



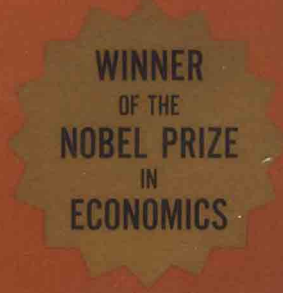
AMARTYA SEN

RESOURCES

VALUES

AND

DEVELOPMENT



WINNER
OF THE
NOBEL PRIZE
IN
ECONOMICS

Resources,
Values and Development
AMARTYA SEN

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Preface

I was once asked (in Geneva, by a patrician sizing up a doubtful visitor) whether I liked culture. Yes, I heard myself saying, and felt immeasurably stupid. That sense of fatuity is slightly revived in calling this selection of essays *Resources, Values and Development*. Good enough subjects, but can any economics get away from them? Informative titles are hard to devise, but it may be explained that these essays are mainly concerned with development economics as it is normally understood, and that many of them deal with various aspects of resource allocation in that context and in particular with the role of motives and values in resource use and its assessment.

The essays are not directly concerned with welfare economics, unlike many of the papers included in a previous selection, *Choice, Welfare and Measurement* (Basil Blackwell and MIT Press, 1982). But the welfare economic perspective has been widely used. That perspective influences the assessment of allocational rules and motivational features (Part I), investment strategies and discounting procedures (Part II), shadow pricing and project evaluation (Part III), global inequalities and international transfers (Part IV), social poverty and intra-family disparities (Part IV), real income and economic inequality (Part V), food availability and entitlement failures (Part V), and even the nature of economic development (Part V). The welfare-economic approach often departs from traditional formats, and there is also some reassessment of the moral foundations of policy making and resource allocation (Essays 12 and 13).

Apart from traditional problems of resource allocation, the investigations focus particularly on some uncomfortable subjects, including inequality, deprivation, sex bias, undernourishment, morbidity, hunger and famines. The descriptive and predictive analyses go specifically into institutional features at different levels, involving the state, the legal system, the wage system, the market mechanism, the family, and even the media and pressure groups.

There is a fairly long introductory essay. This deals with inter-connections between the various themes of these papers as well as the related literature. Some of the essays included here have provoked a fair amount of discussion (in the form of extensions, applications and disputations), and many of the issues raised have been taken up in the Introduction.

The idea of publishing this selection of essays (like the last one, *Choice, Welfare and Measurement*) came from René Olivieri of Basil Blackwell, and he has once again been enormously helpful in advising on which essays to select and how to arrange them. I am also most grateful to Patricia Williams for encouragement and helpful suggestions.

I would also like to thank Nicola Harris for looking after the production and presentation of the book with superb efficiency, and Jocelyn Kynch for greatly helping me with proof correction and indexing.

A.K.S.

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Introduction

Much of economics is neat and elegant; but some of it is not. The essays included in this volume belong distinctly to the latter category. They deal with institutional complexities of economic development, the untidy parts of the theory of resource allocation, the peculiar role of values in social behaviour, the conflicts and contradictions of normative assessment, and the challenges to economic theory and policy presented by informational lacunae and conceptual ambiguity.

Some of the issues also call for going beyond what are often taken to be the boundaries of economics – into political, social and philosophical matters. These boundaries are often defined very narrowly, involving partitions that classical economists, such as Smith or Marx, would not easily have recognized. Some of modern economics seems indeed to be based on the corset-maker's old advice: 'If madam is entirely comfortable in it, then madam most certainly needs a smaller size.'

1 *Institutions and Motivation*

1.1 *Non-wage systems and the peasants*

The wage system was born yesterday. For ages, people have toiled in hunting, fishing, gathering, husbanding animals and cultivating land with other systems of reward. Even today a majority of the labour force of the world work in institutional arrangements that involve little or no use of wages. In contrast, the bulk of modern economic theory sees employment strictly in terms of the wage system and investigates resource allocation within that specific format. There is, of course, no mystery in this contrariness, since much of modern economic theory confines itself – explicitly or by implication – to the advanced capitalist economies. The first two papers in this selection are devoted to exploring the logic of various non-wage

systems – peasant agriculture, dual economies and cooperative allocation.

In my *Choice of Techniques*, written in the fifties,¹ there was an attempt, among other things, to contrast the allocational rules of peasant agriculture with those of wage-based industry. Essay 1 ('Peasants and Dualism with or without Surplus Labour') extends that analysis within an explicit framework of maximizing behaviour. The subject is not, of course, new, and various authors, such as Chayanov, have produced models of non-wage agricultural allocation.² Even Alfred Marshall had argued that 'the cultivator working with his own hands often puts into his land as much work as he feels able to do, without estimating carefully its money value in relation to its product'.³ The analytical structure of peasant allocation developed and used in Essay 1 accepts this departure from profit-maximization and money-value calculation, but does not attribute the departure to behaviour that is not 'careful'. Rather, the goal is seen to be maximizing some notion of the well-being of the family, and institutional constraints are seen as limiting transactions. In this context, 'careful' calculations can and do lead to different results from profit-maximization at market prices.

This exercise in pure theory also relates to some apparently puzzling empirical findings about Indian agriculture. Official studies of 'farm management' done in the fifties produced a wealth of information about Indian agriculture.⁴ But they made rather a mess of interpreting these data by trying to fit them into a framework of a wage economy, e.g., by valuing family labour at imputed market wages. For example, the reports expressed 'alarm' at finding that '50 per cent or more of the farmers are carrying on the business at a loss'. Indian agriculture does, of course, offer genuine scope for much alarm; but this one is really due to illegitimate application of imported concepts, to wit, valuing all family labour at market wages even when there is no option of such employment. While there is no great difficulty in making *ad hoc* corrections to interpret the results of Indian 'farm management' studies (and to explain away the

1. *Choice of Techniques* (Oxford: Blackwell, 1960), Chapter 1 and Appendix A. (This was presented as a Prize Fellowship dissertation at Trinity College, Cambridge, in 1957). See also 'The Choice of Agricultural Techniques in Underdeveloped Countries', *Economic Development and Cultural Change*, 7 (1959).

2. A. V. Chayanov, *The Theory of the Peasant Economy*, English translation, edited by D. Thorner, B. Kerblay and R. E. F. Smith (Homewood, Ill.: Irwin, 1966).

3. A. Marshall, *Principles of Economics*, 8th edition (London: Macmillan, 1949), p. 540.

4. See the series of *Studies in the Economics of Farm Management*, done by the Ministry of Food and Agriculture, beginning in 1954-55, for Bombay, Madhya Pradesh, Madras, Punjab, Uttar Pradesh and West Bengal, published by Government of India, New Delhi.

apparent puzzles),⁵ what is needed is a more complete theory of resource use in peasant and mixed agriculture. Essay 1 is an attempt to take up that challenge. It presents a structure of fully peasant allocation (respectively, with *and* without markets for products and for non-labour inputs) and also of dual economies with peasant agriculture coexisting with wage-based capitalist enterprises.

Among the various 'responses' that can be calculated in terms of such a structure is the response of total output to the withdrawal of a part of the labour force (equation (37), Essay 1, p. 50 below). The special case of zero response represents the existence of 'surplus labour' – a subject of some interest and much controversy. The analysis showed that contrary to some well-known statements,⁶ marginal product of labour being zero is neither a necessary, nor a sufficient, condition for the existence of surplus labour (or 'disguised unemployment'). That depends more on the extent to which the effort per person left behind can be expected to increase as a part of the labour force moves away, and it is this relation that equation (37) expresses.

These issues have been discussed a good deal in the literature.⁷ I shall not try to review those extensive discussions here,⁸ but it may

5. See my 'An Aspect of Indian Agriculture', *Economic Weekly*, 14, Annual Number, February 1962, and 'Size of Holdings and Productivity', *Economic Weekly*, 16, Annual Number, February 1964. There has been an extensive controversy on the reading of the empirical relationships and the explanations offered. That literature up to the early seventies is reviewed in my *Employment, Technology and Development* (Oxford: Clarendon Press, 1975), Appendix C ('Labour Cost, Scale and Technology in Indian Agriculture'). Later contributions on this subject include, among others, Krishna Bharadwaj, *Production Conditions in Indian Agriculture* (Cambridge: Cambridge University Press, 1974); G. R. Saini, *Farm Size, Resource-Use Efficiency and Income Distribution* (New Delhi: Allied Publishers, 1979); and Ashok Rudra and Amartya Sen, 'Farm Size and Labour Use: Analysis and Policy', *Economic and Political Weekly*, 5, Annual Number, February 1980.

6. See, for example, R. Nurkse, *Problems of Capital Formation in Underdeveloped Countries* (Oxford: Blackwell, 1953), p. 33; J. Viner, 'Some Reflections on the Concept of "Disguised Unemployment"', *Contribuições a Análise do Desenvolvimento Económico*, 1957, p. 18; G. Myrdal, *Asian Drama* (New York: Pantheon, 1968), p. 2053.

7. See particularly S. Wellisz, 'Dual Economies, Disguised Unemployment and the Unlimited Supply of Labour', *Economica*, 35 (1968); S. Hymer and S. Resnick, 'A Model of an Agrarian Economy with Non-agricultural Activities', *Review of Economic Studies*, 36 (1969); D. W. Jorgenson and L. Lau, 'An Economic Theory of Agricultural Household Behaviour', presented at the Far Eastern meeting of the Econometric Society, Tokyo, 1969; C. Nakajima, 'Subsistence and Commercial Family Farms: Some Theoretical Models of Subjective Equilibrium', in *Subsistence Agriculture and Economic Development*, edited by C. R. Wharton (Chicago: Aldine, 1969); J. Stiglitz, 'Rural-Urban Migration, Surplus Labour, and the Relationship between Urban and Rural Wages', *East African Economic Review*, 1 (1969); J. S. Uppal, 'Work Habits and Disguised Unemployment in Underdeveloped Countries: A Theoretical Analysis', *Oxford Economic Papers*, 21 (1969); W. C. Robinson, 'The Economics of Work Sharing in Peasant Agriculture', *Economic Development and Cultural Change*, 19 (1971); H. N. Barnum and L. Squire, *A Model of an Agricultural Household: Theory and Evidence* (Baltimore, Md.: Johns Hopkins Press, 1979); M. R.

be appropriate to make a few remarks on this subject, supplementing what is said in Essay 1. First, the necessary and sufficient conditions for the existence of surplus labour can become much less exacting than those derived from equation (37) if the objective function of the family is not taken to be separable into consumption and leisure. This point is, in fact, made in Essay 1 (p. 45), but has tended to be ignored in the subsequent literature, in taking the flatness of both marginal utility of consumption and of marginal disutility of work as being necessary for the existence of surplus labour. What is necessary is the constancy – as some labourers move away – of ‘the real cost of labour’, i.e. of the marginal rate of substitution between income and leisure (Essay 1, pp. 44–5), and this can be the case even when the marginal utility and disutility schedules are not respectively flat, provided they interrelate (i.e. have non-zero ‘cross partials’). For example, if more income and consumption (e.g. greater intake of food) reduces the drudgery of work, then the marginal rate of substitution can be constant as both work and income per head increase, due to a reduction in peasant labour force, even when the marginal utility of income has the conventional downward slope and the marginal disutility of work the conventional upward incline.⁹

Second, surplus labour is only one special case and the importance of the ‘response analysis’ does not lie only in dealing with that case – interesting and controversial though that case may be. Labour emigration leads to a number of adjustments in a peasant economy, of which a change in the hours of work of those remaining behind is one. Often there may be no disguised unemployment at all, and yet the net reduction of total labour effort, and consequently of output, may be small in comparison with the size of migration. It is possible to estimate these expected responses, and the relevance of these calculations goes well beyond merely checking whether the output response happens to be exactly zero or not.¹⁰

Rosenzweig, ‘Neoclassical Theory and the Optimizing Peasant: An Econometric Analysis of Market Family Labour Supply in a Developing Country’, *Quarterly Journal of Economics*, 94 (1980); C. J. Bliss and N. H. Stern, *Palampur: The Economy of an Indian Village* (Oxford: Clarendon Press, 1982); P. Bardhan, *Land, Labour and Rural Productivity: Essays in Development Economics* (Cambridge: Cambridge University Press, forthcoming).

8. See, however, my *Employment, Technology and Development* (1975).

9. Barnum and Squire (*A Model of Agricultural Household*, 1979) have argued for extending this analysis by taking note of the adjustment of labour hiring in peasant agriculture following migration from it, and this can make the conditions for unchanged agricultural output less exacting still.

10. For example, Barnum and Squire (1979) estimate in their case study that ‘in the study area of northwest Malaysia... 38 percent of the reduction of household labour supply following the departure of one working family member is replaced by the extra effort on the part of the remaining family members, *ceteris paribus*’ (p. 93).

Third, as is argued in Essay 1, because of the seasonal nature of agricultural production, it is 'misleading to speak in terms of a homogeneous unit of labour'. The problem can be dealt with by either assuming strict proportionality between labour use in different seasons (e.g. harvesting labour and planting labour going up or down in proportion with each other), or limited complementarity (with positive cross-partials of marginal productivity of one type of labour vis-à-vis another) (Essay 1, pp. 58-9). There is no great difficulty in extending the response analysis, including the conditions for the existence of surplus labour, to the seasonal case.¹¹ A simple case – sufficient for this purpose – involves flat 'real cost of labour' (marginal rate of substitution between income and leisure) in *each* season.¹²

How common and how extensive surplus labour may, in fact, empirically be is, of course, a different question. There is some considerable evidence that lean-season idleness may often go with much tightness in other seasons,¹³ and the indifference curves between income and leisure may well be far from straight in the peak seasons. Essay 1 makes no claim about the actual existence, or size, of surplus labour,¹⁴ but presents some necessary and sufficient conditions for surplus labour to exist in peasant economies. More generally, the

11. There has been some misunderstanding of this particular point. In an otherwise illuminating paper, Stiglitz has argued: 'we have proved that, provided leisure is a superior good and labour supplied at harvest and planting times and at other times of the year are complementary, output must fall as labour migrates to the urban sector: labourers cannot be in surplus' (J. Stiglitz, 'Rural-Urban Migration, Surplus Labour, and the Relationship between Urban and Rural Wages', *East Africa Economic Review*, 1 (1969), p. 11). This claim is not correct, and Stiglitz gets this odd result only because he assumes 'for simplicity' that in one of the two seasons labourers 'work the maximum that is possible at those times' (p. 3). See Essay 11 below, pp. 262-3.

12. This would permit surplus labour with any degree of substitutability between labour in different seasons – even with perfect complementarity (see Essay 1).

13. See, for example, B. Hansen, 'Employment and Wages in Rural Egypt', *American Economic Review*, 59 (1969); P. Bardhan, *Land, Labour and Rural Poverty*, forthcoming.

14. Empirical tests of the existence of surplus labour have been few and rather limited. T. W. Schultz is one of the few to offer a serious statistical test, based on output reductions after the influenza epidemic of 1918-19 in India (*Transforming Traditional Agriculture*, New Haven: Yale University Press, 1964). I have argued elsewhere that Schultz's test is, however, rather seriously flawed; see my 'Surplus Labour in India: A Critique of Schultz's Statistical Test', *Economic Journal*, 77 (1967), and the exchange with Schultz in the same number. See also S. Mehra, 'Surplus Labour in Indian Agriculture', *Indian Economic Review*, 1 (1966); D. W. Jorgenson, 'Testing Alternative Theories of the Development of a Dual Economy', in I. Adelman and E. Thorbecke (eds), *The Theory and Design of Economic Development* (London: Johns Hopkins Press, 1967); A. R. Khan, *The Economy of Bangladesh* (London: Macmillan, 1972); Raj Krishna, 'Unemployment in India', *Economic and Political Weekly*, 8, 3 March 1973; M. Alamgir, *Bangladesh: A Case of Below Poverty Level Equilibrium Trap* (Dacca: BIDS, 1978); A. Rudra, *Indian Agricultural Economics: Myths and Realities* (Delhi: Allied Publishers, 1982).

essay presents the response relations and the parameters on which the size of those responses would depend. Surplus labour merely corresponds to a special case of one of the responses analysed.¹⁵

1.2 *Cooperation and motives*

The motivational assumption underlying the model of peasant allocation in Essay 1 is simple – perhaps even naïve. The entire allocation is guided by the objective of maximizing ‘family welfare’, which is given a utilitarian form. While there may be conflicts of interest within the family (e.g. between the members involved primarily in agricultural work and those primarily homebound), the model does not permit these conflicts to play any serious part in determining the economic activities of the peasant family.

This type of motivational format is often thought to be appropriate for characterizing the role of families in other types of economies as well. For example, in standard general equilibrium theory dealing with capitalist market economies, intra-family relations are kept completely out of the picture, presumably on the basis of some simplifying assumption like this one. One of the later essays in the volume (Essay 15) critically evaluates this tradition, and others (Essays 16, 19 and 20) pursue these matters more. I shall come back to this question later on in this Introduction.

While conflicts within the family have come into formal economics only relatively recently, those within other non-wage organizations,

15. There is also a brief discussion in Essay 1 of resource allocation under share-cropping. Much depends on what types of institutional assumptions we make, e.g. whether the shares of the landowners and the cultivators are taken to be fixed, given by established convention and norms, or whether they are assumed to be flexible, determined by market forces. The model of fixed shares presented in Essay 1 yields inefficiency (Section 4.2), whereas a model of competitive determination of shares need not (see S. N. Cheung, *The Theory of Share Tenancy*, Chicago, Ill.: University of Chicago Press, 1969). The results depend on the institutional assumptions about related markets, (e.g. those of labour, land and credit), the nature of technology, input cost sharing, and also on features of uncertainty. There is by now quite a rich literature on the subject. See, among others, P. K. Bardhan and T. N. Srinivasan, ‘Crop Sharing Tenancy in Agriculture: A Theoretical and Empirical Analysis’, *American Economic Review*, 61 (1971); J. Stiglitz, ‘Incentives and Risk Sharing in Share-cropping’, *Review of Economic Studies*, 61 (1974); C. Bell and P. Zusman, ‘A Bargaining Theoretic Approach to Cropsharing Contracts’, *American Economic Review*, 66 (1976); D. M. G. Newbery, ‘Risk Sharing, Sharecropping and Uncertain Labour Markets’, *Review of Economic Studies*, 44 (1977); A. Braverman and T. N. Srinivasan, ‘Credit and Sharecropping in Agrarian Societies’, *Journal of Development Economics*, 9 (1981); A. Braverman and J. E. Stiglitz, ‘Sharecropping and the Interlinking of Agrarian Markets’, *American Economic Review*, 72 (1982); Bliss and Stern, *Palanpur: The Economy of an Indian Village* (1982); T. J. Byres (ed.), ‘Sharecropping and Sharecroppers’, Special Issue, *Journal of Peasant Studies*, 10 (1983), including contributions by T. J. Byres, R. Pearce, Utsa Patnaik, Amit Bhaduri, Juan Martinez-Alier, José Maria-Caballero and Jay R. Mandile.

such as cooperatives, have been discussed extensively for a long time. Essay 2 ('Labour Allocation in a Cooperative Enterprise', 1966) is concerned with this question. It takes explicit note of the combination of congruent and conflicting interests that characterize the problem of cooperative allocation. Essay 2 starts off with the distinction between payment according to work and that according to need – a contrast that has been discussed a great deal since Marx's classic analysis of it in his *Critique of the Gotha Programme* (1875).¹⁶

Assuming that each individual constituting the cooperative is concerned only with his own well-being, it is easily checked that a system of distribution entirely according to needs would tend to lead to inoptimal use of labour in the sense that too little effort would be put in. There is nothing odd or unusual about this conclusion. Already in 1875, Marx had criticized 'the Gotha Programme' of the German Workers' Party for overlooking this basic incentive problem. What might be a little more surprising was the result that labour use would be inoptimal also with distribution entirely according to work. That system would make people perform *too much* labour, since work points give them 'entitlement' to parts of the *total* production (not just to the marginal output). Both the directional results (i.e. too little effort with distribution according to need, and too much with distribution according to work) remain true even when people are not selfish and have concern for others (Essay 2, Section 5), so long as they do not have perfect 'social consciousness' (in the form of valuing the gains to others just as much as those to themselves).

The optimal rule of part-work-part-need distribution is easy to derive.¹⁷ The rule, interestingly enough, is independent of the actual extent of 'sympathy' that people have for each other,¹⁸ though the

16. K. Marx, *Critique of Gotha Program*; English translation (New York: International Publishers, 1933), and K. Marx and F. Engels, *Selected Works*, Vol. II (Moscow: Foreign Language Publishing House, 1967).

17. Equations (14) and (14b) in Essay 2, p. 82. In an ingenious contribution, Louis Putterman has shown how this optimal rule for division of income can get chosen through democratic voting by self-interested individuals ('On Optimality in Collective Institutional Choice', *Journal of Comparative Economics*, 5 (1981)). See also L. Putterman and M. DiGiorgio, 'Simulation Results for a Model of Democratic Semi-Collective Agriculture', *Oxford Economic Papers*, forthcoming.

18. There is an obvious analogy here – indeed analytical equivalence (under a different interpretation) – with the fact that some competitive efficiency results are unaffected by particular types of externality. Some of these issues were later explored illuminatingly by S. G. Winter, Jr. ('A Simple Remark on the Second Optimality Theorem of Welfare Economics', *Journal of Economic Theory*, 1 (1969)), and G. C. Archibald and D. Donaldson ('Non-paternalism and Basic Theorems of Welfare Economics', *Canadian Journal of Economics*, 9 (1976)), among others.

size of the loss from inoptimal rules would vary with it. However, in the special case of perfect 'social consciousness', any rule of division between payment according to work and that according to need will do. To put it another way, within the structure of this type of cooperative allocation, the conditions that make distribution purely according to need fail (as in the 'early stages of communism' in Marx's schema) would also make distribution according to work inefficient. It is only with perfect social consciousness that work-wise distribution – like needwise distribution – will be itself adequate.

At the time Essay 2 was written (during 1964–65), Benjamin Ward's pioneering study of 'market syndicalism'¹⁹ had begun to revive interest in the pure theory of cooperative allocation.²⁰ In Ward's model the work per person was fixed (the number of members in the cooperative being the variable that was studied). The main thrust of Essay 2 was to take up the question of variable effort and the incentive problems associated with this. The literature on cooperative allocation has expanded enormously in recent years, and the incentive problems have been extensively studied, both in terms of pure theory, and also drawing on the lessons learned from experiences in such countries as China, the USSR, Yugoslavia and Israel.²¹

The Chinese experience, in particular, has been the subject of a great deal of international interest, and there can be no doubt that China has experimented with bolder schemes of cooperative alloca-

19. 'The Firm in Illyria: Market Syndicalism', *American Economic Review*, 48 (1958). See also his later article, 'Organization and Comparative Economics: Some Approaches', in A. Eckstein (ed.), *Comparison of Economic Systems* (Berkeley, Calif.: University of California Press, 1971), and his book *The Socialist Economy* (New York: Random House, 1967).

20. See also E. D. Domar, 'The Soviet Collective Farm as a Producer Cooperative', *American Economic Review*, 56 (1966).

21. Among other contributions, see J. Vanek, *The General Theory of Labour-Managed Market Economies* (Ithaca, New York: Cornell University Press, 1970); N. E. Cameron, 'Incentives and Labor Supply in Cooperative Enterprises', *Canadian Journal of Economics*, 6 (1973); A. K. Sen, *On Economic Inequality* (Oxford: Clarendon Press, 1973), Chapter 4; C. Riskin, 'Incentive Systems and Work Motivations: The Experience of China', *Working Papers for a New Society*, 1 (1974); E. S. Phelps (ed.), *Altruism, Morality and Economic Theory* (New York: Russell Sage, 1975); C. Riskin, 'Maoism and Motivation: A Discussion of Work Incentives in China', in V. Nee and J. Peck (eds), *China's Uninterrupted Revolution* (New York: Pantheon, 1975); J. M. Montias, *The Structure of Economic Systems* (New Haven, Conn.: Yale University Press, 1976); M. D. Berman, 'Short-run Efficiency in the Labor-Managed Firm', *Journal of Comparative Economics*, 1 (1977); J. P. Bonin, 'Work Incentives and Uncertainty on a Collective Farm', *Journal of Comparative Economics*, 1 (1977); D. L. Chinn, 'Team Cohesion and Collective Labour Supply in Chinese Agriculture', *Journal of Comparative Economics*, 3 (1979); L. D. Israelsen, 'Collectives, Communes and Incentives', *Journal of Comparative Economics*, 4 (1980); L. Putterman, 'Voluntary Collectivization: A Model of Producers' Institutional Choice', *Journal of Comparative Economics*, 4 (1980); Putterman, 'On Optimality in Collective Institutional Choice' (1981); L. Putterman, 'Incentives and the Kibbutz: Toward an Economics of Communal Work Motivation', *Zeitschrift für Nationalökonomie*, 43 (1983).

tion than any other country in the world. At the time Essay 2 was written, the Great Leap Forward (1958–60), with its attempt at communal distribution emphasizing needs, had come to an end, and the starvation and famine (1959–61) that followed (on this see Essay 19, pp. 501–3 below) had also passed. The Chinese economy was being consolidated with the use of more traditional incentives; and the radical experiment of the Cultural Revolution would soon be launched.

The 'Sixteen Points' programme, adopted in 1966, ushering in the Cultural Revolution, pleaded for 'an education to develop morally, intellectually and physically and to become labourers with socialist consciousness and culture'.²² It declared that 'the aim of the Great Proletarian Cultural Revolution is to revolutionize people's ideology and as a consequence to achieve greater, faster, better and more economical results in all fields of work'.²³ I remember wondering whether the case of 'perfect social consciousness' discussed in Essay 2, which happened to be published just as the 'Sixteen Points' were being adopted, would prove to be actually realizable, making that particular 'optimal solution' (among the two, (14a) and (14b), outlined in Essay 2) to be something more than a purely theoretical possibility.

It is tempting to think that this question has been answered firmly in the negative, since the Cultural Revolution is now regarded by the Chinese government as a total failure. This may well be the correct answer, but it is difficult to be sure. It is undoubtedly true that the official Chinese assessment of the Cultural Revolution is now as firmly negative as it had been firmly positive earlier, and that 'eating from the same big pot' and 'stirring up a communist wind' (two colourful phrases used these days to describe the philosophy of the Cultural Revolution) have been condemned in no uncertain terms. But it is difficult to separate out the problems created by the reliance on moral incentives from the chaos of the political movement that went with it.²⁴ With screaming Red Guards taking over factories,

22. 'The Decision of the Central Committee of the Chinese Communist Party Concerning the Great Proletarian Cultural Revolution', adopted on 8 August 1966, reproduced in Joan Robinson, *The Cultural Revolution in China* (Harmondsworth: Penguin, 1969), p. 93. The language partly mirrored Marx's concern in *Critique of the Gotha Programme* of an early socialist economy being 'economically, morally and intellectually, still stamped with the birthmarks of the old society' (p. 21).

23. Quoted in Robinson, *The Cultural Revolution*, p. 95.

24. It is also worth noting that judged in terms of over-all growth rate the Chinese economy did rather well in the period of the Cultural Revolution. While Professor Ma Hong, the President of the Chinese Academy of Social Sciences, may well be right in saying that 'needless to say, none of these successes can be attributed in any way to the "Cultural

intellectuals being banished to rural areas, etc., more was happening in China during the Cultural Revolution than just the use of a different incentive system – with emphasis on social consciousness.²⁵

The goal of ‘perfect social consciousness’ is undoubtedly a hard one to achieve, and certainly the Cultural Revolution has not been able to establish the feasibility of ‘moral incentives’ in the way Mao had anticipated. But nor has it demonstrated its unfeasibility in a definitive way, since the theory and practice of the Cultural Revolution have been so far apart.²⁶ The possibility of transforming the parameters that affect cooperative allocation, including social consciousness, will no doubt continue to attract serious attention.

The importance of motives other than individual profits is inescapable in cooperative allocation, and in other forms of non-capitalist systems (including peasant economies). But even for capitalist economies the adequacy of the profit motive is far from clear. This is so not only because of the ‘welfare state’ features of modern capitalism (e.g. unemployment benefits, poverty relief), which may

Revolution”, without which we would have made far greater achievements’ (*New Strategy for China’s Economy*, Beijing: New World Press, 1983, p. 13), the period of the Cultural Revolution was certainly not one of economic disaster in the way in which the Great Leap Forward was.

25. Also the inappropriateness of the relative prices (e.g. low agricultural prices vis-à-vis those of industrial goods) played a role in generating inefficiency that must be distinguished from the part played by the distributional rule *within* an enterprise. It is plausible to argue that the problem of loyalty to others (in particular, the values of a_{ij} in the model of Essay 2) depends on the distance – physical and social – between the persons involved (that is, between i and j respectively). For example, loyalties to each other are easier to cultivate within a production ‘brigade’, which is a relatively small unit, than in larger units, like a commune. Identification is especially difficult when the beneficiaries are far away (e.g. for the agricultural workers to identify with the urban population enjoying the benefits of lower agricultural prices).

26. Andrew Walder describes the nature of the contrast thus (in the specific context of industrial wages policy):

Despite all the elaborations by Western observers of Maoist incentive principles, most workers experienced the much-vaunted experiment as little more than (1) discontinuation of regular wage raises, (2) cancellation of bonuses tied to work performance, and (3) intensification of political study, campaigns, and criticism sessions. In actual practice, there was never any attempt to blend moral with material incentives, to balance collective and individual material incentives. The mixed collective and individual incentive structure already in use in the early 1960s was dismantled during the Cultural Revolution, and nothing at all put in its place. The consequence was not only a complete severing of the link between work performance and either collective or individual pay, but also, over time, a growth of new kinds of inequality, perceived inequities, and real economic difficulties for certain age cohorts within the labor force. The ultimate effect was a quite predictable erosion of employee motivation and work discipline. Increased ideological appeals as a remedy appear only to have bred growing political cynicism or indifference. (‘Some Ironies of the Maoist Legacy in Industry’, in M. Selden and V. Lippitt (eds), *The Transition to Socialism in China*, Armonk, New York: Sharpe, 1982, p. 222.)