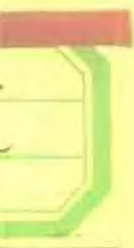


清华大学中国经济研究中心

# 经济研究论文集(1996)



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清华大学中国经济研究中心

陈章武 主编

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## 内 容 提 要

本论文集收集了 10 篇经济学论文。论文作者分别是近年留学北美学有所成、业有所成的学者和多年在国内从事经济学研究教学的专家、教授。论文涉及企业理论、产业组织、制度变迁、金融理论及宏观经济调控政策理论等经济学前沿问题。论文的共同特征是应用现代经济学的量化分析方法来解释经济现象,研究经济行为。该论文集对于从事经济学研究和教学人员及经济系高年级本科生、研究生有重要指导意义,对于从事实际活动的经济工作者也有参考价值。

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## 序

1996年清华大学建校85周年校庆前夕,清华大学中国经济研究中心正式成立。在清华大学经济管理学院海外校友的协助下,于4月27日在清华大学举办了“中国经济改革与发展国际学术报告会”,作为清华大学中国经济研究中心的第一项学术活动。来自哈佛大学、耶鲁大学、密执安大学、世界银行、国际货币基金、美国高盛投资银行、瑞士世界经济论坛、美国普华国际会计咨询公司、中国人民银行、国家外汇管理局、国家证券委、外经贸部、国家计委、国务院发展中心、湖南省政府等机构的学者、专家和官员汇集于清华园,探讨了财政政策、货币政策、中美贸易、企业改革、资本市场、金融市场、金融监管、地区平衡发展等重大理论和实际问题。在报告会期间,大家商定由清华大学中国经济研究中心牵头协调,出版一系列学术论文报告和著作。这本论文集就是该系列的一个部分。

这本论文集收入论文10篇,作者为清华大学经济管理学院教师和海外校友。这些论文都是作者的旧作,也并非每人最得意的代表作,但有一共同特点,即大家都采用了数学化、量化的研究方法。数学化和量化是经济学现代化和科学化的主要标志。尤其是以计量经济为基础的实证方法,成了检验和发展经济学理论的最重要手段。本集里收录的论文反映了作者们是如何运用现代经济学的分析方法来解释经济现象、研究经济行为的,各自得到了一些有意义的结论和发现,可以说都是极有价值的尝试。

清华大学经济系有其悠久的历史,1952年的高等学校院系调整,使清华大学变成一所综合性工科大学,像其他人文和社会科学学科一样,经济系被合并到其它高校之中。1984年经济系得以恢复与重建,作为清华大学经济管理学院的一部分。十余年来,她的最主要

的成绩就是培养了一批学生，一批与国内传统经济学专业毕业生不同的学生。他们既有较强的理工背景，受过良好的数学训练，又学习了系统的经济学知识，这种知识结构上的优势在他们以后的学习和工作中得到充分的发挥。为本论文集提供论文的7位海外校友就是例证，他们在80年代中期以后陆续负笈留学北美，皆已学有所成，业有所成。他们的论文涉及广泛的领域，包括企业理论、产业组织、制度变迁、金融理论与宏观经济调控等，从中不难看出清华学子的传统和风格。

清华大学中国经济研究中心的成立，为海外学者和国内师生从事经济研究提供了一块崭新的园地，研究中心的宗旨是吸引联合一大批年青经济学家，运用现代经济分析方法，探讨中国经济改革和发展的理论与政策问题，促进学术交流，提高中国经济学科水平。为创造一种良好的学术空气和研究环境，这本论文集在编辑过程中未对论文作实质性修改，如有不妥甚至错误之处，欢迎读者批评指正。今后，研究中心会不断将新的学术成果奉献给大家。

李子奈

1996年春

## Preface

On the eve of the 85th anniversary of Tsinghua University, China's foremost institution of higher learning, the Center for Greater China Economic Studies was established by the University. As one of its first academic events, the new research center organized an international symposium on "China's Economic Reform and Development", held at Tsinghua University on April 27, 1996, which drew overseas scholars and experts from Harvard University, Yale University, University of Michigan, the World Bank, International Monetary Fund, Goldman Sachs, World Economic Forum, and Price Waterhouse. The Symposium was attended by senior officials from the People's Bank of China, the State Securities Exchange Commission, the State Foreign Exchange Administration, the State Planning Commission, Ministry of Foreign Trade and Economic Relations, the Development Research Center of the State Council, and the Provincial Government of Hunan, as well as by faculty and students at Tsinghua University. Speakers and discussants were engaged in heated debate on wide ranging topics including fiscal and monetary policies, China-US bilateral trade, enterprise reform, capital markets, financial regulation, and regional development. The highly successful symposium led to an initiative to publish a series of economics research papers, reports and monographs, under the sponsorship of the newly established research center. The current volume of academic papers is precisely a part of the planned economic research series.

This book collects ten pieces, whose authors are faculty members at the Tsinghua School of Economics and Management and the school's overseas alumni. While these papers by no means represent the authors' best work, they share a common feature, that is, the extensive use of mathematical models and quantitative methods. The application of advanced mathematics and statistics is a hallmark of modern economics. Econometric methods provide extremely useful tools to test existing theories and guide the development of new theories. The papers collected in this volume show how authors apply modern economic analysis to explain economic facts and economic behavior. The reader will note a number of interesting findings and conclusions from these studies. We endeavor to keep bringing out fresh research output by the fellows and associates of this Center to reward our reader.

The establishment of the Center for Greater China Economic Studies at Tsinghua University will provide numerous exciting opportunities for scholars both within and outside China to conduct research on the Chinese economy. Its mission is to assemble a large group of talented young economists to study various aspects of the rapidly-changing Chinese economy thereby inform economic policy-making in China. It will play an important role in supporting applied economic research and in promoting scholarly exchange among students of the Chinese economy worldwide.

Hu Zuliu



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# 制度不完善性与渐进改革

方兴海<sup>①</sup>

## 摘 要

本文讨论制度不完善因素对改革方案选择的影响。在计划经济体制向市场经济体制转换的过程中,若初始建立的市场体制存在一定程度上的不完善性,以激进改革(Big-bang)的方式,将原先的计划体制立即取消的作法,则导致改革后经济总产出的下降;反之,若以渐进改革(Gradualism)的方式对计划进行适当的逐步调整,只要初始市场的不完善性程度不是太高,就能使改革后产出一直上升。在本文的模型假定条件下,证明渐进改革比激进改革对初始市场体制完善程度的要求要低得多。

本文在处理非凸性(nonconvexity)问题时,使用了最新的静态比较(Comparative Statics)方法,传统的静态比较方法不能解决此类问题。

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# **Institutional Imperfection and Gradualism**

Fang Xinghai

## **Abstract**

This paper identifies one more reason in favor of gradualism in transition from a planning economy to a market economy: institutional imperfection. While the imperfection of the old central planning institution is surely one of the many reasons for a market oriented reform, the unavoidable initial imperfection of the resulting market system prevents the reform from being done swiftly. In a model of resource allocation with increasing returns to scale, it is shown that when the initial market is sufficiently imperfect, resource allocation through market could be even worse than through planning. Consequently, a big-bang reform from planning to market may produce a shrunk output of the economy, which tends to make the transition difficult to succeed. But if the reform is done in a way such that the planning system is replaced by the market in a gradual fashion, it is shown in the paper that it is possible to have higher outputs in the initial stages of reform even though the market system is still quite imperfect. Reformers can then utilize the increased output to build a more perfect market system. The result is that the degree of initial market perfection required for the success of a market reform is lower under a gradual reform strategy than under a big-bang one.

A distinguishing feature of this paper is it uses the new com-

parative statics paradigm pioneered by my dissertation advisor Professor Paul Milgram of Stanford University in dealing with nonconvexities resulting from increasing returns to scale. The traditional comparative statics methods of Paul Samuelson would have been ineffective.

## 1 Introduction

It is a fact of life that few economic institutions are perfect. They never fulfill completely the roles their advocates intend for them. In the days of socialism, the institution of central economic planning was supposed to be able to organize and run an entire country as efficiently as a factory workshop (Lenin(1917)). All the resources of a country were to be located and put under the unified control of a planning center, which then directed these resources to their most efficient uses to generate the highest possible output. Among the efficient uses, the concentration of production resources to realize increasing returns to scale was believed to be one of the most essential. Thus, in the former Soviet Union, resources were mobilized to construct gigantic industrial complexes to reap the benefits of increasing returns to scale. For example, one factory once produced the demand for sewing machines of the whole Soviet Union. The ability to centrally direct resources to their best uses was widely extolled as a key advantage for socialism over capitalism, where allegedly resources were allocated through a *blind, haphazard market*.

However, even granted that increasing returns to scale were an ubiquitous feature of the industrial society and the socialist planning center could readily identify where they lie, the trouble with

the rosy view of central planning in regard to harnessing increasing returns to scale, was the planning center often failed to locate resources fully and put them under control. Many resources were left in private citizens' hands and were used in ways they see fit. For instances, even during the hey days of farming communes in China, during which the state tried to own all farm lands and farmers were directed by the state as what to plant, small plots of self-retained land (Zi Liu Di) were never eradicated. These were lands owned by farmers, not by the state. One reason that this happened was the state might just don't know where these Zi Liu Di lied. Also, it might be simply too costly to put under control small pieces of land in remote areas. Farmers then got to decide what to grow on their own Zi Liu Di. Even for the resources that were under the control of the state, such as industrial workers, the extent of control was always limited. People might have not used their capabilities fully during work hours. And their after work time could not be subject to state plan control. In fact, Hayek (1988) argued that the notion of putting every bit of resource of a country under the manipulation of a state plan was simply a wishful thinking.

When central planning is made the only mechanism of resource allocation, while the plan inevitably leaves out many resources, the resulting resource allocation can not be efficient. One of the biggest problems with the central planning system is for it to function, all other means of resource allocation have to be deliberately suppressed. Because otherwise there will be interference with the planning system. People may devote too much attentions to activities other than fulfilling the plan (Holmstrom and Milgrom (1990)). There are ideological reasons as well. Private ownership and resource allocation through market represents a dangerous competi-

tion to state ownership and planning. But then when the plan fails in some areas, no remedies can come in. Inefficiency of resource allocation results. For example, when some resources are not being planned as pointed out above, the allocation of these resources are done by individuals without any means of coordination. Thus, despite differences of land suitability, land size and farmer ability, commune farmers in China grew crops on their self-retained land only for their own family needs: No market exchanges between families could take place, since market was banned by the state. It could have been much better if farmers planted different crops and exchanged with each other. Similarly, factory workers in China found plenty of time during work hours to hand weave sweaters for themselves. And there were a period of time in China that many people in their spare time learned to build furniture and radios for their own uses, whereas if they wanted to moonlight, they could have spent their times in some professional ways to greatly increase the output of the society, as long as there were markets for their trades.

The frustration with the inability of the planning system to fully control and allocate resources is one of the reasons for the market-oriented reform in many former socialist countries. It is generally believed that under a market system, resource owners will respond to market signals and put their resources into best uses. The problem is, however, the initial market system that a reforming country can have is necessarily imperfect. There are many reasons for the imperfection. For example, it takes years for laws and customs that govern market transactions to be established; institutions that specialize in gathering and disseminating market information need time to grow; people who have no or little

memory of a market system also need time to learn to react to market signals, etc. So when the market is very imperfect, the resource allocation could indeed be blind and haphazard. If this initially imperfect market mechanism is substituted for the ill-functioning planning system on a wholesale basis, as the so-called big-bangers advocate, there is a possibility that the resulting market turns out to be performing worse than the original plan. At the present moment, this seems to be the case for Russia.

It is the assumption of this paper that a well-functioning market system can grow up only if the market-oriented reform generates positive economic results. The reform experience of China during the past decade and that of Vietnam in recent years supports the above assumption. There are several reasons why the assumption is well-founded. For example, for the people who decide to invest resources to become middle men in market transactions, they have to be assured to some degree that the market reform will not be reversed. But if the reform reduces national output, there might be political pressures to overturn the reform. This will prevent people from becoming middle men or other market intermediating people. Fang(1992) studies how positive reform results can induce people to invest in a market economy. Another reason is the establishment of a well-functioning market system needs a lot of resources. Barring massive foreign economic aid, these resources have to be produced internally. But if output declines sharply at the initial stages of the reform, there might be no resources for build-



ing a good market system<sup>(1)</sup>. For an example of how resource constraint inhibits the establishment of market institutions, see Fang (1993).

This paper studies the optimal reform strategy in the transition from a planned economy to a market economy. In a model of resource allocation with increasing returns to scale, we find that when the market mechanism is very imperfectly available but the planning system is removed instantly and completely, instead of specialization and trade, which is the goal of the reform, economic agents will opt for complete autarky. The autarky output is much lower than the original incompletely planned output. The reduction of output will then further aggravate the imperfection of the market, sending the economy down in a tailspin. On the other hand, if the planning system is reduced bit by bit during a reform, then specialization can occur with a much lower requirement for the perfection of the market mechanism. Output after reform will exceed the pre-reform level and the imperfect market mechanism improves along the way.

In the following section, a model with increasing returns to scale and hence gains of trade is presented. The inefficiency of the planning system is specified. Section 3 presents the growth process of the market system and studies the big-bang reform strategy. We

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(1) Some people may argue that reducing the outputs of those loss-making firms will improve the fiscal position of the government, leaving the government with more resources to improve the market system. But there were necessarily more profits and losses in a former socialist country. Otherwise government's net revenue would have been negative. Therefore, when the decline of output is evenly spread over loss-making and profit making firms, the government's fiscal position will in general deteriorate. The experience of Russia and Poland seem to confirm the above point.