Reforming Prices
The Experience of China, Hungary, and Poland

Anand Rajaram
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(Continued on the inside back cover.)
Reforming Prices

The Experience of China, Hungary, and Poland
China and Mongolia Department Series

*Patterns of Direct Foreign Investment in China*, Zafar Shah Khan, September 1991

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ISSN: 0259-210X

Anand Rajaram is an economist in the Country Operations Division of the World Bank's China and Mongolia Department.

Library of Congress Cataloging-in-Publication Data

Rajaram, Anand.

Reforming prices: the experience of China, Hungary, and Poland / Anand Rajaram.

p. cm. — (World Bank discussion papers ; 144)
Includes bibliographical references.
HB236.C55R35 1991
338.5'2—dc20 91-42926
CIP
Foreword

This paper by Anand Rajaram is the third in the recently initiated series of China and Mongolia Department Working Papers.

The World Bank's economic and sector work program on China is a very active one ranging over a wide spectrum of topics from macroeconomics to health and education. Each year we publish a handful of our formal studies, but thus far most of the background papers and informal reports, many of them containing valuable analysis and information, have remained outside the public domain. Through the China and Mongolia Department Working Paper Series, we hope to make available to a broad readership among the China watchers and development communities a few of the papers which can contribute to a better understanding of China's modernization.

Price reforms are critical for China's future development. It is in recognition of their importance that the Chinese authorities are now contemplating a program of adjustment involving all real sectors of the economy. Mr. Rajaram's paper reviews China's experience of price reform and contrasts it with that of several East European economies. The review underlines the need for price reform to be coordinated with actions that help to maintain macroeconomic stability, impose hard budget constraints on enterprises and provide a safety net for workers.

Shahid Javed Burki
Director
China and Mongolia Department
Asia Region
CURRENCY EQUIVALENTS

Currency unit = Yuan (Y)

Up to December 15, 1989

$1.00 = Y 3.72
Y 1.00 = $0.27

Up to November 29, 1990:

$1.00 = Y 4.72
Y 1.00 = $0.21

Effective November 30, 1990

$1.00 = Y 5.22
Y 1.00 = $0.19

FISCAL YEAR

ABBREVIATIONS AND ACRONYMS USED

CMEA - Council of Mutual Economic Assistance
CRP - Chinese Relative Price
EBRD - European Bank for Reconstruction and Development
ERDI - Exchange Rate Deviation Index
FEACs - Foreign Exchange Adjustment Centers
GDP - Gross Domestic Product
IBRD - International Bank for Reconstruction and Development (World Bank)
IMF - International Monetary Fund
MRS - Marginal Rates of Substitution
NEM - New Economic Mechanism
OECD - Organization for Economic Cooperation and Development
RPE - Reforming Planned Economy
TFP - Total Factor Productivity
TIP - Tax-Based Incomes Policies
TVEs - Town and Village Enterprises
WRP - World Relative Prices
SUMMARY

i. This paper reviews the experience of price reform in China, as well as selected East European countries. Price reform is an essential element of any program that seeks to achieve sustained and rapid economic growth in China via improvements in factor productivity. The need for price reform is made particularly urgent by the increase in the share of price subsidies in the government budget and its implications for development expenditure and macroeconomic stability in a context of relatively inelastic fiscal revenue.

ii. For price liberalization to generate sustainable growth, reform must occur within a framework that takes account of the interdependencies between the real sector and financial and institutional elements of the economy. Reforms to the price system must thus be supported by a host of accompanying actions that, taken together, will enable the successful restructuring of the economy and allow the associated productivity gains. The evidence from the reform experience, in China and elsewhere, suggest that price reform must be part of a larger reform strategy that recognizes the importance of macrostability, coordinates reforms along a broad front to facilitate restructuring, and moves at a fairly brisk pace so as to minimize transitional costs.

iii. The experience of Eastern Europe suggests that cycles of progressively more severe macro-instability can significantly reduce the degrees of freedom available to the authorities, undermine gradual reform attempts and substantially raise the costs of the eventual adjustment. For example, repeated experiences of inflation can lead to the buildup of inertial elements in the system and cause a fundamental alteration of the expectations of agents which makes reforms harder to accomplish. Subjecting an economy to extended periods of uncertainty about the ultimate objective and strategy of reforms is also harmful to the development of entrepreneurial skills and, especially, the growth of private foreign investment.

iv. It is critical to strive after macroeconomic balance over the medium term to prevent inflationary pressure from undermining the reform. Policy makers in China have demonstrated that, when the need for monetary discipline is most necessary, they can successfully fashion a national consensus to control inflation. A similar understanding of the need for fiscal and monetary restraint must underpin any program of economic reforms.

v. As China proceeds with price reform, complementary pricing actions will be required in a number of areas so as to maximize the allocative gains. These include:

   (a) the hardening of budget constraints on state enterprises;

   (b) measures to facilitate the exit of inefficient enterprises especially housing reforms and the creation of a social safety net to minimize the costs of transitional unemployment;

   (c) the effective use of a tax-based incomes policy to moderate wage demands; and
(d) the rationalizing of tax system.

vi. Consistent with progress on other fronts, the eventual goal of price reform should be to achieve full price liberalization since partial measures are likely to preserve inefficient producers who must then be supported with subsidies. Since such subsidies quickly attract new claimants, the attempt should be to provide an even playing field for all industries: the market.

vii. Side by side with the liberalization of domestic prices exchange rate adjustment and reform of the trade regime allows for a closer link between domestic relative prices and international relative prices. China has already taken steps to unify the exchange rate and promote trade. Over time, current restrictions on trade (quotas, licenses and tariffs) should be replaced by a relatively low and uniform tariff. Industries which have good medium-term prospects for being competitive but cannot survive behind a low uniform tariff in the short term could be provided additional time-bound tariff protection.
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Introduction

1. Reforms in China that increased the role of markets brought about a remarkable improvement in economic performance over the period 1978-88. Real GDP in China has grown at almost 10 percent per annum over this period, compared to 5.8 percent over 1974-78. Incremental capital output ratios have declined from 5.1 to 3.7, attesting to improved investment efficiency. Total factor productivity (TFP) has grown at a markedly faster clip since the reforms were introduced.1/ Agriculture, in particular, provided an early and impressive response to the introduction of the household responsibility system and the ability to sell above quota output at negotiated and market prices, and accounted for 40-60 percent of GDP growth between 1979-82. Subsequently, the extension of reforms to industry caused growth in that sector to accelerate and provide as much as 90 percent of GDP growth by 1987.

2. The decade of reforms has also witnessed three episodes of macroeconomic overexpansion followed by contractionary policies that have sought to restore macrostability and control. The most recent of these stabilization episodes occurred after inflation escalated to a peak rate of 60 percent per annum in August 1988, requiring a severe monetary crunch and restrictions on investment that succeeded in restoring price stability by early 1990.

3. This period of reforms has thus been turbulent for China--making possible the dramatic improvement in economic aggregates while also signalling the emergence of macroeconomic instability as a recurring theme that must be addressed by the development of appropriate macroeconomic instruments.

The Importance of Price Reform

4. The question that needs to be answered now relates to the necessity and nature of the next steps in reform. The most critical and basic requirement in any reforming planned economy (RPE) is the establishment of market-based relative prices for commodities and factors of production. Such prices are essential to establish the correct signals for resource allocation and, when combined with reforms that give enterprises autonomy and the incentive to respond to price signals, ensure that allocational efficiency will improve.

5. The absence of prices that reflect true scarcities has imposed a historical cost on most RPEs in the form of industrial structures and production techniques that are inconsistent with comparative advantage. The well known predominance of heavy (capital-intensive) industries and energy intensive processes in RPEs is one result of the neglect of price signals.2/ In most cases, RPEs need a fundamental restructuring of their industrial base to

1/ The performance of TFP in the pre-reform period is subject to more varying interpretation. See World Bank (1989).

2/ Moroney (1990) demonstrates that the CMEA countries used about twice as much energy per unit of GDP and per unit of capital as the Western European economies.
eliminate the widespread inefficiencies and anomalies that underly the low factor productivity. This cannot be accomplished in the absence of appropriate price signals and the factor mobility to reallocate capital and labor to more productive uses.

6. In a climate of distorted prices for inputs and outputs, profits and losses have no real significance, and losses provide no presumption of inefficiency. The widely noted phenomenon of subsidies to loss making enterprises in RPEs reflects this uncertainty about the source of the loss and the inability to discriminate between firms that are rendered loss making because of the price structure and those that are, in a manner of speaking, the real losers. Establishing market prices is critical to eliminating this fundamental flaw in RPEs.

7. Microeconomic theory tells us that resources are allocated efficiently when the marginal rates of substitution (MRS) are equalized across sectors/industries. In market economies, prices guide resources to their use and the evidence suggests that the output loss due to allocative inefficiency is small. The absence of accurate price signals and incentives for efficient resource allocation in nonmarket economies suggest that output loss would be relatively larger. A recent study compared the cost of allocative inefficiency in Hungary (a nonmarket economy) and West Germany (a market economy) over the period 1961-84 and concluded that the output gain from equalizing MRS in Hungary would be two to three times as large as the gain to West Germany from a similar exercise. It should be noted that this estimate of output gain is derived from a purely static efficiency improvement. Including the much larger gains expected from the dynamic efficiency improvements under a market-guided system would substantially raise the opportunity costs of a nonmarket system.

8. Dynamic efficiency improvements are reflected in the growth of total factor productivity, i.e., more efficient utilization of inputs which allows increased output. In successful market economies, as much as half of economic growth is due to such productivity growth. By one account, total factor productivity growth in China was stagnant or declining in the period 1952-75 and this decline continued in the industrial sector up to 1982.

3/ The well-known qualification to this result, of course, is that the existence of unregulated monopolies and 'externalities' will prevent achievement of such efficiency. In addition, policy intervention in the form of distortionary taxes and subsidies will generally lead to a divergence of MRS across sectors. Nevertheless, such distortions and the associated output costs are typically not very large in market economies.


5/ If the effect of technological progress in 'inducing' capital investment is also accounted for, then the contribution to economic growth is even larger.

The Framework and Context of Price Reform in an RPE

9. While price liberalization is critical to the economic reform, it is not, by itself, a sufficient condition to generate sustainable gains in efficiency and growth. For such gains to be possible, price reform must occur within a framework that takes account of the interdependencies between the real, financial and institutional elements of the economy. Reforms to the price system must thus support, and be supported by, a host of accompanying actions that, taken together, will facilitate resource reallocation, enable the successful restructuring of the economy and allow the associated productivity gains.

10. Crucial to the success of a program of economic reform and structural adjustment is the maintenance of macroeconomic stability. This condition is essential for reform since it stabilizes the policy environment, and permits policy makers to undertake microeconomic reforms that allow markets to guide economic agents to productive economic activities. Macroeconomic stabilization, in an economy characterized by excess aggregate demand, involves controlling the fiscal deficit and foreign borrowing, exercising monetary restraint, and maintaining positive real interest rates. Since price and enterprise subsidies are often a major reason for fiscal budget deficits, stabilization policies will have to be coordinated with reforms that eliminate such subsidies.

11. An important reason to focus on macrostabilization is to minimize the prospect of inflation following price liberalization. Inflation is a serious threat to any program of reform but more so to RPEs which, being used to the repressed variant, have a low tolerance for open inflation. The tendency for authorities in RPEs to associate open inflation with price liberalization is unfortunate since it directs attention away from the real causes of inflation, and often brings price reform to a halt. Policies which establish macroeconomic stability and restrain inflationary pressures are therefore an essential element of the reform program. An incomes policy which restrains wage growth will also assist in ensuring that price liberalization does not spiral into inflation.

12. As prices begin to reflect real scarcities, enterprises must be made financially autonomous, weaned from the subsidies that may have previously sustained them. Management autonomy must also accompany the imposition of a hard budget constraint. While the reforms in China have attempted to make enterprises financially autonomous, in practice state enterprises still face a soft budget constraint. Losses in such enterprises prompt tax liabilities to be adjusted or bank credit to be arranged. The failure to impose a hard budget constraint has a negative impact on the government's ability to implement a macrostabilization policy and also undermines the viability of the banking system. In part a result of the support to loss-making enterprises, macroeconomic policy in China in the 1980s has been characterized by frequent periods of excessive monetary growth which may have contributed to inflationary pres-
sures, most recently in 1987/88.7/ This has, in turn, required the use of strict limits on investment spending and credit growth in order to control inflation, creating repeated stop-go macroeconomic cycles.

13. The need to impose a hard budget constraint on enterprises is thus important both to enable the government to implement macrostabilization policy as well as to restructure industry and improve efficiency. The effect of withdrawing support to inefficient enterprises can be socially very painful since it threatens full employment, which is perhaps the most cherished objective of a socialist economy. However, the experience of many economies that have attempted to avoid this difficult decision has shown that the cost of not shutting down such enterprises and redeploying workers is more painful in the long run.8/ The reform program must therefore pay attention to efficient utilization of available resources in order to provide a social safety net to displaced workers. Given the overall context of resource constraints, the income support must be time-bound and must focus on retraining the unemployed for jobs in industries that are profitable. As detailed in later sections of this paper, actions on other fronts (pension, housing, etc.) will also be required to allow flexibility in labor reallocation.

14. The steps defined above constitute the basis for an efficient closed economy since liberalized domestic prices will provide the signals for enterprises that would be profit-seeking in a stable macroeconomic environment. However, in order for resource allocation in the RPE to move towards global efficiency, the creation of a close link between domestic and international relative prices is essential. The removal of the restrictions on international trade is thus the next item on the reform agenda. Trade reforms will have to eliminate quantitative restrictions (quotas), replacing them, in the first instance, with equivalent tariffs which would then have to be gradually adjusted to a low and relatively uniform level. The lowering of trade restrictions provides both a better set of relative prices to guide enterprises and consumers as well as the competitive pressure to raise economy-wide efficiency.9/

15. In summary, price reform must be viewed as an element of a larger reform program. This perspective is important because it underlines the stra-

7/ This reflects the tendency to excess demand which is a characteristic feature of RPEs. In China, excessive money expansion results from the difficulty faced by the center in reining in provincial expenditures, and reflects the more fundamental problem of "investment hunger" at the enterprise level. See Yenal (1989). Also see World Bank (1990a), pp. 68-69.

8/ Hungary, for example, continued to support the inefficient energy and heavy industries through its reform attempts, thereby foregoing the opportunity to develop profitable light industries and food processing. See Joint Economic Committee Study Papers (1989).

9/ The establishment of currency convertibility (at least for the current account) is an additional step that will have to be coordinated with decisions regarding the exchange rate regime. See Greene and Isard (1991) for a fuller discussion of this issue.
Strategic issues involved in price reform regarding preconditions, timing, coordination, and sequencing of reforms. The design of the next stage of price reform in China must pay attention to this larger framework in order to achieve the desired restructuring of the economy while minimizing the transitional cost.

**Taking Stock of Price Reform in China**

16. The historical details regarding the reform process in China have been extensively documented and discussed elsewhere and will not be recounted here. The Chinese experience of the introduction of price signals is marked by the gradual nature of reform. Many significant policy decisions merely formalized what was already functioning. Even the introduction of the dual track price system was fundamentally an elaboration of a practice introduced in 1979. The dual track system was intended as a transitional stage and remarks by Zhao Zhiyang in 1986, which proposed a five year period over which to unify plan and market prices for most commodities, indicated both a definite pace and direction for reform.

17. Various indicators of the growth of market pricing in China support the picture of gradual erosion of administered pricing—by 1985 almost 70 percent of agricultural output was sold at negotiated or market prices, most food products were sold at market retail prices, and substantial shares of important intermediate inputs were available via market channels. A more recent comparison suggests that between 1986 and 1989 the share of all commodities sold at administered prices declined from 47 to 30 percent while, correspondingly, the share of market prices rose from 34 to 45 percent, and that of guided prices increased from 19 to 25 percent.

18. The inflationary experience in 1987/88 put a halt to further reforms in that direction and a policy of imposing ceilings on market prices as part of the anti-inflation program eroded significantly the progress towards

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10/ See Chan (1987) for a comprehensive review of price reform to that date in China. Lou and Zhou (1984) provide some examples of the kind of allocational inefficiencies in China created by the lack of market prices before the initiation of price reforms.

11/ The emergence of legal markets for industrial material after 1979 that allowed enterprises to sell their excess material at range prices was, in effect, an incipient double track price system. It was not until 1984 that the State Council would formalize the double track system and extend this ability of enterprises to buy and sell above plan output at range prices and, subsequently, in 1985 at "market floating prices."

12/ So-called "market" prices in China often do not have the same connotation as in Western economies since, as administered prices are abolished, the corresponding market prices may be subject to greater controls. Even "negotiated" prices now tend to be used in plan transactions as strict state-set prices are eliminated. All this implies that while we can attest to the reduction in use of strict administered prices in China, we cannot easily infer the growth of true market transactions from the corresponding growth in the use of guided and "market" prices.
The center's attempt to control inflation included requiring provincial price bureaus to achieve certain inflation control targets (making inflation a "planned" variable), requiring central approval for price changes of some 50 categories of commodities, etc. With the subsiding of demand pressure in late 1989 and 1990, the center has reduced the number of items requiring central approval for price changes to 13. The prices of numerous commodities and services (including coal, oil, etc.) have been adjusted upward since late 1989 and plan-market price differentials have narrowed but there has not been a significant resumption of the trend towards "market" pricing.

Table 1a: FREE MARKET SHARE OF COMMODITIES IN CHINA

<table>
<thead>
<tr>
<th></th>
<th>1986</th>
<th>1989</th>
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<tbody>
<tr>
<td>Market price</td>
<td>34</td>
<td>45</td>
</tr>
<tr>
<td>Guided price</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>Administered price</td>
<td>47</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>


Table 1b: FREE MARKET SHARES OF SPECIFIC COMMODITIES (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>41</td>
<td>50</td>
<td>n.a.</td>
<td>56</td>
</tr>
<tr>
<td>Steel</td>
<td>23</td>
<td>34</td>
<td>n.a.</td>
<td>53</td>
</tr>
<tr>
<td>Cement</td>
<td>64</td>
<td>75</td>
<td>n.a.</td>
<td>86</td>
</tr>
<tr>
<td>Vegetables</td>
<td>n.a.</td>
<td>n.a.</td>
<td>72</td>
<td>n.a.</td>
</tr>
<tr>
<td>Pork</td>
<td>n.a.</td>
<td>n.a.</td>
<td>71</td>
<td>n.a.</td>
</tr>
</tbody>
</table>


13/ These ceilings were enforced unevenly across and within provinces, particularly in the early stages when it is reported that coastal provinces were able to attract materials by being less strict with price ceilings. In some cases, ceilings were evaded by supplying lower quality items at a ceiling price intended for a better grade of material or by requiring cash payments over billed amounts, etc. The use of "price inspectors" reduced the incidence of such evasion of price ceilings, especially in essential consumer goods. See Ishihara (1989).
19. The reforms to date have sensitized the economy to the role of price signals. The use of market prices at the margin under the dual track system should allow, in principle, a number of the allocational benefits of full price liberalization. A profit maximizing enterprise will make the same allocational decisions as it would under full market pricing so long as it buys some input at the market price and sells some of its output at the market price. The effect of the plan price for input and output is then equivalent to a lump sum subsidy/tax.

20. While the dual track price system is consistent with allocative efficiency under certain conditions it is clear that several of those conditions do not hold in China. The absence or limitations of markets (even at the margin) for inputs such as electricity and rail transport, as well as primary factors such as labor and capital, is one reason to believe that allocational efficiency is not achieved by enterprises in China under the dual track system. Moreover, the absence of a hard-budget constraint and competitive pressure especially on state enterprises implies that enterprises in the state sector may not be driven to be efficient profit maximizers.

Existing Price Distortions in China

21. The dual track system creates some distortions (particularly as plan-market price differentials widen), that impose costs on the economy (see Table 2a). Certain forms of inefficiency and rent seeking are encouraged under the dual track pricing system: enterprises have an incentive to overstate their input requirement for plan fulfillment and use the excess to capture the rent. There have been numerous reports of firms having resold low priced quota inputs and failed to meet plan output quotas, of "profiteering" by well-placed individuals, and of provinces setting up shell firms to capture the profit represented by the price differential between plan and market prices. This has led to the emergence of multiple prices for the same product and regional price differences, unrelated to transport, quality or other cost factors (see Table 2b). The ability to infer efficiency from profitability is rendered weak by such irrationalities and provokes other policy errors in the form of pressure to extend support for loss making enterprises.

22. Plan prices apply to a large share of total demand for many industrial raw materials and intermediate goods. These prices have been rarely adjusted and, as a consequence, are substantially below market levels, creating new distortions and inequities. Shortages and supply bottlenecks have persisted in such sectors because of the lack of reinvestable profit and the price incentive to expand supply. Low raw materials prices tend to transfer income between raw material producing provinces and those that utilize them, often with adverse distributional consequences. Since trading in low priced materials is not profitable, raw material producing provinces have an

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14/ See Heady and Mitra (1990) for a discussion of the relative merits and limitations of the dual track system.

15/ The difference between plan and market prices was substantial for many items: for cement (1:2.1), steel rods (1:2.3), and soda ash (1:3.1) before the effects of the policy induced recession and recent plan price adjustments narrowed the differential.
Table 2a: MARKET TO STATE LIST PRICE RATIO

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Consumer goods</td>
<td>147.9</td>
<td>116.9</td>
<td>116.6</td>
<td>117.4</td>
</tr>
<tr>
<td>Grain</td>
<td>230.0</td>
<td>180.0</td>
<td>192.7</td>
<td>194.1</td>
</tr>
<tr>
<td>Edible vegetable oil</td>
<td>-</td>
<td>165.2</td>
<td>166.9</td>
<td>166.7</td>
</tr>
<tr>
<td>Meat, poultry &amp; eggs</td>
<td>132.2</td>
<td>105.5</td>
<td>107.0</td>
<td>121.6</td>
</tr>
<tr>
<td>Fresh vegetables</td>
<td>163.6</td>
<td>118.9</td>
<td>118.1</td>
<td>116.7</td>
</tr>
</tbody>
</table>

Table 2b: MARKET TO LIST PRICE RATIO: REGIONAL VARIATION

<table>
<thead>
<tr>
<th></th>
<th>1986</th>
<th>1987</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>116.6</td>
<td>123.7</td>
<td>132.6</td>
</tr>
<tr>
<td>Jiangsu</td>
<td>128.7</td>
<td>124.7</td>
<td>117.4</td>
</tr>
<tr>
<td>Guangdong</td>
<td>106.1</td>
<td>108.1</td>
<td>105.1</td>
</tr>
<tr>
<td>Gansu</td>
<td>115.2</td>
<td>118.8</td>
<td>123.6</td>
</tr>
<tr>
<td>Shanxi</td>
<td>105.5</td>
<td>110.4</td>
<td>116.9</td>
</tr>
<tr>
<td>Hubei</td>
<td>110.4</td>
<td>114.8</td>
<td>119.1</td>
</tr>
<tr>
<td>National Average</td>
<td>116.8</td>
<td>116.6</td>
<td>117.4</td>
</tr>
</tbody>
</table>


Incentive to set up processing industries in order to capture the true value added, even though this is inefficient from the viewpoint of the national economy. At the same time, other provinces and cities have invested in scale inefficient plants to produce the items in short supply, furthering the tendency towards regional autarky. These developments impose long term costs on China and will increase as long as the price irrationalities remain.

Since the nature of price distortions across commodities in China is not obvious we compared the Chinese relative price (CRP) of a set of tradeable goods to the ratio in world prices, using world relative prices (WRP) as a benchmark (see Table 3). This method sidesteps the need to use exchange rates to arrive at a common currency comparison.\footnote{For a number of reasons, exchange rates are not good measures of the purchasing power of a currency. The exchange rate deviation index (ERDI) which captures the extent of this mismeasurement, has been found to be systematically higher for low income countries. See Kravis (1986).} To get a reasonable picture of relative prices requires a set of quality-adjusted world and Chinese prices which is difficult to construct. While recognizing the approximate nature of the exercise, we used 1981 data collected by Taylor (1989) and a set of more recent (1988) prices to derive some notion of price distortions and changes in
relative prices between 1981-88. Wheat was chosen as the numeraire commodity in constructing the table of relative prices. The index of distortion to the right of the table (CRP/WRP) is a simple but effective measure of the degree of relative price distortion in China.

24. This index suggests that, in 1981, plan CRP of most raw materials were substantially below corresponding WRP. The CRP of rice, coal, and crude oil were significantly below (less than a third of) the WRP while the relative prices of iron ore, tungsten ore, transistor radios and urea were much more in line with WRP. The CRP of polyester fiber, on the other hand, was over five times higher than the WRP for the item.

25. For 1988, given the existence of the dual track price system, we have two CRPs: the plan CRP and the "market" CRP. Plan CRPs of coal and crude oil in 1988 remained significantly below WRP although the degree of distortion appears to have declined, indicated by values of the index closer to one. Surprisingly, the market CRP of a number of commodities, such as caustic soda and soda ash, were more distorted (in the sense of being further from WRP) than the corresponding plan CRP. This may reflect, in part, the narrowness of some of the domestic "markets" in China which puts strong upward pressure on market prices.

26. The table above suggests that, in general, raw materials are priced too low and some intermediate products are priced too high in China in comparison to world prices. The extent of price distortion is particularly severe in the case of industrial raw materials such as coal, timber, cement, etc., as well as in the procurement and urban ration price of grain and vegetable oils. The significance of the price distortion is indicated by growing enterprise losses in the raw material sectors, the decline in real prices received by farmers, and the ballooning of grain and oil price subsidies to urban consumers in the state budget.

27. It should be noted that the structure of relative prices in China reflects both the effect of administered pricing as well as the influence of trade restrictions (tariffs, quotas). Clearly any system of administered prices that deviates substantially from world prices will require trade restrictions to be sustained. Any fundamental reform of the price system would therefore have to address both the domestic price controls as well as the corresponding trade restrictions. Countries frequently use quotas and tariffs to restrict imports and the cost of this distortion is largely borne

17/ Taylor's (1989) data set of yuan and dollar prices, while not based on detailed survey data, does attempt to limit the problem of quality differentials. The Chinese yuan prices typically reflect ex-factory prices while the world price is an f.o.b. figure. Chinese prices for rice and wheat are an average of quota above-quota and negotiated prices.

18/ It should be noted that administrative price adjustments are the wrong policy response to make CRP conform more closely to WRP in the medium to long run. Since WRP are constantly changing, only if domestic prices are market determined and international trade is relatively free (or subject to low uniform tariffs) will a close link between CRP and WRP be possible.
Table 3: PRICE RELATIVES IN CHINA AND THE WORLD

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>0.266</td>
<td>0.078</td>
<td>0.222</td>
<td>0.132</td>
<td>0.345</td>
<td>0.293</td>
<td>0.597</td>
<td>1.557</td>
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</tr>
<tr>
<td>Crude oil</td>
<td>1.207</td>
<td>0.212</td>
<td>0.803</td>
<td>0.220</td>
<td>0.862</td>
<td>0.175</td>
<td>0.386</td>
<td>1.481</td>
<td></td>
</tr>
<tr>
<td>Natural gas</td>
<td>0.708</td>
<td>0.345</td>
<td>0.881</td>
<td>-</td>
<td>-</td>
<td>0.488</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Timber (pine)</td>
<td>0.784</td>
<td>0.360</td>
<td>1.475</td>
<td>0.282</td>
<td>1.097</td>
<td>0.459</td>
<td>0.178</td>
<td>0.744</td>
<td></td>
</tr>
<tr>
<td>Wire rod</td>
<td>1.947</td>
<td>-</td>
<td>1.986</td>
<td>1.344</td>
<td>2.996</td>
<td>-</td>
<td>0.677</td>
<td>1.468</td>
<td></td>
</tr>
<tr>
<td>Med. thick plate</td>
<td>1.733</td>
<td>-</td>
<td>2.737</td>
<td>1.256</td>
<td>3.110</td>
<td>-</td>
<td>0.459</td>
<td>1.136</td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>6.724</td>
<td>3.370</td>
<td>16.286</td>
<td>8.811</td>
<td>27.718</td>
<td>0.947</td>
<td>0.542</td>
<td>1.704</td>
<td></td>
</tr>
<tr>
<td>Cement (no. 425)</td>
<td>0.256</td>
<td>0.146</td>
<td>0.410</td>
<td>0.198</td>
<td>0.333</td>
<td>0.570</td>
<td>0.484</td>
<td>0.811</td>
<td></td>
</tr>
<tr>
<td>Soda ash</td>
<td>0.854</td>
<td>0.733</td>
<td>0.570</td>
<td>0.869</td>
<td>2.055</td>
<td>0.858</td>
<td>1.507</td>
<td>3.608</td>
<td></td>
</tr>
<tr>
<td>Caustic soda</td>
<td>1.794</td>
<td>1.584</td>
<td>1.380</td>
<td>1.410</td>
<td>5.148</td>
<td>0.872</td>
<td>1.060</td>
<td>3.971</td>
<td></td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>0.156</td>
<td>0.418</td>
<td>0.820</td>
<td>0.617</td>
<td>0.690</td>
<td>2.688</td>
<td>0.752</td>
<td>0.841</td>
<td></td>
</tr>
<tr>
<td>Polyester fiber</td>
<td>8.643</td>
<td>48.496</td>
<td>7.850</td>
<td>1.123</td>
<td>1.087</td>
<td>0.924</td>
<td>1.145</td>
<td>1.108</td>
<td></td>
</tr>
<tr>
<td>Urea</td>
<td>1.085</td>
<td>1.008</td>
<td>0.981</td>
<td>1.123</td>
<td>1.087</td>
<td>0.924</td>
<td>1.145</td>
<td>1.108</td>
<td></td>
</tr>
<tr>
<td>TSP</td>
<td>0.809</td>
<td>0.917</td>
<td>1.000</td>
<td>1.085</td>
<td>/b</td>
<td>1.133</td>
<td>1.085</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>KCL</td>
<td>0.688</td>
<td>0.635</td>
<td>0.657</td>
<td>0.749</td>
<td>/b</td>
<td>1.118</td>
<td>1.345</td>
<td>1.561</td>
<td></td>
</tr>
<tr>
<td>DAP</td>
<td>0.980</td>
<td>-</td>
<td>1.247</td>
<td>1.642</td>
<td>/b</td>
<td>1.287</td>
<td>1.308</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Corn</td>
<td>0.759</td>
<td>0.865</td>
<td>0.722</td>
<td>0.740</td>
<td>N.A.</td>
<td>0.876</td>
<td>1.026</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>2.098</td>
<td>0.799</td>
<td>1.620</td>
<td>0.687</td>
<td>N.A.</td>
<td>0.380</td>
<td>0.424</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>8.713</td>
<td>7.649</td>
<td>9.071</td>
<td>8.013</td>
<td>N.A.</td>
<td>0.901</td>
<td>0.883</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Trans. radio</td>
<td>0.096</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>N.A.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td>0.206</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>N.A.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Watches</td>
<td>0.085</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>N.A.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cotton cloth</td>
<td>100 m.</td>
<td>0.201</td>
<td>0.252</td>
<td>-</td>
<td>-</td>
<td>0.410</td>
<td>1.253</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

WRP = World Relative Price, CRP = Chinese Relative Price.

Notes: Each column expresses the price of the row item as a multiple of the price of wheat in the same column.

World Price data are based on table C. Plan price data are given in table A. Market Price data are in Table B.

/a Refers to 1987 price of polyester fiber since 1988 data was not available.
/b Refers to the use of 1989 fertilizer prices to obtain a relative price.
/c Refers to the use of both 1989 fertilizer prices and wheat price to get a relative price.

Comment on index of distortion: This is a crude measure of the direction of relative price distortion compared to the structure of world prices. Notice that, by construction, the index is one for wheat in all cases. An index approximating one for other items would suggest that the price relative to wheat is not out of line with world price relatives. An index value less than one would suggest that the item is underpriced and the opposite implication would be true for an index greater than one. The index suggests that plan prices for coal, crude oil, timber, etc., are significantly distorted relative to plan wheat prices while that for fertilizer is closer to the correct ratio.

by the consumers of the restricted product, who subsidize the domestic producers while also providing tariff revenue to the government. In the case of China, the administered prices similarly require subsidies to sectors that are affected by the imposed price structure, but the sources of the subsidy are less easily identified. The growing cost of this price system is evident, however, in the rapid increase in the subsidy bill which has grown from 22 percent of government expenditure in 1986 to 25 percent in 1990. Recognizing this, the government moved, over 1990/91, to adjust the controlled prices of a wide range of commodities, including crude oil, coal, cotton and rationed
grain and edible oil. This reduced the subsidy share of government expenditure to an estimated 22.8 percent in 1991.

28. Labor and Capital Markets. Perhaps the most important relative price in an economy is the wage/capital cost ratio, since this determines, in a market economy, the choice of technology and the proportions in which labor and capital are employed. In China, markets for primary factors are restricted so that factor prices poorly reflect their relative scarcities.

29. The wage rate in China displays remarkably little variation across occupations. While wage reforms since the late 1970s have allowed for less egalitarian wage structures and introduced bonuses to provide incentives, wage levels are still insulated from market valuation of skills and education and are determined by central rules.19/ This tends to undervalue skilled workers and technicians relative to unskilled workers.20/ Narrow wage differentials also limit the incentive to change jobs. In addition, a serious constraint to labor mobility is imposed by the set of nontransferable job-tied benefits, particularly in the state enterprises. In the rural areas, there is somewhat greater labor mobility and this has allowed a limited labor market to emerge. Not surprisingly, this has allowed the emergence of the most dynamic sources of growth in China: the town and village enterprises (TVEs).

30. Labor costs in China are the sum of cash wages (wage plus bonus) and in-kind benefits provided by the enterprise. By one conservative estimate the total cost of employing labor in urban collective and state enterprises is 1.5-2 times the nominal cash cost. The composition of payment does not indicate any distortion regarding the level of labor compensation, and a comparison of total labor compensation in China with that in India (ignoring differences in productivity which may favor Chinese labor) suggests that labor cost is not higher in China.21/

31. However, interest rates which determine the cost of capital and the rate of time preference are administratively set in China and, for much of the period 1980-89, were negative in real terms. The introduction of indexed savings deposits constitutes an improvement in this sense but the PBC continues to set all interest rates without the appropriate flexibility needed to reflect investment risk differentials. Another source of downward bias in capital cost is the tax system which allows enterprises to deduct repayment of loan principal (in addition to interest) before arriving at taxable income. Thus, capital costs tend to be understated for many reasons.

19/ Enterprises have however evaded some of these strictures by increasing the share of in-kind compensation in total remuneration. For example, the share of rental subsidies (called "brick and mortar" wages) has increased from 7 to 16 percent (at a conservative estimate) between 1979-89. See World Bank (1990d).


21/ Jefferson and Rawski (1991) estimate labor cost in China in 1987 at $865 per worker year compared to $990 in India.
An economy that has a negative or low real interest rate will tend to have relatively high wage/capital cost ratios. An indirect measure of the extent to which wage/capital cost ratios may be out of line with factor endowments in China is given by a comparison with India. By one estimate the wage/capital cost ratio in China is substantially (at least 3 times) higher than in India, and presumably, higher than China's factor endowments would justify. Both interest rate and energy pricing policies in China have tended to raise the relative cost of labor. Given the context of increasing managerial autonomy and incentives for profit maximization, this relative price distortion favors capital intensity and adversely affects employment creation in China. Financial sector reforms and greater autonomy for banks in credit allocation will have to accompany further interest rate deregulation in order to correct the underpricing of capital.

Pricing of Foreign Exchange. The exchange rate determines the relative price of tradeables to nontradeables. In China, as in most developing countries where this rate is administratively set, the official rate tends to overvalue the home currency with attendant distortions. The extent of overvaluation is given by the premium for foreign currency on the parallel market. The opening of foreign exchange adjustment centers (FEACs) allowed this premium to be easily observed and saw a large widening of the gap between the official (Y 3.72/$ before December 1989) and FEAC rate (a peak of Y 7/$ in February 1989) for a period. However, frequent and judicious devaluations (most recently in November 1990 to Y 5.2/$) have narrowed the premium to about 10 percent.

Market for Housing. The price of housing, a nontradeable commodity, is distorted in a number of important respects, in addition to the fact that the close tie between employment and housing benefits impedes labor mobility. The price of housing units relative to average annual income is much higher in China (about 10:1, with ratios as high as 20:1 in some cities) than in most market economies (where the ratio ranges between 2:1 and 6:1). On the other hand, rents are administratively set at levels that do not even cover maintenance cost. This structure of prices and rents creates an overwhelming incentive towards renting and has undermined efforts to create private owner-
ship of housing. The expected life of such assets is reduced by the lack of maintenance. The high level of housing subsidy to largely urban residents also discriminates against the rural population and raises important questions about the income distribution effects of the current structure and pricing of the housing market.

35. Coal Pricing. The dual price system for coal features a widening of the differential between plan and market price (prior to recent price adjustment), sharp fluctuations in the market price, and substantial regional differences in prices unrelated to economic factors such as quality or transport cost. The plan price is estimated to provide a subsidy of Y 40/ton to users of plan coal while in some regions, such as Shanghai, the market price exceeds the international price for coal. The effect of the low plan price and the wide plan-market price differential is to: (i) encourage waste and high energy intensity; (ii) discourage production of energy substitutes such as natural gas; (iii) discourage inefficient mining and transport practices; and (iv) render large segments of the coal industry unprofitable and in need of subsidies. Another implication of the controlled price of coal is that it transfers income from the coal producing regions (and from coal producers) in the north to coal importing regions (and coal users, generally) in the northeast and the southwest. Coal consumers received economic subsidies equal to an estimated Y 25 billion while the regional transfer amounted to Y 2 billion in 1989.

36. Grain Pricing. The pricing of grain and vegetable oil involves substantial differentials between contract and free market producer prices, leading to large and growing income transfers from farmers to the procurement system. The loss of farm revenue on mandatory grain sales in China rose from Y 7.8 billion in 1985 to Y 34.6 billion in 1988. Furthermore, while market prices of grain have doubled between 1980-88, the urban ration price has essentially stayed unchanged since 1957. Market prices for grain and oil are thus a multiple of the urban ration price, implying a substantial subsidy (estimated at Y 28-30 billion in 1988 or 10 percent of total government expenditure) to urban consumers.

37. Fertilizer Pricing. The issue of fertilizer pricing is closely linked to the discussion of grain pricing since the policy of three linkages involves providing low priced fertilizer to grain farmers in return for below-market grain procurement. Fertilizer allocation on the basis of grain procurement targets, rather than productivity considerations, reduces the effi-

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26/ Less than 20 percent of city dwellers live in privately owned housing while in rural areas close to 100 percent of the housing stock is privately owned.

27/ By one estimate urban households spend less than 1 percent of monthly cash income on housing whereas rural households spend as much as 15 percent of their income on rent.

28/ This section is based on Albouy (1990) and World Bank (1991c).

29/ The state owned coal industry reported losses of Y 5 billion in 1989 and projected losses in 1990 are Y 5.4 billion.
ciency of the fertilizer sector. The cost of this policy is only partly reflected in the annual subsidies to fertilizer production, handling and distribution. In 1988 this cost was estimated to total Y 7.1 billion.

38. While price adjustments and the introduction of the dual track pricing system have allowed some improvement in the signalling role of prices, relative prices clearly do not reflect relative scarcity in China. The need for further price reform is evident in the ballooning of unsustainable price subsidies in the state budget, the decline in price incentives to farmers reflected in the slowdown in growth of agricultural output, and the losses reported by a wide range of basic raw materials industries. The dual track system was introduced to enable a graduated transition to a largely market determined price system but its prolonged existence makes it a source of distortion. The solution is to make rapid progress towards a market based system. The necessary reforms can occur through both quantity and price adjustments since increasing the quantities (shares) transacted at market prices has an effect similar to narrowing the gap between plan and market prices.

The Experience of Hungary and Poland

39. Both Poland and Hungary have attempted price reforms as a critical element in a larger reform agenda. Their reforms, prior to 1990, bear some resemblance to the Chinese strategy which goes beyond the rough coincidence of timing.30/ Like China, both countries defined the proportion of total producer and consumer prices that could be determined by "market" forces and sought to gradually increase this proportion. Unlike China, where two (or more) prices apply to one commodity, however, the system of multiple prices in Poland and Hungary did not apply to the same good but to different goods.31/

40. Reform Instruments. The process of price reform in Hungary may be fairly described as gradual and in this respect the Hungarian reform is closer to the Chinese experience.32/ Increasing the share of "market" prices was the main instrument of price reform and by 1990 about 90 percent of consumer prices were free of government control. The upward revision of administered prices is another dimension of reform employed by Hungary, initially to bring

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30/ Although price reforms were initiated by Hungary as early as 1968, the 1979/80 episode marks the beginning of a new effort to reform the system of price determination.

31/ Agricultural output is an exception to this rule since, both in Poland and Hungary, above-quota output can be sold at market prices.

32/ The Hungarian experience has many parallels to events in China. Like China with its state sector and the more dynamic TVE sector, Hungary had a first and a second economy—the latter a result of partial reforms in 1956-64. The NEM was introduced to address tensions between the first and second economy in 1968 but it resulted in even more substantial growth of the second economy, as worker mobility and the autonomy of cooperatives allowed them to establish profit oriented firms in industry and construction. After a period of freeze due to the oil shock, partial reforms were re-attempted in 1979-88, prompted by a BOP crisis.
prices for material inputs in line with world prices, and, later, in an attempt to curb consumer demand, switch supply to exports, and to maintain the "two-level price" principle. While Hungary has also used restrictions on price determination these have generally been uniform and have taken the form of "competitive pricing." Under this system, prices and profit margins on domestic markets are limited by world prices and profit margins on exports, and are thus subject to approval by the National Materials and Price Office.

41. By contrast, progress in Poland until 1989 was halting, at best, and the so-called "free" prices were rarely exempt from administrative influence. Poland has used extensive restraints on its free (contract) prices ranging from "justified increase" clauses, prior approval requirements, advance notification conditions, and price ceilings. In effect this approach to price reform has amounted to driving with the foot on the brake. Although reform started in 1982, only 20 percent of all prices were market determined in 1989. Poland had one round of increases in administered prices in 1982, and again in 1988 when the administered prices of energy and some food products were raised. Until its most recent (1990) reforms, Poland had never successfully used world prices to set a ceiling on its domestic price structure so that relative prices remained distorted. In early 1990, Poland adopted a "big bang" reform which liberalized 90 percent of all prices.

42. **Macro Consequences.** The reform experiences of the two countries in the period 1979-89 differ in a number of important dimensions. First, and most obviously, inflation rates in the two countries have differed sharply with Poland having much higher rates throughout the period. The experience of Poland is marked by rapidly escalating rates of inflation culminating in the hyperinflation of 1989. The earlier inflation reflects both the inadequate implementation of many aspects of the 1982 reform blueprint (enterprise financial discipline, in particular) as well as the larger failure of macroeconomic and exchange rate policy. Thus a recent analysis noted that:

"while the particular (1988) price increases were correct steps in the right direction, they were implemented in an inadequate overall macroeconomic framework which allowed monetary expansion through increasingly negative real interest rates ....[this] allowed enter-

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33/ This referred to the objective of ensuring that consumer prices are above producer prices by an amount roughly equal to the value of turnover taxes.

34/ In spite of this adjustment, coal and gas were severely underpriced in Poland until recently, by one estimate at less than one-sixth of world prices. However, after the most recent price adjustments coal is priced at about one half the world price while gas is priced at world market price.

35/ Inflation rates in Hungary stayed below 10 percent between 1980-87 and reached a high of 16 percent in 1989. By contrast, Polish inflation has always exceeded 10 percent in this period with highs of 101 percent in 1982 (when administered prices were revised) and accelerating after 1987 to 244 percent in 1989.
prises to increase expenditure on wages and investment...adding to inflationary pressures."36 /

The decentralization of the wage setting process caused acceleration of wage increases and the continuation of the soft budget constraint allowed these to persist without any reallocation of factors or productivity increases. Tax revenues, including inflation tax receipts, have fallen while increased subsidies have kept government expenditure high, creating a widening deficit. The final episode of hyperinflation was a wage-price-exchange rate spiral triggered by the liberalization of retail food prices in August 1989, the adoption of formal wage indexation in April 1989, and the flight from currency enabled by the legalization of foreign exchange transactions by households.

Table 4: INFLATION IN POLAND AND HUNGARY

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Poland</td>
<td>4.6</td>
<td>35.8</td>
<td>34.4</td>
<td>640.0</td>
<td>249.0</td>
</tr>
<tr>
<td>Hungary</td>
<td>4.5</td>
<td>6.8</td>
<td>9.9</td>
<td>18.0</td>
<td>30.0</td>
</tr>
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</table>

Source: Commander and Coricelli (1990).

43. The Hungarian experience differs in the details but again underlines the importance of overall macroeconomic balance. In 1981/82, this imbalance was thought to be controlled by tight demand management, under the IMF's stabilization program. The subsequent reduction in growth in 1985/86 was used to justify an expansionary fiscal policy. The budget balance changed from a 2 percent of GDP surplus to a 3 percent of GDP deficit with much of the financing of the deficit coming from foreign borrowing. These policies undermined the effort to achieve enterprise and price reforms since the availability of subsidies encouraged wage increases greater than productivity growth, exactly as in Poland. Stabilization measures introduced in 1987 under IMF/World Bank programs proceeded to reduce the fiscal deficit. In spite of the lapses into fiscal deficits, Hungary has had relatively low rates of inflation because the deficits were financed by foreign borrowing rather than monetary accommodation. However, the cost of this strategy is a larger external debt and consequent pressure on foreign exchange earnings.

44. In summary, inflationary pressures in Hungary and Poland originated mainly from the fiscal deficit and easy money policy of the government, which itself was a reflection of the failure to impose financial discipline on enterprises. The soft budget constraint leads to inflationary levels of wage concessions and investment demands. The process of wage determination often leads to cost push pressures that translates one-time price shocks, such as would be expected during a price reform, into inflationary spirals. All of these are fundamental causes of inflation. Any reform program that does not

36/ World Bank (1990a).
address these issues will inevitably face the prospect of inflation. Price reforms per se are not inflationary but, if undertaken in a context where these fundamental imbalances exist, will certainly allow and, in turn, be undermined by open inflation. The necessity of macroeconomic stability as an essential condition for successful reform is the lesson to be drawn from the earlier reform attempts in Poland and Hungary.

Gradualism, Incrementalism, and the Big Bang Approach

45. It is useful to clarify the characterizations of reform used in this paper in order to avoid debate over semantic issues. Incrementalism is the process of making small changes in the system without necessarily having an integrated perspective of the goals, time period and path of reform. Gradualism on the other hand can be used to describe a phased process of reform with periods of significant systemic change followed by periods of consolidation. The big-bang approach differs from a gradualist process in being substantially compressed in time and having a more integrated reform blueprint. In retrospect, most reform attempts to date may be characterized as having been excessively incremental in their approach and some may have followed too gradual a process.

46. Hungary attempted to maintain consumer price controls until 1979, over 11 years after it initiated the New Economic Mechanism (NEM). This interfered with the markets determination of relative prices, prevented profits from reflecting enterprise performance, and maintained the paternalistic relations between enterprise and the state. Price stability was downgraded as an objective after 1979 and relative prices were allowed to adjust. Nevertheless, after 20 years of reform, numerous fundamental problems remain unresolved in Hungary and the country remains on the brink of crisis.37/ Enterprise autonomy without financial discipline and with limited competition continue to undermine the efficiency of the economy. In addition, issues related to ownership and the market for factors of production have not been adequately addressed. The Hungarian example suggests that reforms during the first decade and a half were insufficient to allow the market to exercise a strong influence.

47. A recent study of four Eastern European economies (Czechoslovakia, GDR, Hungary, and Poland) concluded that technical efficiency in industry, as measured by the ratio of actual to potential output had fallen in all four countries over the period 1960-85, with Poland and Czechoslovakia registering marked declines.38/ The study concluded that contractionary macroeconomic policies were the primary explanatory factor behind the decline in technical efficiency and TFP in these countries. It is tempting to draw the inference that stimulative policies, rather than reforms, are the dominant influence on TFP. However, in the case of Hungary and Poland, it is more accurate to conclude that the neglect of stabilization policy ultimately undermined the


38/ The potential output is defined in terms of the best allocation achieved by each country over the period. Conceivably, this is below some 'true potential' so that the cost in foregone output is even larger than estimated. See Josef Brada (1989).
reform program and the improvement in productivity that the reforms were expected to unleash. The lesson to be drawn is that reforms must resolve the macro-imbalances if the benefits of reform are to be achieved. Recent analytical work on the effects of reforms also indicates that incremental changes that reduce distortions slightly may not have a significant growth effect.39/

48. There are very few examples of big-bang reforms to allow us to draw definitive conclusions on their effectiveness. After many years of stop and go effort failed to moderate high inflation and to reverse the worsening economic crisis, Poland committed itself to a "big bang" price reform in 1990. The reform consisted of a liberalization of most prices accompanied by a sharp devaluation of the zloty to a level below the parallel market rate. Tight fiscal and monetary policies were imposed, sweeping changes to enterprise management and financing (elimination of subsidies) were initiated, currency convertibility for most merchandise trade was introduced, and trade restrictions were substantially lowered. The results of this radical reform are still being tallied but a 12 percent decline in 1990 output was one of the short term consequences of the stabilization policy in Poland.40/ While recognizing the costs of such radical reform, a recent study recommended a modified "big-bang" reform for the Soviet Union, noting that a gradual price reform would be derailed by political and administrative difficulties.41/ Clearly, such an approach has its attractions the more severe the economic crisis afflicting the economy but some short-term output and employment loss is bound to characterize even gradual reform attempts.

Maintaining Macrostability

49. In China, there is a belief that rapid price reform will lead to another bout of inflation. The common association of price reform and inflation derives from the observation that a number of countries that have attempted price reforms have experienced inflation. However, this ignores the fact that inflation is fundamentally a result of excess aggregate demand (a macroeconomic phenomenon) that is fuelled by accommodating monetary policies.

50. Price reform on the other hand is designed to achieve a microeconomic objective: an adjustment of the levels of various prices such that the relative prices then reflect true scarcities. Since adjustment of relative prices will require some prices to rise and others to decline, there is no particular presumption that the general price level will be raised. However, if we recognize that prices may be sticky downward then relative price adjustment can be achieved by increases in the prices of relatively scarce items, and in this case a one time increase in the price level will occur. But, unless this one time increase sparks a cost-push spiral, inflation does not necessarily follow.


40/ This figure may overstate the real output costs of adjustment since private sector activity, which is not adequately measured, has responded vigorously in Poland.

41/ See IMF, et.al. (1990).
51. In most REPs that may be characterized as shortage economies, price reforms have to contend with another phenomenon: the existence of generalized excess demand. Under conditions of shortage this leads to accumulation of forced saving—commonly referred to as the monetary overhang. If this stock is used to purchase commodities under conditions where prices have been liberalized, the effect will be to drive up the price level although again it must be noted that this, in and of itself, would only be a one time effect.

52. Various studies have confirmed the rapid increase of savings in China in the period 1980-83 following the reforms but opinion is divided on whether this was forced or voluntary saving. Naughton (1987) concludes that the increase in the average household saving rate to about 10 percent of income was a voluntary response reflecting a change in behavior following the reforms. In any event, the increase in savings provided additional macroeconomic room for the government to maneuver and reduced the upward pressure on prices.

53. Nevertheless the existence of this stock of liquidity is viewed by some as a "tiger in a cage" since it has the potential to finance higher demand and thus increase prices. In China, a combination of expansionary policy and statements about future price adjustments as well as the acceptability of higher inflation provoked consumers to quickly draw down their savings in 1988 and sharply raised the price level, suggesting that the overhang was real.

54. Thus price reforms may have the potential to increase the price level both because of the necessary adjustment of relative prices as well as the possible stock effect of the monetary overhang. There are several ways in which the monetary overhang can be eliminated: First, inducing a diversification of savings into less liquid assets is an option along with measures that maintain positive real interest rates. Selling shares in public enterprises or inducing households to hold government bonds achieves this purpose so long as the proceeds are sterilized. Secondly, a more drastic remedy, possibly uncalled for in China, is to undertake currency reform that replaces existing currency with a smaller nominal stock of a new currency. The 1948 German reform converted 100 Reichsmark to 6.5 Deutsche Mark and thereby eliminated a large proportion of the money held in savings and time deposits. Finally, price liberalization itself can eliminate the overhang by allowing the goods market to clear by raising prices, thus bringing the real value of

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42/ It should be noted that the particular circumstances and the effect of the announcement had much to do with the panic buying and the subsequent price increase. That expectations of inflation were triggered so quickly reflects the macroeconomic policy stance of the government which had featured a loose monetary policy throughout the period.

43/ The introduction of indexed three-year savings deposits in September 1988 in China served to divert some of the liquidity and restrain the overhang effect. The sale of a part of the public housing stock could, in the future, serve a similar purpose while also furthering housing reform.

44/ See Solimano (1990a).
cash balances in line with desired levels. If undertaken under appropriate monetary policy, this adjustment need not contribute to inflation.

55. Recognizing that price liberalization will generally cause a one-time increase in the price level but not continuing inflation is an important distinction. Inflation is almost always the result of fundamental macroeconomic imbalances such as a fiscal deficit that is financed by monetary expansion. Price liberalization under such conditions then merely brings into the open what was formerly repressed. The Chinese experience of inflation is largely explained by the rapid increase in money supply at rates of over 30 percent in each of the three macroeconomic cycles—in 1979/80, in 1984 and again in 1987/88.\footnote{While the revenue/GDP share has declined dramatically from 25 percent in 1986 to 19.9 percent in 1990 this has not led to sharp increase in fiscal deficits because expenditures have also fallen correspondingly, resulting in a constant deficit of about 2 percent of GNP which is financed largely by borrowing.}

The Critical Need to Harden Budget Constraints

56. Underlying the policy of continued discretionary intervention by the governments of RPEs is the reluctance to allow the forces of competition to have full play and to let loss-making enterprises fail. All firms regardless of their inefficiency are sustained by intervention on prices, taxes, subsidies or credit. One of the inevitable and critical functions of price reform is to allow a proper evaluation of enterprises as profitable or unprofitable. Once this identification is possible it is necessary to discontinue support to obviously inefficient firms.\footnote{In many cases, fundamental ownership reform (privatization of state-owned enterprises) may be required to effectively enforce hard budgets and to achieve operational efficiency.} Where the government is unwilling to accept this restructuring cost, it implicitly continues the policy of soft budget constraints. In Hungary, the tendency to have profitable enterprises subsidize unprofitable ones through tax-subsidy policies implied that the soft budget constraint remained in effect through the period of attempted reform. In Yugoslavia, despite regulations which mandated the institution of bankruptcy proceedings against enterprises which remained unprofitable, such enterprises were allowed to pass on their losses to banks (undermining the financial system). Continued access to cheap credit allowed such enterprises to survive while the credit expansion exacerbated inflation. The continuation of support to loss making enterprises is also a feature of Chinese policy, as evidenced by the growth of enterprise subsidies in the government budget.

57. Support to loss making enterprises\footnote{These include adjustments of prices and taxes and provision of subsidies and credit designed to sustain the enterprise. Thus prices, taxes, subsidies and credit are said to be "soft." The use of cost-plus pricing is one form of "soft" pricing.} has three identifiable effects: it reduces the responsiveness of enterprise output to price changes, it reduces efficiency, and it creates an excess demand for inputs. When such
intervention is sufficiently widespread, most enterprises exhibit excess demand and the economy can be termed a shortage economy.

58. Reforms that do not discontinue the policy of soft budget constraints undermine the program in a fundamental way. The systemic tendency towards excess demand is maintained and accommodating monetary policies provoke inflation. Monetary policies tend to be less effective under conditions of a soft budget constraint because the firm can ignore the effect of overproduction on profitability. Low or negative interest rates encourage such reactions. Investment and input demands are unlikely to be scaled down so that a restrictive monetary policy is "like pulling on a rubber band." This naturally reduces the effectiveness of anti-inflationary policy. On the contrary, the system of providing enterprise credit is biased towards a lax monetary policy which will fuel inflation. Policies that index wages further exacerbate the problem and cause prices to ratchet upwards. Vestiges of the system of price determination (cost plus pricing) may actually lead to prices being indexed to wages. In other cases, egalitarian attitudes may cause productivity related wage increases in one sector to trigger equal increases elsewhere.48/

59. Recent research on Yugoslavia has shown that the transfer of income that is involved in any program of support to inefficient firms also imposes a cost on efficient firms.49/ Profitable firms that are taxed more heavily in order to subsidize the loss making firms face a cost that has an adverse effect on productivity and morale. In China this phenomenon of interfirm transfers is referred to as "whipping the fast ox." Similar effects are observed when intrafirm rewards are constrained by restrictions on wage differentials that effectively tax productive workers in order to subsidize less productive ones. Thus the soft budget constraint can be expected to not only sustain inefficient enterprises, but also to systematically encourage inefficiency on a wider scale.

The Case for Resuming Price Reform

60. Contractionary policies in 1989/90 succeeded in eliminating inflation in China by cutting back on its major cause; the rate of increase in money supply. While the authorities did also revert to some direct controls on prices during this period, the slackening of excess demand was primarily the result of the monetary restraint. There is still considerable evidence of the slack in the economy as a result of the policy-induced contraction: large inventories of unsold products, prices for products falling below ceiling levels, etc. These offer attractive conditions to initiate price reforms since, unlike 1988, expectations of inflation have subsided.50/


49/ The deadweight cost due to such redistribution is estimated to be as much as 6-7 percent of GNP. See Vodopivec (1990b).

50/ Recent months have seen the resumption of the rapid growth of the money supply suggesting that this opportunity may have passed and also signalling the likelihood of the reappearance of inflation.
61. There is considerable debate within China regarding the necessity and nature of the next stage of price reform. One of the more comprehensive expositions of the conservative approach to price reform correctly identifies the need for macroeconomic balance, reduction of price subsidies, and the ultimate objective of allowing prices of most commodities to be determined by the market.51/ However, the recommendations are to increase the proportion of centrally determined prices, to vary the proportion of free prices across regions (higher proportions in coastal areas), replace the dual track price by a single control price for many important raw materials and intermediate goods, and to narrow the gap between plan and market price in other cases. It is unlikely that such a set of changes will help in correcting the price distortions that exist in China. On the contrary, it has the potential to reverse many of the advances towards establishing markets for many commodities and thereby threatens to weaken the role of prices.

Experiments in Price Reform

62. The Chinese approach to reform in many areas—enterprise reform, tax reform, etc.—has always featured a period of experiment in selected cities or provinces, and only if this experiment is judged to have worked, is the reform attempted more widely. The virtue of this method is that, in principle, it allows policy-makers to design reforms appropriate to the Chinese institutional context and to reduce the risks of destabilizing reform.52/ Clearly, the experiments must yield general insights that will guide the wider application of the reform.53/ In the case of price reform, the use of the experimental approach must be undertaken with particular care since it has the potential to create unexpected new price distortions by creating multiple prices, widening price differentials between experimental and nonexperimental areas, and, thereby, increase arbitrage possibilities.54/

63. The key question for China at this juncture is not whether it should resume the reform process leading towards full price liberalization but when, at what pace, and with what specific blueprint in mind. China's progress on

51/ See Bai Fan (1990). Also see Zhang (1991) for an alternative view that urges more substantial reform.

52/ The most recent attempt at such controlled price reform experiments is reported from Guanghan town in Sichuan province. Grain prices paid to farmers will be raised threefold while ration allocations to consumers will be discontinued and partly compensated by a ¥ 75 wage supplement. "China tests prices policy in a free-market cocoon," Financial Times, March 12, 1991.

53/ The price experiment in Shijiazhuang in Hebei province involved unifying plan and market prices and providing subsidies to enterprises that are allocated quota amounts of materials. However, Tianjin rejected this model as not suitable for its more developed economy which dealt with a larger range of products.

54/ The contribution of prices in linking markets may be thwarts to the extent that the experimental approach creates artificial market segmentation (by regions, products, industries).
price reform has been very gradual, with significant pauses and some retreat under conditions of macroeconomic instability, as noted above. The next round of price reform must be integrated as an element within a larger framework of reform and must feature macrostability as an essential condition.

Possible Next Steps

64. The international experience of RPEs clearly indicate that it is critical to maintain overall macroeconomic balance to prevent inflationary pressure. This will require a strict budget policy for the duration of the reforms and during the structural adjustment of the economy. Policy makers in China have demonstrated that, when monetary discipline has been most necessary, they can successfully fashion a national consensus that controls inflation. A similar understanding of the need for restraint must underpin a resumption of reforms.

65. Initial conditions can greatly influence the smoothness of reform and, in the case of price reform, relative slackness in the economy would minimize the disruptions to economic activity as prices are liberalized. While this is desirable, the timing of reform is less important than the achievement of consensus regarding the goals, necessary adjustments and pace of reform.

66. The actual reform should lead in time to full price liberalization since partial measures can unearth unexpected new distortions and bottlenecks that may seriously undermine reforms. The big-bang Polish reform of 1990 did not liberalize energy and transport prices and this is thought to have complicated the subsequent adjustments. Partial price liberalization if allowed to persist will tend to repeat the experience of reforms to date: i.e., to preserve industries with output still subject to price control which must then be supported with subsidies. Since such subsidies quickly attract new claimants, the attempt at the very outset should be to provide for all industries an even and objective playing field: the market.

67. While price reform should attempt to be as comprehensive as possible for the reasons given above, in practice some prices will have to be adjusted and liberalized before others. The price reform should begin by adjusting prices of items that have a substantial impact on the government budget (grain and vegetable oil subsidies) and on the income statement of enterprises (coal, electricity, and oil production). More generally, the reform should seek to establish a unified market price for all commodities where the differential between plan and market price is narrow. In many cases the price adjustments will not cause a ripple effect on the price level because marginal costs will not be affected.55/

68. The reform of coal prices is a priority both because the current plan price undermines the profitability of mining enterprises and because it seriously distorts energy and transport demand. The reforms should increase

55/ Firms that were, at the margin, buying inputs and selling their output at market prices will not face a different supply curve inspite of an increase in plan price.
plan prices to allow these enterprises to recover a substantial part of their operating costs, gradually unify plan and market prices and phase out government allocation of coal over a period of, say, five years. Regional markets should be allowed to determine coal prices after that period. Regulation of railway tariffs will limit the possibility of monopoly profits by the railways on interregional coal transport.

69. The adjustment of grain prices is imperative to check the growing weight of the subsidy in the government budget and to eliminate the regressive income transfer from farmers to urban consumers. The urban ration price of grains and vegetable oil should be adjusted to market levels in a phased manner. Correspondingly, grain and oilseed procurement prices should be raised to market levels in order to improve production incentives. Measures to limit the redemption of unused ration coupons and to prevent the use of such coupons in barter trade will be required. Groups with incomes vulnerable to ration price increases can be protected by targeting benefits to low income households.

70. Given the close existing link between fertilizer prices and grain prices, any adjustment of grain prices will have to be accompanied by corresponding reform of fertilizer pricing to achieve efficiency in fertilizer production and use. Price subsidies to fertilizer production and distribution must be eliminated in order to lower delivered cost of fertilizer. Market based fertilizer prices would prompt more efficient use of fertilizer and allow farmers to make better decisions on grain versus cash crop farming.

71. Price reform must be accompanied by measures that encourage the development of competitive practices. The size of China's economy and the relatively small size of most enterprises imply that the framework of a competitive economy exists. Policy actions in this area should focus on eliminating tendencies for local monopolies to emerge behind barriers erected by local industrial bureaus and provincial governments. Since prices of most natural monopolies will continue to be administered and set with some reference to marginal cost, the danger of monopoly pricing diluting the allocational gains of reform can be controlled.

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56/ One suggestion is to increase the plan price within two years to 80 percent of the long run marginal cost (LRMC) at the minehead (=Y 100/ton) which would correspond to a price of Y 80/ton. See Albouy (1990) and World Bank (1991c).

57/ Where this involves a large jump the increase in procurement price could be phased in over a period of time.

58/ This will require assigning expiration dates to new and previously issued coupons and limiting transferability of coupons.

59/ Locating ration shops only in poor areas, subsidizing inferior goods, and setting up special feeding programs for the absolute poor are some targeting measures that have proven effective in other countries.
72. The recognition that a successful reform must eliminate the major sources of inefficiency in the economy requires the hardening of budget constraints of enterprises. Most RPEs have long recognized that reform will require eliminating inefficient enterprises and that this will involve some transitional unemployment. The failure to harden the budget constraints of enterprises is a reflection of the political inability to face up to this reality. Price reform without this adjustment will fray the resolve to control fiscal and monetary policy and will thus be unavoidably inflationary. Poland illustrates that this decision can be put off for a period of time at a cost in terms of rising inflation but the eventual restructuring will occur at a higher cost in terms of economic disruption.

73. While price inflation reaches across the board and affects all citizens, unemployment will necessarily be limited to those industries that are revealed to be unsustainable. The experience with coalitions and interest groups in many countries suggests that this will provoke more opposition to reform than was ever mobilized against inflation. The reform must anticipate and minimize the costs of this transitional unemployment. It is important, therefore, to create a safety net that minimizes the social costs of the restructuring and to encourage economic conditions that facilitate the transfer of labor, from enterprises slated for elimination, to industries in which China can be competitive. The safety net should focus on providing time-bound income maintenance support during the period of unemployment as well as arranging job retraining for the new growth industries. The unemployment insurance program initiated in China in 1986 to allow bankrupt firms to exit can, with additional resources, provide the basis for this transitional assistance.

74. Housing reform will have to be an integral part of the reforms that allow industrial restructuring. As unsustainable enterprises are shut down or as other enterprises shed workers to improve efficiency, it is imperative that workers and enterprises respond flexibly to the emerging opportunities. While monetizing in-kind benefits such as housing weakens the link between enterprises and housing, the creation of joint stock companies that manage enterprise-owned housing properties will further separate the two. The reforms must include an array of other changes to the market for housing such as decontrol of rents, introduction of fixed-term rental leases, and the drafting of laws defining the rights of property owners. In the initial stages, the creation of alternative housing finance instruments (to replace enterprise funds) should focus on competitive rate mortgage finance for joint-stock housing companies and short term finance for developers.

75. Firms with excess labor should be allowed to shed their surplus labor and thus become profitable. Perhaps the best reason for confidence that the transitional unemployment will be short lived is the high rate of invest-

60/ Rent reform towards market rents should be phased in within two or three years. Property owners must be allowed unrestricted ability to generate income from leasing or to accrue capital gain from sale of property. See World Bank (1990d) for more detailed recommendations.
ment in China. With investment at such rates, especially in TVEs, allocated according to market price signals, labor absorption should be relatively rapid and assure the achievement of low rates of unemployment. Since the service sector can absorb workers quickly, credit support to such ventures should also be arranged to facilitate the reemployment of workers.

76. This raises the larger question of social security reform which will remove the burden of pensions from enterprises, where it currently rests, and on to central or provincial authorities. This issue will clearly have to be addressed since the hardening of budget constraints will render some enterprises unable to honor their pension obligations while enterprises that are shut down will also require similar assistance. Since enterprise based pensions is also restrictive of labor mobility this reform must accompany price liberalization.

77. While monetary restraint will prevent the principal force behind inflation from emerging, attention also needs to be given to restraining the price increases from being translated into price-wage spirals. Maintaining positive real interest rates will help to curb any flight from currency and limit its effect on the price level. The process of wage determination also needs to be subject to some control and modulation, particularly when initial conditions of excess demand obtain. Both Poland and Hungary have used tax based incomes policies (TIP) for this purpose although the limited success has been attributed to inadequate implementation rather than any fault in the policy per se. If wages are determined by collective bargaining at the enterprise level then the tendency for workers to seek excessive wage settlements, which imposes a cost on the rest of the economy (i.e., an externality), can be reduced by a policy that taxes firms which agree to large wage increases. Such policies also allow wages to be linked to productivity so that the efficiency cost of the tax is not large.

78. The system of taxation in China is intricately woven in with the current price structure as VAT rates are adjusted to equalize sectoral profitability in the presence of price controls. Price reform will enable the application of uniform taxation and this adjustment should be quickly phased in with the freeing of prices.

79. As noted earlier, the present structure of relative prices in China reflects both the effect of domestic price controls as well as the effects of restrictions on international trade represented by foreign exchange restrictions, import licensing, quotas, import tariffs, etc. Fundamental price reform will require that actions to liberalize domestic prices be followed, in a phased manner, by trade and exchange rate reforms that establish a link between domestic and international relative prices. In the absence of reforms that establish this link, even liberalized domestic relative prices will continue to differ from international relative prices with adverse effects on the pattern of trade specialization and resource use in China. Trade reform should seek to eliminate the import licensing system and attempt to establish

61/ Investment as a percentage of GDP has averaged about 34.6 percent in 1978-89.

a set of relatively low and uniform tariffs that will allow international price movements to be reflected within China. Where trade reform is expected to disrupt industrial activities in which China is thought to have good medium term prospects, additional but temporary time-bound tariff protection could be provided.

Conclusion

80. In order for China to maintain and build on the gains from reform it is essential to achieve further progress in establishing markets as the principal institution for resource allocation. Prices are the sine qua non of markets and in order to perform their signalling function it is imperative that they be responsive to supply and demand conditions. Postponing price reform merely increases the eventual costs of adjustment. The dual price system is a useful bridge between the system of fully administered prices and a fully market determined system. However, this transitional system has outlived its purpose and must be replaced by unified market determined domestic prices for most commodities. A second stage of price reform will have to address the necessary reforms to the system of international trade in order to improve the linkage between Chinese and international relative prices.

81. To maximize the benefits from price reform will require action along a broad front. An increasing body of evidence suggests that price reform must be an element of an integrated program which features reforms and policies which: (i) maintain macroeconomic balance and positive real interest rates; (ii) impose a hard budget constraint on state enterprises; (iii) enable the closure of inefficient enterprises (bankruptcy laws, reforms to the system of enterprise-tied benefits); (iv) minimize the costs of transitional unemployment by putting in place a social safety net; (v) initiate housing and rental reforms; (vi) adjust the indirect tax system; (vii) institute an incomes policy that modulates the wage determination process; and (viii) replace quotas and protective tariffs with a low uniform nominal tariff. In other words, a successful price reform requires a critical mass to achieve the sought after allocational improvements.
References


Table A: CHINESE PLAN PRICES

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/a Data are from the Industrial Policy Report.
/b Refers to the Dongfang model.
/c Refers to McGurk's paper on Jiangsu agriculture.

Notes: (1) 1981 cement price data refer to S52 cement, see Taylor data.
(2) 1981 grain price data refer to average of quota, above quota and negotiated price. See Taylor data.
(3) 1980 grain price data from WAT1, p.9. 1986-88 see WAT1 p. 17.
(4) For 1989 data see WAT1 p.
(5) Fertilizer price data from WAT1 p.
(6) Prices of coal, crude oil and sulphuric acid for 1988 are from IPR, p. 65 which gives prices in Jiangsu.
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/ a These are average retail prices from CSY, 1990.

Note: (1) See MATI p. 9 deficit area prices for 1985-88 grain prices.
(2) Prices for 1986-87 for cement, wire rods, timber are from Industrial Policy Report, p. 61. These refer to Shanghai prices for the second half of the year.
(3) Prices of coal, crude oil, and sulphuric acid for 1988 are from IPR, p. 66, which gives prices in Jiangsu.
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Note: (1) Wire rod prices 1988-90 from All in One Commodity Price data.
(2) Fertilizer prices for 1985 from MAT1, p. 185.
(3) Prices of coal, crude oil and sulphuric acid for 1988 are from IPR, p. 65, which gives prices in Jiangsu.
(4) Cotton prices are derived from the World Textile Outlook and the All in One Commodity data.
(5) Cotton cloth price in 1987 based on S.Korean cost, see WTO, p. 63.
(6) Polyester fiber refers to 1.5 denier polyester. Source: WTO, p. 21.
Table D: RELATIVE PRICES

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Note: Derived from Tables A, B, and C.
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