as agricultural raw materials supplied early textile and food processing firms. Advanced industrial development, both up- and down-stream, influenced Wuxi's economic evolution in ways both tangible and intangible. With the increased flow of commodities emanating from early industrialization, an entrepreneurial work ethic emerged. Close to traditional market centres, commercial channels were numerous and trade fruitful.

The county is shaped like a heart, with the Grand Canal its aorta and loads of capillary canals. Waterways extend the network to back alleys in the heart of town as well as small villages at the outskirts of the county, to Lake Tai and to the sea through the Yangtze estuary. Furthermore, the transportation system is highly integrated; for example, Gongyun Bridge and its passenger and loading docks are only a few metres away from the city's railway station. Thanks to this network and the 1984 law which allowed rural consumer products to enter urban areas, its merchandise reaches numerous consumers, both rural and urban.^{4/} Collaterally, production plants have access to greater resources, including physical inputs and technology.

The region covers 4650 square kilometers and embraces 124 small towns and 2089 administrative villages. The total population numbered 4,124,200 persons in 1989. A third are designated as non-agricultural labourers; 88% of which live in Wuxi DC.

More than a fifth of the overall population is squeezed into the city's perimeter, with density rates reaching 2300 persons per square kilometer. The surrounding area, being more sparsely populated, regional density averages 887 persons per square kilometer, a figure still much higher than the provincial average of 637 persons.

Seventy-one percent of the region's population live in small-towns and villages. The rural labour force amounts to 1.7 million labourers, which means that for every 100 labourers, there are 74 non-labourers to feed.^{5/} If all were exclusively devoted to agriculture, almost 400 hands would till every square kilometer of land.^{6/} Fortunately, many surplus agricultural labourers have recently been able to find employment in the dense system of small-towns where rural enterprises have prospered. (JJN, 1990:III-110; Interview)

Education has reached high levels throughout the region. All villages have primary schools, junior middle schools and most townships have a senior middle school. (Sen, 1990:153) Wuxi DC even boasts a university: the Institute of Technology and Light Industry, and a college.^{7/} Many townships have also developed vocational schools targeting specific regional needs. Technical skills have furthermore been transferred by the flow of workers who have, for the past century and a half, floated to Shanghai to eventually return to the area.

4.1.2 RISE OF RURAL ENTERPRISES: A BRIEF HISTORY

The course of development of rural industries in Wuxi since 1949 can be divided in four main periods. In the first stage, between 1958 and 1963, industries were closely linked to agriculture and resembled former handicraft enterprises. Most engaged in

grain-processing, spinning and weaving, brick making, and repairing farm tools. Capital resources came exclusively from the accumulation achieved by communes and brigades; labour from the immediate region. The aftermath of the Great Leap Forward led most of these early attempts to the brink of virtual extinction.

The second period, 1964 to 1970, witnessed a slow-paced restoration. In 1964, a *rustification* movement sent many intellectuals and educated youths to the countryside. A few joined the ranks of collective and brigade enterprises. The most meaningful inflow of human capital occurred a few years later, when, during the Cultural Revolution, cadres and workers flocked to the region.^{8/} They brought with them networks of social connections. These networks were important to the expansion of rural enterprises, as they later served as market information channels and facilitated subcontracting arrangements with Shanghai firms. (Byrd & Lin, 1990:77; Sen, 1990:156; Interview)

An added impetus to rural industrialization came from the diversion of central funds to the interior during the Third Front era. The policy had left Jiangsu's local governments starved for funds. (Fei, 1986) Rural industries, bringing in higher revenues than state-priced agricultural products, were welcomed. As provincial authorities had not recentralized after 1958 and left the management of rural enterprises to municipal administrations, local capital reinvestment was not only required, it was vital. Although local authorities had to adhere to the CCP's economic dictum, most were also inclined to promote industrialization in their area.

Yet, an intense debate raged amongst commune authorities at the height of the Cultural Revolution. Should Wuxi follow the spirit of the time and exclusively stress

grain production, or continue its support for rural enterprises? Authorities agreed to covertly condone rural industrialization. When in 1970 the central government sanctioned local production of farm machinery, Wuxi's cadres had already acquired solid managerial experience.

Due to low farm machinery sale prices, numerous factories experienced heavy losses. In many regions, authorities opted to close their factories. Wuxi's cadres adopted a different strategy. Managers climbed another step of the industrial ladder and shifted production to provide the machine tools needed to farm machinery manufacturing. The sales of relatively high priced machine tools subsidized local farm machinery production.⁹ (Byrd & Lin, 1990: 119) This decision spurred Wuxi's third rural industrialization phase.

By the mid-1970's, the region had further developed engineering and electronic industries. With increased manufacturing, competition for space became fierce. Rural enterprises in the city's suburbs subcontracted for urban enterprises or engaged in processing goods no longer considered profitable for urban collectives. Lower-end production processes were pushed further to the surrounding countryside in Jiangyin and Yixing counties.

China's peculiar institutional structure had meant that, as Wuxi's industries flourished, wealth became concentrated at the commune level. With wages held stable and revenues increasing, profits were readily available to be reinvested.

When rural enterprises gained official support in 1979, governments in the region had accumulated well-endowed investment funds. The fourth phase, one of spectacular growth, was launched. When economic reform measures were first announced, total

output value of collective and brigade enterprises in Wuxi represented 1.4 billion yuan, in the following three years output value doubled to levels reaching 2.84 billion yuan. (Sen, 1990:155) These figures were to increase tenfold in as many years.^{10/}

4.1.3 WUXI'S RURAL ENTERPRISES IN NUMBERS

- ***Agriculture***

Wuxi's township and village enterprises have gradually replaced agriculture as the major pillar of development. The ratio between gross output value of agriculture and industry changed from 84:16 in 1978 to 5.8:94.2 in 1989. (JSSN, 1990:413-415) In tandem, the ratio of farmers to workers changed from 60:40 to 27:73. (RMRB:12-04-91; Interview) Time spent in farm labour has also been cut sharply, and mechanization is now widespread. Less than 30% of the workday originally spent cultivating wheat and rice is now required. Only 10 workdays are being expended for each mu of wheat and 15 for an equivalent portion of rice.^{11/}

In the past decade, a fair amount of farmland has changed vocation, arable land being cut by some 240,000 mu. (ibid.) Consequently, yields in products listed as essential agricultural goods such as wheat, cotton and vegetable oils have decreased slightly in absolute terms. (JSSN, 1990:401-414) Nonetheless, Wuxi's gross value of agricultural output has in real terms increased 38% since 1978. (Ibid.: 397-398) It is thus to say that agricultural productivity has dramatically increased with less farmers producing only slightly less essential goods and a flurry of other agricultural goods of higher value.^{12/} (Interview)

- *Rural enterprises and industries*

In the meantime, local enterprises have soared. Wuxi counted, in 1991, some 13,384 township and village enterprises providing work for 70% of the region's rural work force.^{13/} (Interview: 1991) Their contribution to provincial gross rural output value represented 15.8% of which 14.3% came from township and village collective enterprises. In the area, TVCEs dominate the landscape. State-owned industries represent merely one third of the region's total industrial concerns. Private firms, for their part, total only 4% of township and village enterprises.

Wuxi's dominant economic sector is the industrial one, concentrating on manufacturing. Industrial production has increased in real terms from a mere 1 billion yuan worth of output in 1978 to some 21.89 billion yuan in 1989 and reached 32 billion in 1991. (JJN, 1990:III-40; Interview) It represents more than 82.5% of the region's rural output value, while less than 8% are distributed between transportation, construction and commerce. (JJN, 1990:III-26) With township and village industrial output value representing 23% of the provincial total, Wuxi ranks second of Jiangsu's eleven regions. (JJN, 1990: III-40)

- *Positive spin-offs*

The administration raked in, in 1989, 788 million yuan or 38% of its financial revenues from taxes handed over from rural enterprises. (JJN, 1990:III-81; RMRB:12-04-91) A large sum of these taxes was used to support agricultural development. By 1990, township and village enterprises had spent a total of 1,023 billion yuan to nurture agriculture. This sum accounted for 14.2% of the volume of taxes and profits handed over to the state. (RMRB:12-04-91) Remaining taxes went not only to cover

administrative costs but also to support the construction of rural infrastructure, cultural undertakings, education and public health.^{14/} For instance, in 1991, some 8,000,000 yuan were spent directly by the local administration in salaries for rural teachers, most of which came from rural enterprises. Moreover, of Wuxi's 124 townships, 78 have built cultural centres. In addition, in the city's suburbs alone, 18 major road projects were undertaken in 1991. (Interview)

- *Income and standard of living*

Standard of living in the countryside have greatly benefited from this burst in social investments. Improvements were also felt at the household level. In terms of rural labour force, township and village collective industries provide work to 50% of the rural labour force.^{15/} (JJN, 1990:III-26) Wuxi's peasants' gross income approximately increased 15% annually since the beginning of the reforms. Net nominal per capita rural income, hovered between 800 and 1,000 yuan, compared to the provincial average of 884 yuan.

The major contributors to this figure are township and village enterprises. They account for 58% of rural per capita income compared to only 20% of the provincial figure. (Interview; RMRB:12-04-91) Finally, while disaggregated consumption figures are unavailable, retail sales—used as a proxy of material affluence—indicate that while nominal figures increased only 12.14% annually in the three decades between the revolution and the reforms, they reached a 48% annual increase rate in the following decade. (JSSN, 1990:429-430)

4.1.4 INSTITUTIONAL SETTING

Wuxi has a highly integrated economy operating at the collective level and thus largely administered by local authorities. Township governments are at the helm. Villages and production teams, although nominally independent in economic affairs, are under their control.

This specific dynamic stems from a peculiar historical context. Wuxi, throughout the Maoist era, was under extreme pressure to fulfill high grain quotas. Triple cropping patterns (wheat-rice-rice) were instituted and commune governments were compelled to supervise lower levels of command to ensure requirements were met. To do so, they banned production teams from engaging in non-agricultural activities and controlled all non-farm operations.^{16/} (Byrd & Lin, 1990:139)

- *Integrated economy under the commune system*

Communes allocated managers and labourers. They prevented undue duplication of industries as they would not tolerate competition within the confines of their jurisdiction. Brigade enterprises, experiencing financial difficulties, could turn to their commune, since it was empowered to distribute profits received from prosperous firms to support weaker ones. Industrial investment was also controlled by the upper echelons. They used it as an income redistribution tool, helping poorer villages set up their own industries.

Rural enterprises were compelled to subsidize farming, provide new jobs and balance income levels. These equalization policies ensured that managerial incentives maximize the welfare of the whole community. As they appointed commune and brigade enterprises managers and controlled production teams, interests were made to converge

in a unique integration of the three levels of community governments. (Xiaopeng, 1990:139)

Although communes have been dismantled, the bases of this structure have endured as Wuxi's leaders opted to emphasize the community rather than the private sector. A unique type of enterprises ownership ensued. According to Article 19 of the *Regulations on Rural Enterprises* issued in June 1990, property rights belong to the "entire population of a village or a township; and the township or village peasants' congress or the collective economic organization representing all peasants (in effect local governments) exercise these rights."^{17/} Daily managements' decision-making privileges are devolved to appointed directors, while local authorities oversee all major investment decisions. Initially, municipal governments supplied funds, shared the risks and served as supervisory bodies. Although one step removed, they still partake in these functions today.

- *Integrated economy since the reforms*

Supervisory industrial corporations and bureaus responsible for collective enterprises have been established. In many ways, they act like the headquarters of a loosely managed multidivisional corporation. In Wuxi, these bureaus are in charge of managing, directing, verifying and elaborating the broad guidelines which affect rural enterprises. In broad policy terms, their strategy has been to discourage the development of rural private concerns, in order to conserve raw materials, energy, human and financial resources for township enterprises.^{18/} (Interview)

At the micro level, their leadership role has spread to areas such as product selection and marketing. The government has moreover retained a large say in wage

levels: it further enforces a welfare fund policy which compels every enterprise to invest 10% of its after-tax profits in community services.

Finally, although financial responsibility remains the exclusive domain of enterprises, the line becomes blurred when large financial undertakings are concerned. The good health of rural enterprises is vital to a local government since their profits ultimately constitute its revenue base. Bureaus have thus been known to help during negotiations with banks, or to orchestrate the sale of bonds issued by enterprises. (Interview, 1992) Rural industrialization bureaus further engage in pooling funds from remitted enterprises profits and taxes which are then redirected to community and infrastructural development.

Employment generation was, to Wuxi local authorities, the primordial goal in the 1970's and early 1980's. Yet, the quasi-elimination of surplus labour and the competition which arose from rural enterprises in other parts of the country have contributed to shift priorities. The new stress lays on the diversity and quality of production. Authorities now encourage mergers in cases of weak complementary enterprises; putting quality over quantity, they prefer intensive to extensive growth.

Local authorities have also realized that modernization is based on technological change. As underlined in Chapter One, increased production and product quality can be achieved only through technological upgrading of both human and capital resources. Local policies and institutional structures put in place to promote technological absorption, innovation and diffusion, will be determinant to future growth. Paying lip service to central policies and slogans will not suffice.

4.2 CASE STUDIES

One must thus go beyond news paper articles and flattering reports to verify at the source actual developments in the area of technology. For instance, informants were quick to point out that the central government and World Bank sponsored *Spark Program*, whose function is to upgrade standards of technology and management in rural industries, did not have the impact reported by media and officials alike. Although Wuxi is one of the regions where substantial sums have been disbursed, both local government officers and enterprise directors minimized the program's influence on the region's technological growth. The following case studies serve as a reality check against official media hype. They will examine the actual extent of the interaction between local government policies, management and technological development.

The cases are presented in a factual manner, unobstructed by punctual analysis, which is left for the end. In each case, a few historical facts are noted, and statistics are given to draw the enterprise's performance record. The focus then turns to the work force, its educational level and technical competency. Finally, training procedures and technological developments are scrutinized. Wuxi's rural enterprises technological production, investment and innovation capabilities, as described in Chapter One, are highlighted. The channels which led to technological diffusion are also emphasized.

Contrary to expectations, former links with state-owned industries have been severed and technological transfers from these agents have all but halted. The marketization process which spurred the growth of rural enterprise has also made them direct competitors of state-owned firms. Consequently, as expressed by an informant of Wuxi's township rural enterprises bureau: "State-owned enterprises might have helped

our local industries in the early days, but they have become awfully greedy and do not want to share their technology and secrets with us." Thus, from the old patterns explored above and the social networks they engendered, new structures are emerging and indicating the way to future growth. The following cases exemplify these new structures and hint at those to come.

4.2.1 WUXI ELEVATOR COMPANY

Since the heyday of the Cultural Revolution in 1969, the May Huan company had produced farm and tools machinery. Its vocation changed in 1977, when the commune leaders, following the advice of three retired Shanghai engineers, decided to manufacture elevators. They have had to compete with foreign companies such as Mitsubishi and Otis, as well as China's state-owned Xunda conglomerate.^{19/} Despite many obstacles, they found a market niche and their elevators and lifts, assembled according to state standards, have been installed throughout the country.^{20/} More than 2,000 lifts have been custom tailored according to the needs of commercial centres, hotels and office towers.

Through the years the company had gathered assets worth 4,540,000 yuan which netted 2,100,000 yuan at the last count. In terms of profits, the firm grossed more than one million yuan in 1991. It represented approximately 10% of its total product value. Each year, some 20 to 25% of after-tax profits is set aside for research and development and the exploration of new technologies. An equivalent sum is distributed in bonuses to its 413 employees, while the statutory 10% is spent in welfare funds. Any remaining profits are part of the company's revolving fund.

The company performance is reflected in its workers' wages. A new worker will earn some 1,670 yuan annually, while the average pay reaches 2,088 yuan, with last year's bonus rising to 2.3 months of basic salary.^{21/} This salary compares very favourably with the national average state-owned industry employee's wages of 2,203 yuan. (CSY, 1991:112) Old commune workers, who have been unable to adapt to the changes and new technology, have been transferred to an adjacent workshop where ivory-like budhas are molded to be sold as souvenirs. All workers are direct recruits. Most are from a peasant background, but with the introduction of the bilateral program whereby university graduates can chose their posting, some technical students have been lured by the company's benefits package.

Eight university graduates are now part of the staff, and they are helped by six college and 10 vocational school graduates. In some cases, the company reimbursed up to 10,000 yuan in tuition and training fees to township vocational schools for the graduates of their choice. The company's total technological work force is of 41 persons, including Shanghai-retired engineer Wang who is now 76 but refuses to retire. All experienced engineers have been transferred through the Central Exchange Centre.^{22/} In 1977, the benefits offered to the three pioneering engineers included, apart from self-fulfillment and added authority, the retention of their urban residency permit, travel funds securing the possibility to be based with their families in Shanghai if they so requested, or better housing in Wuxi. Today's benefit package has changed little. It includes salary hikes (going up two and even three wage brackets) and special technical bonuses, larger apartments and gas for the cooking stove.

To strengthen and maintain production, engineering and technical talent is vital to the company. Managers recognize that technical expertise is the only way to renew product lines and to develop a competitive edge. Indeed, Xinhua Central Company is renowned for its unwillingness to share technological advances and its attempts to monopolize the market. As copyright rules are now enforced and reproduction is forbidden, some component parts or patent rights have had to be bought,²³ yet more and more pieces are being produced on location. In 1991 alone, an equivalent of 5.3% of the company's sales were invested into research and product development.

Quality is also of utmost priority. The tradition is deep-rooted, as the company's pioneering engineers were from the quality control unit of the Shanghai Elevator factory. They insisted that most workers be given technological training and most posts require a certificate of competence. Training has taken all forms, ranging from basic to technical, short-term to long-term. For advance postings, even graduates from colleges and vocational institutions are required to complete six months of specialized training.

4.2.2 WUXI TAIHU HEAT-RESISTANT CASTING FOUNDRY

This village enterprise, founded in 1978, was at first an agricultural machinery repair shop. A fortuitous meeting through a mutual friend introduced today's senior engineer to the company's director. Recognizing the demand for products requiring specialized casting techniques, they transformed the repair shop into a cast iron foundry in 1984. It now models pieces and casts iron for heavy industrial clients, such as the Baoshan Steel Complex, or any patron requiring heat resistant machinery components.

The company has successfully reproduced parts which, prior to its existence, had to be imported from Canada, the United States or other developed countries. Its advantage over foreign competitors lies in its ability to cast a product following the exact specifications of nearby clients: it saves time and precious foreign exchange. Although limited to the domestic market, word-of-mouth and good reputation has already attracted clients from 21 provinces.^{24/}

Thanks to its reputation, the company boasts the highest per capita total value of production in metallurgy. In 1991, it rose to 29,030,000 yuan with gross profits hovering around the 3,500,000 mark, or almost 12% of total value. However, due to the nature of operations, a large sum had to be sunk into capital investments. Original fixed asset value grossed 4,480,000 by year end, with a net value of 3,130,000.

Each of the factory's 350 workers produced close to 83,000 yuan worth of goods. For their labour, they were paid an average of 2,300 yuan with new entrants earnings 1,840 yuan. Their bonus represented three months of their basic salary. Workers of this village's collective rural enterprise thus earn salaries which exceed national state-owned average industrial wages, and which have reached parity with regional state-owned workers' salaries, who earned an average of 2,209 yuan in 1989. (JJN, 1990:152) Forty percent of workers are locals, mainly former peasants.

Before a job assignment, workers are given a short technical formation session. Some follow in-house training while others are assigned to vocational institutes. They will further be paired to an on-the-job instructor. Another 40% are hired from outside the village, some descending from the northern parts of the province. In general, these *"temporary migrant labourers"* or *"guestworkers"* execute the arduous and dangerous

tasks, requiring strength and survival instinct rather than skills. The last 20% embraces workers who have transferred from collective industries or state institutes, and skilled graduates, representing almost 6% of the firm's total work force.

Both the Director and Mr. Liu, a senior engineer, emphasized that the factory's prosperity depends on its technical developments. Although there are already 2 senior and 6 junior engineers, steps have been taken towards more transfers.^{25/} The candidates are from research institutes with which the company has established cooperative links. Privileges are granted, with a minimum salary of 10,000 yuan annually and improved and expanded housing quarters. Furthermore, the candidate's personnel file need not be transferred and thus, officially remaining a member of the research institute, he or she retains his urban *hukou*.

These engineers and researchers have to be credited for most developments in heat-resistant iron casting methods in China. Only a small number of products had been tested by state-owned enterprises and none had been marketed. Responding to market demands and following client's specifications, they have constantly learned and upgraded the foundry's products. They are not involved, however, in basic research, their concerns being of a purely responsive nature. Collaterally, no set figure can be assigned on a yearly basis regarding product research and development, as it varies with demand.

As for technological hardware, the firm's sizeable machine tools are bought in China and modified to suit production, while smaller machinery is designed and assembled on location. The current in-house project is a high velocity centrifuge. Some of the old equipment has been bought by lower-end rural enterprises. The amount is

negligible, however, and all firms have been in the immediate vicinity of the village, not going beyond Wuxi County. Diffusion has so far been of a limited nature.

4.2.3 WUXI DIODE TRANSISTOR TUBE FACTORY

In 1985, HuaJin television manufacturer let it be known that black and white television component parts were becoming scarce on the international market. An officer of the Helie township rural enterprises bureau, aware of their need, engineered the birth of a corporation which could respond to HuaJin's specific demands. After two years of negotiations and preparations, Wuxi Power Tube Factory was ready to start operation.

The stated goal was to mastermind and mass produce television circuitry and transistor tubes. Its relationship with the HuaJin company has been at the cooperative level. In the early phases, it seconded a few of its engineers to help research and produce the needed parts. Quality control and standards were set by Huajin. Prices, for their part, were negotiated between the two companies. Production was fruitful and an early press conference in 1989 promised an enlarged market. By June however, television sales, as those of other luxury consumer goods, went into a tail spin. Faced with hard times, the company laid off almost half of its work force. To survive, it diversified. It is now engaged in a project to engineer a drinking water system to be installed in railway cars.

The company has a total of 329 machines, five of which were imported in 1987 from Sweden, Japan, Singapore and Hong Kong at a cost of approximately 7 million yuan. Total fixed assets have an original value of 11,280,400 yuan and a net value of 9,320,700 yuan. In 1991, the firm manufactured goods for a total value of 15,667,800

yuan and reaped a gross profit of 251,000 yuan. Forty percent of after-tax profits went to product and production development, while 25% were distributed in bonuses. Of the remaining 20%, half went to the welfare fund while the remaining 10% formed the company's revolving funds.

Of the remaining 577 workers, 389 are permanent labourers while 188 are on contract. The average wage is 2,050 yuan while a new worker earns some 1,640 yuan. Employee bonuses in 1991 corresponded to three months of basic salary. Since the company's technological level is quite advanced, low-skilled labour is not in demand, and very few workers are from outside the community. The technical and engineering group is well established. Of the 58 highly skilled labourers, eighteen are former co-op students who have selected a career with the company. Twenty-two have been hired through the Central Exchange Centre, and eighteen were subsidized by the company to return to school and increase their education level to obtain engineering qualifications.

Each year, funds are set aside to send employees on technical formation programs, and a few students have the opportunity to train in research institutes. Some have obtained credentials from the renowned Xinhua Research Institute based in Shanghai and the Communication and Transmission Engineering Institute in Nanjing. Two employees were also sent to the Beijing Railway Research Institute. All pursued collaborative research projects and set up information transfer channels. If any joint product development is marketed, for a few years, some 3% to 5% of profits will be earmarked to the appropriate institute as payment for its contribution and cooperation. Each party thus finds its reward, the company gaining new expertise and exclusive

technology, while institutes are kept financially sound and operative. Long-standing relationships are thus formed, facilitating further research and technology transfers.

4.2.4 WUXI TAIHU INTEGRATED FISHERY, INDUSTRY AND TRADE COMPLEX

As its name indicates, the Wuxi Taihu Integrated Fishery, Industry and Trade Complex, an enterprise at the village level, undertakes a variety of activities. The Chinese version of a conglomerate, it has been able to diversify horizontally. The company was founded in 1976, when the demand for auxiliary food products was recognized and production decisions were devolved from higher to lower echelon cadres. Throughout the years, its primary production has extended from pisciculture to raising chickens and ducks (whose eggs are preserved and sold), as well as dairy cows and cattle.^{26/} At the industrial level, it operates a food packaging factory,^{27/} a feed and fertilizer plant,^{28/} a silk factory and a metalware factory. The sole distributor of its products, it is also involved in commercial ventures. The enterprise operates a renowned roast-duck restaurant in Wuxi, a prepared foods store in Shanghai, a fish store in Wuxi and a tourist resort of great charm on the banks of Lake Tai. The firms' managers, which have learned to seize every market opportunity, have even invested in an Australian venture.^{29/} The original fishing enterprise now incorporates thirty units distributed between production, processing and sales.

The company's phenomenal growth was ignited by the reforms and market liberalization measures of 1978. It seized this opportunity to expand its market and eventually became involved in exports, especially towards Japan. This decision led to

product diversification. Chickens and ducks are grain-fed, slaughtered and canned using Japanese equipment to meet the country's import standards, and then exported to Japan through Shanghai. Beef production, destined for export, is the next challenge. In the meantime, 60 head of cattle and dairy cows have been acquired.

In 1984, the company expanded from its primary production base towards the transformation sector. Four factories are now part of the operation. These industries and other assets required 31,180,000 yuan in original investment, representing a present value of 16,200,000 yuan. Four food packaging machines were imported from Japan in 1987. Other equipment was purchased from renowned Chinese brand manufacturers. Only a few pieces have been bought second-hand from a state enterprise, for the metalware factory. With a little more than 10% of production exported, the conglomerate revenues from sales have reached 50 million in 1991 while gross profits were in the order of 8.25 million yuan.

The company's prosperity is shared by its employees. Wages are comparatively high, new workers earning around 2,600 yuan while the highest-paid worker grossed 15,000 yuan in 1991, for an average salary of 3,345 yuan. Wages earned by workers of this village's collective enterprise are well beyond the 1,577 yuan national average wage of state-workers engaged in similar activities, and even beyond the salaries of state-workers employed in heavy industrial firms.³⁰/(CSY, 1991:112) The bonus share represents as much as four months of a labourer's fixed salary. Up to 100 employees work in the food processing facility. The feed and fertilizer shop transforming the waste product of chicken- and duck-raising into fish and cattle feed employs 30 workers; the silk cocoons treating plant has 200 employees; and the metalware factory provides

employment to 30 workers. Of the total of 837 workers, 378 are permanent workers, of which 104 are part of the technical team and 36 are at the managerial level, 321 are contract labourers, and 114 are employed on a temporary basis. Most of the workers are unskilled labourers. Only two have earned undergraduate degrees, 6 came from colleges, 27 from polytechnics. With production expanding so rapidly it quickly absorbed all available labour in the immediate surroundings, quite a few employees have thus been hired from other regions.

Although the conglomerate is a primary and low-tech producer, classes have been implemented for local workers to increase their technological background. Many students of the region who could not enter universities have turned to this option and are now employees. This tradition has a long history. It started in 1957, when students from the Shanghai Aquatic Institute were sent to do fieldwork. At this time, their task centered on pisciculture. Fishing is traditional in the area and learned by most villagers in their teen years. Most of their forefathers, though they were hard workers, lacked technical knowledge, and yields were only 400 to 500 fish per mu. With the advent of scientific theory, they were taught to raise different species at the three different depths they naturally occupy, a practice which increased their yields to today's level of 2,500 fish per mu.

Technological know-how has been further transferred from personnel formerly working for state enterprises. For example, for the duck-raising production, the company has been able to hire two agronomists which used to work for state farms. They are now diffusing their knowledge through class instruction while concurrently pursuing research on breeding techniques.

Finally, the company liaises with universities and research institutes. For instance, it has developed a close collaboration with the Wuxi Institute of Technology and Light Industry in the domain of food processing. Some of its professors and graduates have on occasion performed consultant work.^{31/}

4.2.5 WUXI TAIHU CARTON MAKING FACTORY

Although other state-owned enterprises were producing paper and carton in the area, in 1979 brigade cadres judged that this line of business could be profitable and the Wuxi operation was launched in 1980. Its primary products are the brown paper and carton used in the fabrication of cardboard boxes. A new line is currently being installed, which will produce white paper plates. This higher quality material can be used in food packaging or any industry requiring coloured wrapping. An adjoining plant produces tar paper used for roof covering and other construction purposes. In all these cases, raw materials come from recycled newspapers and boxes. A few individuals started their own collection firms but could not fulfill demand. The company has thus opened its own depots where materials are bought on a weight basis.

In the early days, state enterprises gave out some subcontracts and sold their old equipment to the Wuxi Taihu factory. However, it quickly progressed from this stage to become totally independent.^{32/} It also merged operations with a collective plant and overtook its tar paper production when the collective plant folded. With increased diversification and numerous projects in the wings, a decision was taken in 1984 to split operations and form a new company. Gaining a separate identity, the new firm benefited from the national three years' exemption tax clause. For its part, the mother company

has pursued diversification and once the white paper line is functional, plans have been drawn up to install the facilities needed to produce the coloured boxes themselves. The factory also explored the export market, and invited a Japanese delegation to visit its installation. Total production would have to expand drastically, however, to meet the demands of foreign markets, since the company cannot even fulfill the demands of greater Wuxi and Jiangyin County.^{33/}

In 1991, the factory's output had a value of 5,869,000 yuan and grossed a remarkable 933,900 yuan in profits. In the paper making industry, 70% of these enterprises operated at a loss, while Wuxi Taihu had a net profit margin of 10%. The company further expects to double profits once white paper plates are produced and marketed.

Most employees are from the vicinity: outside labour is sparse and brought in only for hard and dirty work. The firm's 168 workers received an average of 1,872 yuan, while new entrants earn some 1,500 yuan, with a bonus representing 2.7 months of their basic salaries. Of the labour force, 132 employees are permanent workers, the others being on contract. Although only two of them have earned university degrees, the company's skilled work force totals 15 employees. Of the three official engineers, two were transferred from state companies and the last one has come to the firm after his official retirement.^{34/} Sunday engineers' counsel was sought for the first time in recent months when difficulties with the latest production line arose.

The company has also established contacts with a research institute in Beijing, the Paper Making Fabrication Institute in Tianjin, as well as the Conception Institutes of Hangzhou and Changzhou and the Industrial Institute in Wuhan. Workers have been sent

to these locations to strengthen research and technological contacts. Furthermore, when any of these institutes contribute technical or production expertise, lump sum payments reward that institute's cooperative efforts.

4.2.6 WUXI KRAFT PAPER FACTORY

Originally part of the Wuxi Taihu Carton Factory, this firm started production in mid-1985. Its first production line was of a type of paper used throughout China. In 1987, Wuxi's Import-Export Company contacted the managers of Wuxi-Taihu Carton Making Factory through the rural industrialization bureau. Their market study indicated a niche for the production a variety of paper which was widely imported. They were looking for a company to develop this production line. Wuxi Paper Factory won the contract, and following the specifications and technical information given by the Import-Export Co., it transferred its production to Kraft paper.

It proved so successful that by 1991 a second production line was installed. The market is absorbing the added output, and the company should double total production value, which already stands at 18,170,000 yuan, by the end of 1992. Gross profits, which have risen from 1,300,000 yuan in 1989 to 2,170,000 yuan in 1991, are expected to do the same. Furthermore, a new project is on the drawing board, and, if test results prove conclusive, a carbon-paper production line should be introduced by 1993.^{35/}

More labour will thus be required and the company expects to have recourse to outside workers. So far all of the 478 workers, except its three engineers, are from the township, yet local labour has become scarce.^{36/} In the case of engineers, they were transferred through the Exchange Centre. They were all acquaintances of the director

who had himself worked in a state-owned paper making factory. Of the total work force, 386 are permanent employees, 54 have signed contracts and 56 are temporary labourers. They win an average of 1,725 yuan, with newcomers earning 1 350 yuan. Bonus shares represent up to two months of basic salary.

Unlike others, the factory is not in contact with research and engineering institutes. Both its market and technical information has been gained from the Import-Export Company. The township's Rural Enterprises Bureau is still closely involved in the negotiations and development of the carbon-paper product line. Initial market research, contact and information were provided by the Beijing Paper Import-Export Company, which liaises with all Chinese paper-making factories, through conferences and other channels provided by this tight community. As in the case of Kraft paper production, all equipment is acquired independently and without their financial help. Production development is entirely entrusted to the Wuxi Kraft Paper Factory, which in 1991 alone devoted 5% of its sales revenues to product improvement.

Finally, it is to be noted that, although the company has numerous dealings with firms in Heilongjiang, from where it receives most of its raw material, they are purely of a customer-client nature and no partnership or technology transfer has occurred at this level.

4.2.7 WUXI NEW TEXTILE SYNTHETIC FIBRE FACTORY

In 1979 director Liu Mao Sheng was put in charge of the new village textile industry. It was producing rough cotton fabrics. Although, the firm improved the quality of its product and was doing quite well, its manager had other visions. Through

a rigorous self-taught program, he researched various branches of the textile industry and numerous production techniques. Probing his contacts throughout the industry, he identified a few viable market niches. By 1983, his mind was made and he sold his idea to the village community *board of directors*.^{37/} He had opted for the production of synthetic yarn which had so far been imported.

He could easily obtain raw materials from a Nanjing factory. The yarn that would be spun could be sold either to regional urban textile enterprises or sent to Shanghai. A total amount of 4,480,000 yuan were spent on fixed assets, which still have a net value of 3,130,000 yuan. His decision proved extremely lucrative and from a total product value of 120,000,000 yuan in 1991, the company earned 15,580,000 yuan in profits.

Prosperity has also arrived for village inhabitants, a large part of whom are amongst the company's 1,024 workers. They earn an average wage of 2,300 yuan, while the lowest paid worker receives 1,840 yuan. Their bonus share represents three months of basic salary. Outside labour has been hired only to do the hauling and manoeuvring work. Of the total labour force, only 189 workers are permanent employees, while the remaining 835 have signed annual contracts. An important characteristic of this company is the large contingent of educated workers. Although only two employees have undergraduate degrees, the company has been able to attract as many as 20 college students and 17 polytechnical graduates. They are part of a skilled work force of 56 employees. Its engineers have been recruited directly and transferred through the Exchange Centre. The benefit package, apart from greater authority, better promotion

chances and larger salaries, includes an apartment in the housing complex which has just been completed.

This team of skilled employees and engineers are in charge of product and equipment development. Each is assigned to a specific facet of production and put in charge of its own division. They will report any development proposal to the management team which, as a group, distributes research funds and approves machinery improvements. Thus, although the production technique is unique in China, industrial espionage and leakages is made difficult as very few individuals are aware of the whole process. Indeed, it was made clear that the director is acutely aware of the company's technological advantage and intends to keep it. To reach the production area, three doors linked to security systems have to be entered. The only machinery to be shown to visitors is produced in China, while the two machines imported from Hong Kong and Japan are jealously guarded. Research labs are also off limits. Finally, since the company does possess the most advanced production techniques, they never had recourse to Sunday engineers nor did they link with state-owned enterprises or consultants from research institutes or universities.

4.3 ANALYSIS

4.3.1 THE INFLUENCE OF MARKET FORCES

The extent to which market forces have played a role in the development of these enterprises is apparent. Competition has driven managers to look for new production lines or product diversification. In all cases, raw material as well as output prices are dictated by market forces. They have further generated a symbiotic relationship between

research institutes and rural enterprises; the former pushed by an instinct for survival, the latter driven by product development to extend their market and edge competing enterprises.

The role of Wuxi's local government should not be dismissed, however. Although its rules and regulations still hinder the development of a full-fledged labour market, it has buttressed every effort rural enterprises have made towards the expansion of commodity markets. As in the cases of Wuxi Power Tube and Wuxi Kraft Paper factories, the township's Rural Enterprise Bureau even proved to be the source fostering new industrial development. According to its Director, Mr. Xie Guo Ming, they also play a large part in high-tech equipment imports. In many cases they have served as the liaison agent between individual enterprises and the Import-Export bureau. The fact that imported equipment is put to immediate production work bespeaks of the investment returns demanded by rural industrial managers but also of the effective guiding role played by the bureau. Furthermore, their help has been solicited numerous times when engineers were transferred through the Exchange Centre. Their role in the negotiations and agreements reached with state population control officers with regard to the *non-transfer* of urban *hukou* has had monumental repercussions. Coupled with higher salaries, their effort has instigated some measure of vocational mobility and helped many enterprises attract technicians and engineers.

Their rules have also helped to preserve a certain community spirit and some standards of welfare services. In contrast to other areas, the social security net has not been destroyed with the abolition of communes. The statutory 10% of local enterprises' after-tax profits earmarked to welfare funds has made a great difference. This

community ethic has found resonance in long established firms which managed to provide gainful employment to older and less technically attuned workers. However, the local Enterprises Bureau's influence has not had the stifling effect of former central government agencies and dictates. Enterprises have been allowed to use their discretion in hiring and firing practices; and when hard budget constraints faced hard times, workers were laid off.

The symbiosis between market forces and guided development proved beneficial. As the regions statistics and individual enterprises figures demonstrate, rural enterprises have a strong performance record. Furthermore, if wages are used as a proxy to living standards, most of the regions's population is leading a comfortable life.^{38/}

4.3.2 PROSPERITY AND TECHNOLOGY

It is this new-found prosperity which has allowed rural enterprises to attract skilled labourers. The benefit packages, including large hikes in salaries and special technological bonuses, have mediated against the security of state engineering positions.

Healthy cash flows have also allowed a number of industries to reimburse township vocational schools for the education outlays spent on a pupil, facilitating the acquisition of choice graduates.

Profits have also been spent on a number of training programs, both in-house and outside. Some would say that only a fraction of workers have been given the opportunity to perfect their skills in research institutes, yet the chasm between these two worlds had previously been impassable. The links that have been forged and the transfer of technical know-how is without precedent in china. Furthermore, the growing social network that

has sprung from cooperative research projects is providing new information channels. This new *guanxi* network is replacing the old structure. In the pre-reform eras, cadres and their social connections were at the heart of subcontracting deals and technology transfers emanated from state enterprises. As these connections have lost their relevance and withered away, new interactive patterns have emerged. This time, however, they reveal a large dose of entrepreneurial and business ethic. Transfers are taking place through trained technicians and in a context of mutual financial benefit.

These channels bode well for the diffusion of technological advances in the region. However, others seem to have been severed before they even took shape. The *greediness* of state-owned enterprises towards their technical discoveries seems to be shared by their rural counterparts. Contracts with research institutes, although leading to direct product marketization, often contain exclusive clauses regarding usage rights. By preventing other companies to access recent technological innovations, they curtail a wider diffusion which, as explained in Chapter One, is needed for a nation's overall technical level to increase rapidly.

Furthermore, although training classes help diffuse know-how to some of the local work force, outsiders are ostracized and given menial work. Unlike the workers who returned from Shanghai with a wealth of technical knowledge which was efficiently transferred to Wuxi's rural industries, these workers return to their home towns empty handed. In some cases, this conscientious effort to prevent technical *leakages* has led to highly secretive operations, where technicians work only on certain parts of the production process and double doors security locks are installed. These practices, which

make good competitive sense at the individual level, might well prove counterproductive for China's rural technological development as a whole and hamper its economic growth.

CONCLUSION

Rural enterprises have become the main contributor of Wuxi's economy, both at the community level, through its investments in agriculture, rural infrastructure and social projects, and at the individual level through its contribution to overall rural household income. Accordingly, the standard of living of its population has dramatically increased along with consumption.

This investigation demonstrated that Wuxi's local institutional structure is the principal factor of this phenomenal success. Actively supported by local governments without being stifled by the institutional problems of the state-owned sector, collective firms have had a head start over private enterprises. Their links with local governments has ensured greater access to raw materials and credit. Collective enterprises also benefited from a political protection lacking to private concerns. Indeed, due to the early emphasis placed on communal development, a large section of former commune cadres have remained part of the administrative structure. Furthermore, most enterprise directors are linked to this structure since they are still effectively appointed by local governments. In earlier times, teams, brigade, and commune interests meshed to produce a unique integration of local government authorities. Similarly, present day cadres-entrepreneurs share their interests with counterparts in local industrialization bureaus. They have further developed interests common to the rank and file. All parties seek to increase the output from rural enterprises. Higher production results in higher

profits for managers, higher taxes for local administrators and higher pay for workers. It also leads to increased local investment and welfare projects, benefiting the population at large. Beyond this economic bond psychological one can be seen: both managers and workers know that if the enterprise fails, they will likely return to the fields. Likewise, rural officials know that if enterprises are unprofitable, regional development is impossible. All the elements of this administrative, allocation and development model structure are thus linked in their economic pursuit.

Hard budget constraints, increased competition from rival rural enterprises, and the credit tightening policies of the late 1980's made local leaders and managers acutely aware of the need to distinguish their products on the market. They have learned that in order to survive and prosper, they must make appropriate decisions in investment, cost reduction, and the introduction of new and improved products. Thus, the tendency for rush growth and duplicative resource allocation has been dampened, and intensive developments are now preferred over extensive ones.

Furthermore, the increasingly crucial role played by technological upgrading and innovation in this growth process has been recognized. To achieve and sustain economic progress, all actors involved will have to concentrate their efforts on upgrading both human resources and technological capital. To meet this challenge, resources have to be invested to foster technological absorption, innovation and diffusion.

As field research has uncovered, progress has been made in this direction. Township governments have created vocational schools to increase the number of qualified technical personnel. Firms allocate a share of their profits to in-house as well as to institutional training. Furthermore, numerous rural enterprises have entered

economic and technological cooperation agreements with research institutes. These links contain the seeds of future technological change which will allow China to develop a competitive economy both domestically and internationally.

However, the harvest will be proportional to the amount sown. A major issue, and one which should be at the heart of local governments' decision-making processes, is the extent to which the institutional structures created in rural areas create a more favourable environment for technology to be disseminated.

ENDNOTES

1. These are railway kilometers. Although the difference is not large, the required time to travel the length between Shanghai and Wuxi and that between Wuxi and Nanjing is more than two hours. (In a slow train, it takes less than two hours to reach Shanghai and more than four hours to reach Nanjing).
2. Wuxi County includes the Mashan district in the western part of Lake Tai.
3. Corresponding to the former prefectural government.
4. Please see: Chinese Communist Party Central Committee (1984) "Decision of the CPC Central Committee on reform of the economic structure," in *Major Documents*. Beijing: Foreign Language Press.
5. Calculations: Total rural population - rural laborers = dependents to be fed : $2\,957\,900 - 1\,700\,500 = 1\,257\,400$ divided by $1\,700\,500 \times 100 = 73.94$ dependents per 100 laborers. (JJN, 1990:26)
6. The 397 square kilometer upon which the city has grown is here excluded. Calculations: $1,700,500$ divided by 4253 square kilometer = 399.8 . Small-towns are now said to occupy some 4005 square km of the total $1,700,500$ km; if we were to subtract this area from the total, the labour-to-land ratio would increase still further.
7. Wuxi Institute of Technology and Light Industry offers bachelor's and master's level degrees in food engineering, mechanics, textiles and others. It is sponsored directly by the Ministry of Light Industry.
8. As explained in Chapter Three, they were prompted partly by the need to find work and partly by the shortages caused by urban disruptions.
9. This strategy gave birth to Wuxi's strong presence in the machine-tool subsector.
10. Annual growth rates were, however, highly unstable. At first, the swings were related to the economic reforms, and later to changes in government policies towards rural industries and to changes in urban economies. The first surge of growth followed the reform policy announcement. It slowed down in 1981 and 1982, recovered in 1983 and experienced accelerated growth rates in 1984 and 1985 to restabilize in 1986. By 1987 inflation surged and the central government laid the blame on rural enterprises' rapid growth for the overheated economy. They enforced, in 1988, a tight credit policy which caused sharp declines. This credit squeeze was followed by the Tiananmen events of June 1989. The economy, which had begun to experience a recovery was stopped dead in its tracks. The general climate adversely affected rural industries production as demand for consumer goods decreased sharply. Yet by 1990, the government realized the down side of its tight credit policies and reasserted its support to the development of rural industries. Growth figures were again allowed to rise in an accelerated upward trend. (Byrd & Lin, 1990:41)
11. One mu = 0.1647 acres = 0.0667 hectares.
12. According to my interviews, farmers in the suburbs have altogether stopped producing grains and cereals. They prefer to grow vegetables for the urban market.

13. The same figure has been quoted by three officials of Wuxi's Rural Industrialization Bureaus. According to figures provided in the JSY, 1990, the figure would stand at 50%. Although the rural industrial sector has a good performance record in the area, it is unlikely that their workforce has increased by 20% in a year. It is also unlikely that private enterprise account for such a large margin since they produce only 4% of Wuxi's output value. The margin is probably due to differing statistical definitions and categories used to calculate 'rural population'. It is more than likely that the municipal figure includes workers which reside in the periphery of 'urban, small-town' areas, as well as the office workers of these rural enterprises. This same population is considered 'non-agricultural, and therefore non-rural' by provincial standards.
14. In more specific terms, industrial profits are redistributed to support: culture, education, science, public health, transportation and communications, social order, family planning, servicemen's recruitment, the militia, civil affairs, care to disabled servicemen and family members of revolutionary martyrs, peasants' housing and all other basic social welfare. (Interview, 1991)
15. This figure compares to 19 percent at the provincial level or 8 percent at the national level. Please see Note 13 above.
16. To compensate potential individual losses, a redistribution of income was enacted through the work point system. All wages were transferred to production teams. They pooled payments from factories with income from farming and paid each member according to work points earned during the year.
17. Chinese Communist Party Central Committee (1990) "The regulations governing the rural collective-owned enterprises of the People's Republic of China," in *People's Daily*: 20-06-90.
18. Private enterprises are tolerated, but their development has been constrained by limit on loans and restricted access to inputs.
19. Xunda China is divided in two component parts: North and South. For example, Beijing will be dealing with the Xunda North.
20. National standards have been brought to par with international ones and are fairly similar. Wuxi elevators are distributed throughout the country except in Tibet.
21. Although wages cannot be compared with net per capita income figures, they do provide an indication to a worker's living standards. Both average and low wage figures have been recorded to offer further insight. As for the bonus figure, apart from speaking to the health of an enterprise, it demonstrates the direct economic link between a worker's standard of living, its production, and the market forces upon which the industry thrives.
22. The "Expert Centres" from which labour transfers occur are a sort of meeting place for prospective employee and employer. Personal contacts can also serve as an introduction, but for highly skilled personnel, the bureaucratic transfer will be handled by the Center. A set of restriction applies. Weighted in the transfer approval of the applicant are considerations such as: whether the locality truly needs your services (i.e. could someone else already there do the job); the number of persons that will be transferred with you; whether the industry's needs will truly be fulfilled by your transfer; are there substantial reasons for transfer. There is also an annual quota on transfers. This transfer channel is obviously not only for township and village industries but is in place for all central industries. TVEs need to go through them because most qualified personnel has been channelled from college or university graduation to state enterprises.

23. If they are to be sold.
24. As with everything else in life, proximity is relative.
25. A Russian-trained engineer, he graduated in 1958 and became a teacher. He then became a full-time researcher at the Electrical Motor Institute until he arranged for his own transfer in 1984.
26. There is a total of 1000 mu of fish basins. Each year some 50,000,000 ducks and chickens are raised. Furthermore, 60 head of cattle and milk cows are being raised.
27. An independent food packaging industry has also been opened under the label of Yuxia.
28. The waste products of the duck and chicken production is transformed into fertilizer and food for fish. This serves two purposes: pollution is diminished and production prices are cut.
29. The Australian venture started when an overseas Chinese visited the neighbouring vacation resorts of Tai Hu lake. He came to visit the company's facilities and ate in the very restaurant above the main office. Impressed by the quality of the installations and products, he made plans for a joint venture in the hotel and catering business. With the permission of the Import-Export Company, the company thus invested in Australia.
30. As mentioned above, in 1990, this average annual salary was 2,203 yuan.
31. Thereby becoming Sunday Engineers, a generic term used to designate state employees who work privately, aside from their usual assignment.
32. Most of the equipment, bought from state enterprises, had already been functioning for 25 years. It has been scrapped and replaced by new machines.
33. The waiting time for an order to be filled is a month and a half.
34. Official retirement starts for men at age 60.
35. Or, more accurately, a de-carbonized reproduction paper.
36. The labour market has become increasingly tight as the number of enterprises and their output has risen. One hundred of them now compete for the township labour force.
37. Please refer above to the section on institutional setting of township enterprises.
38. As noted on page 5 above. (Interview and RMRB: 12-4-91).

CONCLUSION

Since Deng Xiaoping launched the reform process in 1978, China's economy has become increasingly integrated with world markets. Although the People's Republic is still pursuing a policy of import substitution on a number of fronts, the intense competition facing its products on world markets has pushed it to reevaluate its development policies. The growing importance of economic and technological strength in a nation's standing on the international chessboard and the corresponding growing worldwide trend in economic restructuring have had profound implications for China.

The Third Front policy, unbalanced development and extensive centrally planned heavy industrial growth have been pushed aside in favour of coastal, light industrial development undertaken in an intensive fashion under the increasingly strong guidance of market forces. It would be erroneous, however, to surmise that China is transforming itself into a full-fledged capitalist entity. Markets structures remain marginal and

fragmented. They have been grafted onto a command economy, which still retains a major role in the resource allocation process. This unique situation has engendered a peculiar brand of economic distortion, as well as economic opportunities. Some of these distortions and opportunities can be identified with market mechanisms while others are directly related to interventionist measures.

In this transient state, new structures have surfaced and a system responsive and suited to this transitional phase has emerged. Rural enterprises, which for many years commanded little respect as an economic tool, have become a major player in China's current development policy. They have pushed the country out of the gridlock which effectively kept China's peasants at the mercy of the leaders' quest for rapid urban-centered industrialization. Rural industries have been acting as a stepping stone in the modernization movement for more than fourteen years. Their influence has reached beyond local borders to markedly increase China's gross national output figures. The same influence can also be seen on the international stage, through its ever-increasing contribution to exports.

For many years, China was immured in a dualist pattern which perpetuated the dichotomy between the traditional and the modern sector of its economy. In the early years of the Republic, current wisdom held that one sector of the economy could only grow at the expense of another. Therefore, if modernization and industrialization were to be achieved, agriculture had to pay the price. A series of extractive policies were thus enacted and institutionalized. Terms-of-trade were heavily skewed in favour of state-owned heavy industries; the system ensuring a constant supply of cheap materials and foodstuffs to urban manufacturers and their work force. Shortly thereafter, in order to

prevent an exodus of surplus rural labourers to urban areas, the household registration system was introduced, firmly tying a resident to his place of birth. This policy impeded the transfer of labour out of agriculture into industry, and consequently thwarted the increase in wage levels predicted by Lewis: implicit in his dualist vision of economic development is an efficient allocation of resources. Yet in China, factor endowments, apart from unskilled labour, had been exclusively channelled to state-owned firms. If increased productivity were to be achieved both at the micro and macro levels, this stifling allocation pattern had to be replaced.

The mechanism put into place to allocate resources should influence the terms-of-trade in such a way as to both allow the agricultural sector to expand and allow labour resources to be transferred to the modern sector. As well, this mechanism should further be efficient both within and across production periods. Capital and labour should be combined in such a way as to produce the largest amount of goods possible at a point in time; while savings and investment decisions should be based on the goal of achieving the largest production of goods at a future date. In this respect, the development of a country's human capital and technological base is of the utmost importance. China's leaders seem to have realized not only the need for reform but also the direction it should take. Even so, their fear of a population exodus towards urban centres prevented them from following the growth process laid out by dual economic theorists. Rural industries have filled the gap, becoming a major player in the modernization process.

Incidentally, a major variation has been introduced to the original dualist development process. Labourers have been allowed to flow from agriculture to industry, but only if they remained in rural areas. Thus, although they are moving to sectors of

higher productivity, rural labourers are not entering the upper reaches of the People's Republic state-owned enterprise structure. Rural industries could be compared to gateways and locks along a chartered river. By permitting the flow of labour to enter their channels, they raise productivity and technology levels. Even so, this transformation affects only a median section of the population. However, as prescribed in theory, once the marginal product of the rural sector reaches the wage level of urban workers, sectoral dualism withers away. In China's case, rural industries act as a stepping stone between the traditional and the modern sector and have enabled thousands of peasants to become industrial workers. Through this two step process, overall rural productivity and wages will eventually catch up with the state sector.

Even so, this rural industrialization program has to offer more than employment if economic development is to be achieved. Rural enterprises should not only provide jobs but should also increase the welfare of its workers and their wages. Furthermore, as critics of other rural industrialization programs have noted, they should foster local accumulation and overall investment to promote increases both in capital and labour productivity. They should also encourage skills formation and technological diffusion, so that future developments rest on solid ground. Finally, rural enterprises should integrate with their surroundings and offer positive spin-offs for agriculture and to the portion of the rural population not engaged in industrial endeavours.

China's rural enterprises, which are under the tutelage of local governments, have met most of these criteria. The results, both at the firm level and at the national level have been astounding. As the above discussion demonstrated, productivity has risen to levels even higher than those witnessed in state-owned industries. Simultaneously, as

field research uncovered, the average peasants' income have soared and wages of Wuxi's rural enterprises' employees have reached parity, and in some cases even exceeded those of their counterparts in state-owned industries. Furthermore, the welfare of not only the workers, but of the whole community, has been protected through the imposition of a statutory 10 percent after-tax remittance to local welfare funds. Social, health and cultural endeavours have partly been supported by such funds. Local investment has further been bolstered by tax revenues collected by local governments from prosperous firms. Part of these revenues has been channelled to neighbouring infant industries. Other parts, as Wuxi's rural industrialization officials proudly underlined, have been spent on rural infrastructure, such as road construction or educational concerns. Finally, in numerous communities, skill formation has taken on a new urgency. In the region, it prompted township governments to invest in vocational schools. Furthermore, as the case studies demonstrated, numerous rural industrial managers allotted part of their budget to training, and sent their most promising workers to refine their skills in research institutes, thereby increasing their chances for rapid technological absorption and possible diffusion.

These developments did not occur overnight, however. The political and administrative structures which mired and burdened the peasantry for so long had to change. Institutions are, in any system, the channel through which policies are enacted. In cases of radical policy change, institutions need to be remodelled to efficiently implement and to maximize the results of the new directives. The 1978 reform advocated fundamental changes in the resource allocation system. Each passing year confers a larger place to material rewards and market principles designed to affect

productivity and launch the country on a growth spiral. The ensuing extensive decentralization altered China's institutional landscape and put local governments in charge of rural development.

Fiscal and financial remodelling has forced these governments to look beyond the soft-budget constraints of the state to survive. Local administrators' budgets depend exclusively on local taxes, the ceiling of which is directly related to the performance of local enterprises. Hard-budget constraints further prevent local governments from bailing out enterprises facing difficulties.

Correspondingly, as the case studies reveal, rural enterprises sought the help of research institutes to increase their technological base and develop new products in order to successfully face mounting competitive forces. Simultaneously, research institutes had to seek the business of rural enterprises to support their scientific endeavours and keep them afloat. Hence, the reforms fostered and favoured horizontal linkages, in contrast to the older system which was based on vertical chains of command. In turn, this process allowed an increasing role and influence to markets in the interaction between economic entities.

This is not to imply that the transition from a central command economy to a decentralized local system based on commercialization is occurring without glitches. Indeed, these fiscal reforms, which reassigned to local governments virtually all surplus generated by local industries, contain an inherent incentive for local administrators to favour local industries and shield them from external market pressures. Hence, although the system proves to be efficient in allocating resources within local boundaries, local governments might develop a tendency to overprotect their own enterprises. Individual

and systemic interest are liable to introduce distortions and increase regionalism, rather than decrease it, as claimed by rural industrial theories.

Notwithstanding these problems, enlightened collective management displays a series of advantages. It can optimize the use of scarce managerial skills by concentrating them in governmental industrial corporations. These institutions can provide important financial intermediation with local banks in a system where capital markets are still non-existent. Furthermore, through proper investment decisions, they can pool and allocate capital to sectors where the highest rates of return can be made, and invest in the infrastructure necessary for the proper growth of these enterprises. More importantly, in China's transitional and fluctuating economic state, they can allocate funds to social welfare schemes and protect the poorest of their communities.

This egalitarian community ethic was inherited by collective enterprises from the commune era. Indeed, Mao's self-sufficient policies spurred the rise of a managerial elite whose concerns included both agriculture and industrial development. This managerial base has proved particularly important in the Sunan development model and the growth of rural enterprises in Wuxi.

In the early 1990's, a system has developed which, although rife with market and interventionist distortions, is successful in China's current economic state. The system which has emerged could be compared to the East Asian model of state sponsored industrialization. Although kept at the micro level, the model has proved as positive as its South-Korean or Taiwanese mentors. Both national and provincial as well as regional statistical inquiries hereby included reinforced this assertion. Output has drastically

increased in the industrial sector, and although agricultural land and its production of *essential* goods has decreased, the value of gross agricultural output has increased.

The officials and cadres overseeing this process of rural industrialization must ensure its prosperity in both the near and the distant future: to remain viable, the system must ensure a proper allocation of resources over an extended period of time. Since Wuxi has already reached a relatively high level of industrialization, further improvements will come from technological development. Hence, although financial resources are limited, investments in human capital and technological development are crucial.

The partial commercialization of technology has already resulted in better access to new technologies and stimulated its diffusion. The funding reforms in this area, which made institutes dependent on market sales for their survival, have initiated closer links between research and production. As field research illustrates, they have fostered new social networks between research institutes and rural enterprise managers based on mutual economic benefits. These networks are acting as information channels and have so far enabled technological innovations to be diffused from the laboratories to specific rural productive units.

Even so, the case studies discussed also revealed a number of interferences which prevent these innovations from wide diffusion throughout the system. Practices to counter industrial espionage, which make good sense at the individual firm level, might prove counterproductive to the region's overall technological development, and that of the province and even the nation. Future prosperity levels will be relative to rural officials' ability to foster a system whereby technology is diffused more efficiently.

GLOSSARY

baochan daohu	contracting production to the household.
baogan doahu	contracting tasks to the household, also called "da baogan".
chengshi jumin hukou	urban resident household.
cun	village.
cunban gongye	village-run industry.
cunzhen	villages and small-towns.
duiwai kaifang zhengce	refers to the "policies of opening up to the outside" inaugurated in 1978, and the economic reforms which ensued.
fei nongye	non-agricultural.
guanxi	connection, contacts, networking.
hukou	permanent residence registration.
jiti suoyouzhi	collective-owned.
kuo ye bu kuo cheng	expand industry, but not the cities.
li tu bu li xiang	leave the soil but not the countryside.
nongye hukou	agricultural household resident permit.
nongye shengchan zeren zhi	agricultural production responsibility system.
quanmin suoyouzhi	state-owned.
sanhua	labour power being funnelled away from agriculture, so that only the women, the old and the weak, are left to toil the land.

shedui qiye	commune- and brigade-run enterprises, the former name for "township enterprises" and "village or township enterprises".
shi	main term for city or municipality.
shijia	free-market price.
shiqu	city area, meaning the city proper
shizhen	usually has the meaning of urban, but also means small towns.
Subei	abbreviated expression for northern Jiangsu.
Sunan	abbreviated expression for southern Jiangsu.
tonggou tongxiao	unified procurement and marketing, the state monopoly system for agricultural products.
xianban gongye	county-run industry.
xiang	township as an administrative unit, countryside, rural, village or native place (ancestral home).
xiangban gongye	township-run industry.
xiangcun	village, countryside, rural.
xiangcun zongrenkou	rural population.
xiangzhen	township, the lowest level of government administrative unit: the township replaced the commune.
xiangzhen qiye	township enterprises.
xiangzhen gongye	rural industry.
yijia	negotiated prices.

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