

DELHI SCHOOL OF ECONOMICS

Surplus Flows and Growth Imbalances

**The Inter-Sectoral Flow of Real
Resources in India 1951-1971**

Sudipto Mundle

DELHI SCHOOL OF ECONOMICS :
MONOGRAPH IN ECONOMICS NO. 5

Surplus Flows and Growth Imbalances

The Inter-Sectoral Flow of Real Resources
in India: 1951-1971

SUDIPTO MUNDLE



ALLIED PUBLISHERS PRIVATE LIMITED
NEW DELHI BOMBAY CALCUTTA MADRAS
BANGALORE HYDERABAD

ALLIED PUBLISHERS PRIVATE LIMITED

15 J.N. Heredia Marg, Ballard Estate, Bombay 400038

3-5-1129 Kachiguda Cross Road, Hyderabad 500027

5th Main Road, Gandhinagar, Bangalore 560009

17 Chittaranjan Avenue, Calcutta 700072

13/14 Asaf Ali Road, New Delhi 110002

751 Mount Road, Madras 600002

First published: 1981

©Allied Publishers Private Limited, 1981

Printed and published by R.N. Sachdev at Allied Publishers Pvt. Ltd.,
A-104 Mayapuri, Phase II, New Delhi 110064

Foreword

Industrialization of agrarian economies has been generally assumed to require not only supplies of food and raw materials for sustaining non-agricultural activity but net transfers of savings from the agricultural sector for maintaining high enough rates of investment. There have been however very few systematic efforts either to verify this hypothesis empirically with reference to historical experience or to consider more fully the possible effects of such resource transfer from agriculture on the process of industrialization. Dr. Mundle's study is an important contribution in this direction.

The study, which covers the first two decades of planned industrialization in India, offers a comprehensive set of estimates of the exports and imports of the agricultural sector, year by year, for this entire period. Estimates of value are given at both current and constant prices, and separately for consumer and producer goods. This makes it possible to trace not only the changes in the quantum and direction of the net transfer of real resources between agriculture and the rest of the economy but the broad pattern of the commodity flows between the two sectors and the proximate factors responsible for the changes in them over a period of time. The interpretations which Dr. Mundle offers on this basis for the movements in the inter-sectoral resource transfers are as important as the estimates themselves.

It appears from Dr. Mundle's estimates that there have been broadly three phases within the period covered by his analysis: (i) the first half of the 1950's when, starting with a net inflow of resources into agriculture, the quantum of such inflow tended to decline; (ii) the decade from the mid-1950's to mid-1960's, when it turned into a net outflow of resources from agriculture and the quantum of this outflow was itself rising; and (iii) the latter half of the 1960's, when the resource outflow from agriculture recorded a significant decline. But the year 1965 is pinpointed as a major turning point in the time-profile of inter-sectoral resource flows, as the period earlier was characterized by increasing flow of resources away from agriculture and the

subsequent period by decline in such resource outflow. Dr. Mundle links this with the strategy of industrialization adopted from the Second Five Year Plan until the end of the Third and with the new technology in agriculture which began to spread in the period thereafter.

An important finding from Dr. Mundle's analysis is the extent to which the agricultural and non-agricultural sectors of the Indian economy are dependent on each other for markets for their products. It follows from this that, while the process of accumulation in manufacturing industry might be helped by some net transfer of resources from agriculture, growth of industry would get retarded if such transfer results in inadequate investment within agriculture and consequently in a low rate of growth in this sector. In fact it is Dr. Mundle's contention that the relatively large resource transfers away from agriculture between the mid-1950's and the mid-1960's had precisely this kind of effect, and that it is a not insignificant part of the explanation for the symptoms of stagnation that began to emerge soon after in the manufacturing sector.

Dr. Mundle's study not only provides valuable insights into the structure and functioning of the Indian economy but raises a number of conceptual and methodological issues as to what constitutes the surplus of the agricultural sector, the mechanism of its transfer, and how they may be analysed and assessed quantitatively. There can be disagreement on some of the positions he has taken, and alternative formulations. Such stimulus to further work in an area that has largely remained unexplored, and one so crucial to the understanding of the process of industrialisation in the Indian economy, must be also rated among the major contributions of this pioneering study.

May 1980

K.N. RAJ

Preface

The present volume has emerged out of some work I did during the period 1974-1977 for a doctoral dissertation which was submitted to the Delhi University in February 1977. I had initially set out to measure for the first two decades of 'planned development' between 1951 and 1971 the quantum of resource mobilisation from agriculture. This magnitude, we were repeatedly told during our years of undergraduate and graduate studies, constituted an important determinant of the pace of economic development. But it was hard to come by any careful and reasonably comprehensive measure of this 'critical' variable. It appeared to me that the construction of some such time series of the pattern of inter-sectoral resource flow would help to bridge this unfortunate gap in the relevant empirical material for studies of economic development in India.

Quite early in this study it became evident that the variable which I was trying to measure possibly lay at the heart of the problem of industrial deceleration which had plagued the Indian economy since the mid-sixties. A certain hypothesis took shape which linked the stagnation of the home market for industry to the slow development of agriculture via the drain of large portions of the surplus product in agriculture. Inevitably I now began to see the originally intended statistical exercise as also providing in some sense a test of this explanation of the deceleration hypothesis. The reader will find in this study a reflection of both these preoccupations. At one level an explanation, though admittedly a partial one, is offered towards unravelling the puzzle of industrial deceleration which had dominated the Indian economic scene during the past decade. Standing independent of this analysis, though providing strong empirical support to it, is the statistical exercise where I have constructed a time series of inter-sectoral resource transfers from 1951 to 1971.

Since the completion of the dissertation in February 1977, a number of important contributions have appeared which try to analyse the phenomenon of industrial deceleration from different points of view. My own views have also naturally evolved. Some ideas

have had to be discarded. Others have been reinforced. But apart from minor modifications and the addition of a concluding chapter, the present volume is not very different from the original dissertation. I would, however, like to put on record my deep regret that I was unable to draw upon Dr. Ashok Mitra's recent work on the closely related subject of *Terms of Trade and Class Relations* (1977). This important contribution by one of our most distinguished economists unfortunately became available only shortly after I had completed my work.

The plan of the work is as follows. Chapter I begins with a quick glance at the theoretical formulations which have analysed the link between inter-sectoral resource transfers and economic development. This overview leads to a particular hypothesis regarding the nature of this relationship in the specific context of economic development in India. The Framework of Measurement presented in Chapter II situates the statistical exercise of the later chapters within this specific analytical context. Chapters III, IV, and V present in that order estimates of the inter-sectoral flow of consumer goods, producer goods, and resources as a whole during the period 1951-52 to 1970-71. Chapter V also includes a quantitative analysis of the determinants of inter-sectoral resource flow which leads on to a discussion of the interaction between resource flow and industrial deceleration which is first outlined as a hypothesis in Chapter I. It turns out that a crucial variable in this whole process of imbalances and readjustment is the inter-sectoral terms of trade. Accordingly Chapter VI reviews the evolution of agricultural price policy in India from the point of view of administrative control over the terms of trade. Chapter VII summarises the empirical results and our main analytical conclusions.

While conducting this work I have incurred a large number of debts which I shall never be able to repay. But I would at least like to acknowledge some of these debts as a gesture of my gratitude. I am most deeply indebted to Prof. Pranab Bardhan who always made time to sit through long discussions during the most difficult stages of the work and who continued to help me through correspondence after he left for a teaching assignment at Berkeley. For equally valuable discussions at a later stage of the work I am indebted to Prof. Mrinal Dutta Choudhury, who joined Prof. Bardhan as my supervisor at the Delhi School of Economics, and Prof. Krishna Bharadwaj whose generous sacrifice of time has been so profitable for me. Prof. Suresh

Tendulkar painstakingly went through at least two drafts of the entire typescript. The errors in fact or interpretation which remain are in spite of all their efforts.

Among several others who either helped with research material or offered useful suggestions I would like to acknowledge Dr. Y.K. Alagh, Prof. Amit Bhaduri, Prof. Nikhilesh Bhattacharjee, Prof. N. Krishnaji, Prof. Dharma Kumar, Dr. R.N. Lal, Dr. K.C. Majumdar, Prof. John Mellor, Mr. Ashok Mody, Dr. Prabhat Patnaik, Dr. Suzy Paine, Prof. Joan Robinson, Prof. Ashok Rudra, Dr. R. Thamarajakshi, Prof. A. Vaidyanathan, and especially Dr. Kalpana Bardhan who also extended me the hospitality of her home at all times.

Parts of the thesis were presented to the faculty and students of the Delhi School of Economics in November 1975, and again, in a slightly revised form, at the Seminar on Political Economy of Agriculture at A.N. Sinha Institute, Patna, in November 1976. I have benefited a great deal from the responses of participants at both these seminars.

To my friends Mr. Raina of the Computer Centre, Delhi University, Mr. Raghunathan of St. Stephen's College, and Mr. Pankaj Butalia of the Shri Ram College of Commerce I owe a special debt for their help with some quantitative analysis.

The use of library facilities at the Indian Institute of Public Administration, New Delhi, and the Ratan Tata Library, Delhi University, and Computer facilities at the Delhi University Computer Centre is gratefully acknowledged. I would also like to express my gratitude to Mr. Ashok Kumar Taneja of the I.I.P.A. who had kindly typed several drafts of the manuscript.

Finally, I would like to thank my teacher and occasional critic Prof. K.N. Raj for the foreword and much else that he has contributed to the formation of my habits of thought in the analysis of economic phenomena.

SUDIPTO MUNDLE

Trivandrum
July 1980

Contents

<i>Foreword</i>	v
<i>Preface</i>	vii
I Inter-Sectoral Resource Transfers and Economic Development	1
1. The Dualistic Theory of Economic Development	1
2. Historical Specificity of the Resource Transfer Problem	5
3. Inter-Sectoral Resource Transfers and Economic Development in India	13
II Inter-Sectoral Resource Flow: The Framework of Measurement	24
1. The Concept of Net Resource Flow	24
2. The Demarcation of Sectors	29
3. Stocks, Government, and Foreign Trade	36
III Inter-Sectoral Flow of Consumer Goods	40
1. Method of Estimation	40
2. Estimates of Per Capita Consumption Expenditure	42
3. Decomposition of Population Estimates	52
4. Inter-Sectoral Flow of Consumption Goods	57
IV Inter-Sectoral Flow of Producer Goods	69
1. Method of Estimation	69
2. The Comparability Problem	72
3. Inter-Sectoral Input-Output Coefficients	83
4. Inter-Sectoral Flow of Producer Goods	93
5. Some Implications	99

	Appendix	105
V	The Determinants of Inter-Sectoral Resource Flow	107
	1. Net Inter-Sectoral Resource Flow	107
	2. A Model of Inter-Sectoral Trade	119
	3. The Determinants of Inter-Sectoral Resource Flow	124
VI	Agricultural Price Policy and the Inter-Sectoral Terms of Trade	135
	1. Price Policy and the Terms of Trade: An Overview	135
	2. Foodgrain Price Policy up to 1964	139
	3. Foodgrain Price Policy from 1964 to 1971	149
	4. Price Policy for Commercial Crops	166
	5. Inter-Sectoral Terms of Trade and Price Policy Bias	173
VII	A Summing Up	181
	1. The Empirical Results	181
	2. Imbalances and Readjustment: An Explanation of the Disproportionality Crisis	185
	<i>Bibliography</i>	192
	<i>Index</i>	207

CHAPTER I

Inter-Sectoral Resource Transfers and Economic Development

The major concern of this study is to construct a comprehensive time series of the estimates of inter-sectoral resource flow in the Indian economy for the period 1951-52 to 1970-71, and to explain the changes in this flow between different phases of the reference period in terms of related developments in the Indian economy. This mobilisation of resources from agriculture has come to be recognised as a linkage of central importance in the 'received' theory of economic development, especially following the work of Ranis and Fei (1964). In this chapter an attempt is made to critically examine this proposition, and other issues arising out of the relevant literature, with a view to locating this study within its appropriate theoretical context. As we shall see later on, this theoretical specification is methodologically crucial even though the study is essentially a piece of empirical research. This is because, in the absence of this specification of the precise theoretical perspective, our considerations would remain ambiguous on a number of important questions concerning the choice of a suitable conceptual framework of organising the relevant empirical material. And such ambiguity may easily lead to errors not only in the handling of data but also in its interpretation.

I. THE DUALISTIC THEORY OF ECONOMIC DEVELOPMENT

The theory of economic development embodied in some of the 'dual economy' models, deriving from the seminal contributions of Arthur Lewis (1954, 1958), suggests that the extraction of the agricultural surplus, i.e. a transfer of resources from agriculture in the 'traditional' rural sector to industry in the 'modern' urban enclaves, constitutes a necessary condition for the development of underdeveloped societies.

This thesis has been stated most forcefully as a more or less

universally valid *Law* of economic development by Ranis and Fei. Ranis and Fei (1961) in their original model were mainly concerned with the inter-sectoral flow of labour and marketable surplus from agriculture. The internal surpluses generated within industry were recognised as the principal sources of accumulation. However, in their later model (1964) they introduced the net transfer of real resources from agriculture to industry as a central linkage of the development process. In fact they now argued that it would be the savings of the agricultural sector that constituted the principal source of accumulation during the earlier stages of development, while the internal surpluses of the industrial sector were still very limited:

In a dualistic type of under-developed economy with a large subsistence agricultural sector, this sector must serve as a primary basis for the expansion of the economy. For this reason when the economy gathers momentum it is likely that S_a [agricultural savings] will constitute a major source of the economy's investment fund, dwarfing the savings of the industrial sector S_i . (Ranis and Fei, 1964: 31)

It is important to note incidentally that in the context of the Ranis-Fei model the financial transfer of savings from agriculture happens to be equivalent to the net transfer of real resources in the inter-sectoral balance of trade:

...we should note that the contribution of the agricultural sector to the rest of the economy can be measured, in the first instance and in the most basic sense, in terms of the net real resources transferred – the difference between the truckloads of food and raw materials delivered to the industrial sector and the industrial consumer goods sent in the opposite direction. . . . There exists, of course, a financial counterpart of this real resource contribution (B) just described. As in the case of two countries, the savings of one sector may lead, aside from investment in the same sector, to new capital formation in the other sector and, in terms of its financial counterpart, the magnitude of which is determined by the size of the export surplus. (Ranis and Fei, 1964: 30)

Evidently in the Ranis-Fei extension of the Lewis model the transfer of real resources from agriculture to industry, defined as the export surplus of the former, is seen as the *sine qua non* of economic development. However, it should be noted that Lewis himself was somewhat more cautious on this question. Starting from the position that 'the central problem of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 per cent of its national income or less, converts itself into an economy where voluntary savings is running at about 12 or 15 percent of national income or more', Lewis went on to argue that 'the

major source of savings is profit, and if we find that savings are increasing as a proportion of national income, we may take it for granted that this is because the share of profits in the national income is increasing' (Lewis, 1954).

Thus, according to Lewis a theory of economic development essentially had to explain the process through which the share of profits in national income might increase. For the purpose of providing such an explanation Lewis described a model with two sectors. One was described as the sector of agriculture, other than plantation agriculture, where the marginal product of labour is negligible, zero, or even negative. In any case it is much lower than the average product, the latter being close to the subsistence minimum. Along with this 'traditional' agricultural sector Lewis demarcated a small enclave of industries (including plantation agriculture) which is a 'capitalist' sector wherein labour is employed up to the point where its marginal product is equal to wage rate. The wage rate itself is constant in real terms and slightly higher than the average product in agriculture, the difference providing the motivation for migration of labour from agriculture. Thus, there exists an 'unlimited' supply of surplus agricultural labour available at the initial configurations of capital stock and real wage in the 'capitalist' sector.

In this setting growth proceeds with the continual reinvestment of the capitalists' surplus or profits for accumulation at the extensive margin (capital widening). With each round of reinvestment, therefore, a portion of the surplus agricultural labour is absorbed in the 'capitalist' sector according to the wage equal to marginal product criterion. And as this 'widening' accumulation of capital proceeds the rising share of industrial production in national income simultaneously results in a rising share of profits in national income since real wages remain constant. This process of growth would naturally cease to operate once the entire surplus labour in agriculture is absorbed. However, Lewis also noted a number of special possibilities whereby the process may cease to operate even earlier.

What is important to note for our purposes in this model is that in this general scheme the only transfer from agriculture to industry which is important for the development process is the transfer of surplus labour and not either the transfer of marketed surplus or the net transfer of resources. And the principal source of accumulation is the internal surplus of the industrial sector itself. However, Lewis did note the possibility of a special case where the net transfer of resources

might become crucial. This is the case where the industrial sector can neither produce its own food nor import it from the rest of the world. In this case the industrial sector would not only draw labour but also marketed surpluses of food from a stagnant agricultural sector. The increasing size of the industrial labour force would inevitably increase the demand for food in this sector and this might shift the terms of trade in favour of agriculture. This would entail a rising industrial product wage, corresponding to a constant agricultural product wage, which would in turn involve a decline in the share of profits in industry. Under these circumstances specific policy interventions may become necessary to bring about a net transfer of resources from agriculture to industry and thus keep the accumulation process going.

We have described this particular special case because, as we shall see later, an attempt has been made to describe the growth process of the Indian economy in these terms. But for the present it is noted that, except in this special case, Lewis emphasises only the transfer of surplus labour and not the transfer of resources.¹ There is also a whole class of alternative dualistic models deriving from the work of Jorgenson (1966) which emphasises the importance of inter-sectoral differences in factor endowments, technology, and behavioural parameters rather than the inter-sectoral flows themselves.² And most of these models implicitly rule out the possibility of net resource transfers, except some 'invisible' transfers through changes in the inter-sectoral terms of trade, in assuming balanced inter-sectoral trade.

Nevertheless, it has to be recognised that the basic concept of development implicit in the entire range of dualistic models of both the Lewis-Ranis-Fei variety and the Jorgenson variety is the same. This is a concept which essentially identifies development with the process of industrialisation, i.e. the development of industry proper as something distinct from agriculture. Here agriculture is only seen as playing the role of a facilitator making available to industry the necessary

¹For yet another formulation which emphasises the role of the transfer of marketable surpluses rather than net resource transfers, see Nicholls (1961, 1963).

²See, for instance, Kelley, Williamson and Cheetham (1972), Zarembka (1972), and Dixit (1973). The paper by Dixit gives a useful survey of the dual economy growth models. Actually the basic qualitative differences between the neo-classical models of the Jorgenson variety and the 'classical' models of the Lewis variety lie only in the specification of the initial conditions. And as both Dixit (1973) and Jorgenson (1967) have pointed out, the long-run behaviour of the two classes of models are not very different.

quantities of labour, marketable surplus, resources for financing investment, and possibly exports for financing the necessary imports (Mellor and Johnson, 1961). So long as we restrict our concept of development to this particular interpretation, i.e. development which is identical to industrialisation, and also ignore the problem of demand, the Ranis-Fei emphasis on the importance of resource transfers from agriculture appears to be justified. For it is evident that in an underdeveloped society where the industrial sector is still very small compared to agriculture the accumulation of capital in the former may have to be heavily dependent on resource transfers from the latter in the absence of large scale inflows of capital from abroad.³

2. HISTORICAL SPECIFICITY OF THE RESOURCE TRANSFER PROBLEM

However, it can be argued that this specific pattern of development which is identical to industrialisation, while it may have been characteristic of the classical pattern of development of capitalism in Europe and elsewhere (Lele, 1970), is not the only possible pattern of development. And if alternative patterns of development are conceivable then it is equally conceivable that the transfer of resources out of agriculture may not constitute a necessary condition even for the initial stages of development and even in the context of a closed economy. In other words, it can be argued that there is nothing sacrosanct about resource transfers from agriculture *per se* and that the importance or unimportance of such transfers may well depend on the initial conditions, the specific pattern of development, and the specific economic system in which such development occurs.

It is but natural from this point of view to move beyond the classical development pattern of capitalism and examine the role of inter-sectoral resource transfers in the context of socialist development. It so happens that the role of resource transfers from agriculture became a question of central importance in the choice of a strategy of planned development in the very first case of development

³It should perhaps be clarified, even at the risk of stating the obvious, that we are here concerned with the role of resource transfers only during the very early stages of development, while the industrial sector is still very small. Even in terms of the industrial capital-oriented concept of development it is evident that once the industrial sector is sufficiently developed proportionality considerations may well require a reverse transfer of resources into agriculture.

under a socialist state in the Soviet Union.⁴ The original and authoritative exponent of the view that it was essential to mobilise surpluses from agriculture was Evgenii Preobrazhensky (1926), and for our present purposes it is important to examine his thesis in some detail.

Preobrazhensky had anticipated the dualism models of the post-war period, and in particular the Ranis-Fei type of emphasis on inter-sectoral resource transfers, several decades before the appearance of the original Lewis paper (Lewis, 1954). However, there is an essential difference between Preobrazhensky's theoretical formulation and some of these formulations. The latter have remained generalised formulations set up in the context of imaginary and highly simplified economic systems. In fact the attempt to extend conclusions based on such imaginary systems as generally valid propositions for underdeveloped societies is unwarranted since the specifications of these models bear at best a very remote resemblance to pre-capitalist societies in transition to capitalism. In contrast, Preobrazhensky was concerned with providing the theoretical foundations of the Left Opposition position in an intense political debate directly concerned with actual realities of the Soviet economy. As such his theory was firmly embedded in the specific conditions obtaining in a real economy.

Preobrazhensky's point of departure was a perspective of the Soviet economy as a dual system where two sub-systems with conflicting laws of motion coexisted in an unending disequilibrium. One system was what he called the system governed by the law of value.⁵ This included international capitalism outside the Soviet economy and the private economy which still controlled agriculture within the Soviet economy. The other system was the system governed by the 'planning principle', i.e. the state economy based on collective ownership of the means of production which primarily controlled industry:

It is a complex business to analyse an economic system in which both the planning principle – within the limits imposed by the degree of organization attained in the economy – and also the law of value, with its externally compelling power, are operating simultaneously. . . . But the law of value and the planning principle. . . are operating within a single economic organism,

⁴For an excellent analytical account of the long and heated debate around this question, see Ehrlich (1960). See also Ehrlich (1950), Carr (1958), and Dobb (1966).

⁵By the law of value Preobrazhensky, a Marxist, meant compulsions of a market mechanism which operates in a system based on private property and commodity production.

and are counterposed one to the other as a result of the victory of the October Revolution. Consequently neither law appears in its pure form. The proletarian state guides not only the state economy but also domestic and foreign policy, endeavouring to protect the system as it exists, to strengthen it, and to bring socialist principle to triumph in it. It encounters resistance from world capitalism without and from private economy within. (Preobrazhensky, 1926: 55-56)

The explicit role of the proletarian state in a milieu still governed by the 'law of value' was to progressively develop and consolidate the state sector in opposition to the private sector. And this necessarily gave rise, according to him, to an operation of the law of primitive socialist accumulation:

By the law of primitive socialist accumulation we mean the entire sum of conscious and semi-spontaneous tendencies in the state economy which are directed towards the expansion and consolidation of the collective organisation of labour in the Soviet economy and which are dictated to the Soviet state on the basis of necessity: (1) The determination of proportions in the distribution of productive forces, formed on the basis of struggle against the law of value inside and outside the country and having as their objective task the achievement of the optimum expanded socialist reproduction in the given conditions and of the maximum defensive capacity of the whole system in conflict with capitalist commodity production; (2) the determination of the proportions of accumulation of material resources for expanded reproduction, especially at the expense of private economy in so far as the determined amounts of this accumulation are dictated compulsorily to the Soviet state under threat of economic disproportion, the growth of private capital, weakening of the bond between the state economy and peasant production, derangement in years to come of the necessary proportions of expanded socialist reproduction and weakening of the whole system in its conflict with capitalist commodity production inside and outside the country. (Preobrazhensky, 1926: 146)

Stated in its simple form, what Preobrazhensky meant by the law of primitive socialist accumulation was 'accumulation in the hands of the state of *material resources* mainly or partly from sources lying outside the complex of state economy' (Preobrazhensky, 1926: 84). His argument was that in order to preserve the socialist state and to build socialism, the system of state economy which controlled industry must penetrate and ultimately absorb the domain of the private economy which still controlled agriculture. In order to do so the state sector, initially small and weak, must undertake rapid accumulation. Partly this accumulation would be based on surplus product⁶

⁶The concept is explained further below.