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Market Structure, Relative Prices and Income Distribution

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Abstract

In this paper we critically examine the notion of inertial inflationary equilibrium, and argue that inflation is not neutral in terms of the level of aggregate demand, the degree of labour mobilization, distributive conflict, relative prices and the distribution of income. Hence the pre-conditions for a successful heterodox programm are considerably move stringent than conventionably supposed in the inertialist literature. We design a scheme to discuss changes in relative prices and income distribution under different economic `regimes', and look at the heterodox experiments in Brazil, Argentina, Israel and Peru.

Resumo

Neste artigo examinamos criticamente a noção de equilíbrio inercial, e argumentamos que a inflação não é neutra em termos do nível de demanda agregada, do grau de ativismo sindical, distribuição de renda e preços relativos. Assim, concluimos que as pré-condições para um choque heterodoxo bem sucedido são mais restritivas do que usualmente se supõe na literatura inercialista. Desenhamos um esquema para discutir mudanças na distribuição de renda e preços relativos em diferentes `regimes' econômicos, e examinamos as experiências heterodoxas no Brasil, Argentina, Israel e Peru.

Market Structure, Relative Prices and Income Distribution: an analysis of heterodox stabilization experiments [1]

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Market Structure, Relative Prices and Income Distribution: an analysis of heterodox stabilization experiments

1. Introduction

In this chapter we look at some heterodox stabilization experiments in the 1980's. In Brazil, as well as in Israel, Argentina and Peru, the diagnosis was that, independently of the original causes of the inflationary process, the inflation in the period preceding the programme was essentially `inertial'. That is, inflation was the result of indexation mechanisms which transported past inflation to the present. If the diagnosis was correct, inflation could be drastically reduced through a coordinated policy according to which the inertial or indexation factor would be abolished, and wages and prices would be frozen.

In principle, the plans were neutral in terms of the distribution of income and relative prices, and assuming the absense of major distributive conflicts, the end of inflation would leave everyone better off. It was basically a question of coordination. Therefore the government could legitimaly appeal to the acquiescence of all social groups in society, and in this sense, the heterodox shock was, in fact, a type of incomes policy.

Here, we shall critically examine the notion of inertial inflationary equilibrium, and argue that inflation is not neutral in terms of the level of aggregate demand,the degree of labour mobilization, distributive conflict, relative prices and the distribution of income. Hence the pre-conditions for a successful heterodox experiment are considerably more stringent than conventionally supposed in the inertialist literature.

The chapter is organized as follows. In section 2 we examine some of the institutional, political and economic pre-conditions for a successful incomes policy. In section 3 we design a scheme to discuss changes in relative prices and income distribution under different economic `regimes´. Section 4 is an empirical analysis of heterodox experiments in Argentina, Israel, Peru, and especially Brazil. In section 5 we conclude and draw some policy implications.

2. An Overview of the Issues Involved in 'Heterodox Shocks'

The alternative to orthodox (demand management) stabilization policies are the different varieties of incomes policies. The different versions of incomes policies can be distinguished by the degree and nature of the negotiations between the different social actors. In one pole of the spectrum we find the canonical form of negotiated incomes policy, that is the neo-corporatist model of centralized negotiations between unions and capitalists in Austria, Sweden, Norway, Finland, etc. In the other pole, we have the Latin american authoritarian model\[2] based on the total repression of union activities, and the complete absence of negotiations.

Here we shall focus on the role of negotiations in the case of incomes policies in democratic regimes. An interesting approach to stabilization policies is one which sees the reduction of inflation as a 'public good'. As in the case of any public good, there is always a 'free-rider problem' to be solved. As noted by Franco (1986), in the course of a stabilization programme, "an agent who feels that his decision has a negligible impact on the overall outcome of the plan, will have a very strong incentive to 'err' his inflation forecast on the pessimistic side for any overestimation of actual inflation would result in gains for those making the 'mistake'". This problem exists in incomes policies of all varieties and in heterodox programmes in particular where segments of both the goods and labour markets cannot be effectively controlled, and act as free-riders. The problem with free-riders will always exist, but centralized negotiations can avoid the operation of large free-riders.

[2] We have in mind the cases of Argentina (1964-74), Brazil (1963-84), Chile (1973-85) and Uruguay.

Indeed, if the major social actors participate in the negotiations of the incomes policiy, they all become to a certain extent responsible for the sucess of the plan.

However, centralized negotiations require both institutional and political conditions to take place. In terms of the institutional setting, the centralization of the system of collective bargaining, or more generally, industrial relations, is quite and important condition. The fragmentation of the system precludes the appearence of legitimate representatives, and therefore, the possibility of a successful negotiation. This is so because, as noted by Tarantelli (1983, p. 211), "the more decentralized is the system of industrial relations the greater is the number of agents who will attempt to free ride."

As for the political aspects, an important condition is the legitimacy of the actors involved in the negotiation, including the government. That is, the government must have credibility to implement negotiated policies, and political support. A high degree of fragmentation of the union structure may also preclude the achievement of a negotiated policy in cases in which there are fundamental political differences between the groups involved. Indeed, union organizations may work deliberately against the stabilization plan for purely political reasons.

It could be argued that the discussion about the role of negotiations in incomes policies is quite irrelevant for the analysis of heterodox shocks. The sucess of heterodox shocks seems to depend, for strategic reasons, on the fact that agents do not anticipate the plan. Otherwise they could speculate against it. However, negotiations could take place immediately after the announcement of plan. Unlike the case of Israel

in which negotiations took place after the plan was launched, in the cases of the heterodox shocks in Argentina, Brazil and Peru the programme was not negotiated. In Israel, after the shock and a period of bargaining, a wage aggreement was signed between the Histadrut (the strong trade union federation) and employers. In the other countries, in general, the institutional and political conditions for a successful negotiation could not be satisfied. Either the organizational structure of the major social groups was not sufficiently centralized, or there was a lack of political pre-conditions. Hence, the success of the plans were under the entire responsability of the government, whereas all the other groups acted as potential free-riders.

Another political aspect which imposes constraints on the success of incomes policies is the degree of distributive conflict, or the degree of dissatisfaction of the different groups with their current incomes. Elsewhere in this volume Ros notes that "if inflation had no costs (or had costs for some social groups and benefits for others), and distributional conflict was overwhelming, the inflation process could be seen as the outcome of a zero-sum game [in which] no scope is left for cooperation among economic agents, and policies of social coordination have no role to play on the erradication of inflation." Indeed, the scope for social coordination and negotiated policies is much greater in the case of inflationary processes with a strong inertial component, than in cases of a strong conflicting claims component.

But even the notion of inertial inflation seems to be quite fragile in face of the radical changes introduced in the economy by heterodox shocks. As noted in chapter 3, even if the economy is in a

position of inflationary and distributive equilibrium before the programme, a small change of regime -- a change in agreggate demand or labour mobilization, for example-- may throw the economy in a disequilibrium and open conflict situation. Hence, even if the initial situation is one of equilibrium, the possibility of this situation to continue after the programme is lounched is very small. If inflation is accelerating due to a supply shock or a change in the degree of labour mobilization, or if a change in relative prices is taking place, before the plan starts, the chances of a successful price & wage freeze become even smaller.

There are other problems with negotiated incomes policies which cannot be solved with coordination. Problems associated with responses of the system which are independent of the means employed and objectives negotiated, and most of the times unexpected. The most prominent case here is the responses of the agents in the competitive sectors of the goods market and in the informal segments of the labour market. These agents cannot and do not participate in centralized negotiations and, given the nature of the market in which they operate, in particular the competitive structure of the markets, are very sensitive to movements in aggregate demand. Hence, in economies with large competititve and informal markets, demand should be kept under control in the period before the plan starts and also during the programme. Otherwise there will be a tendency for relative prices to change and inflationary pressures to appear in the economy. The latter are incompatible with the objectives of the policy and inconsistent with a price & wage freeze.

2. Market Structure, Price Formation, and Income Distribution

In this section we develop a scheme to study changes in income distribution and relative prices in a two sector economy. The sectors are characterized by the market structure in which the firms operate and their stylized pricing behaviour, the organization of the labour market, the representative agents in both the goods and labour markets ,and the degree of controlability of the sector when an incomes policy or price & wage freeze is launched.

The behaviour of both firms and unions is based in the aggregate model developed in chapter 3. There, we assumed that the rate of inflation, as determined by the firms' pricing behaviour, could be represented by the following equation:

$$p = v(p_{t-1}) + h(...)\ g(...) + j(ED)$$

where v is the indexation factor, p_{t-1} is the rate of inflation in the previous period, h is the capacity to mark-up costs, g is the `net bargaining power' between firms and labour in the process of money wage determination, and j measures the direct effect of excess demand (ED) on the rate of inflation. We assume that the h, g and j functions are different according to the market structure in which firms operate, and the economic regime.

We shall assume that the economy is divided into two representative sectors, and in table 1 we provide the basic features of the `oligopolist' and `competitive' sectors.

Table 1

Market Structure and Labour Markets

	Oligopolist	Competitive
Pricing behaviour	$h_o \cong 1$ $J_o = J(ED) = 0$	$h_c = h(z-\bar{z})$, $h'>0$ $J_c = J(ED)$, $J'>0$
Labour markets	Formal/organized g_o stable	Informal/not organized g_c pro-cyclical
Agents	Sectors with high degree of concentration/major unions	Sectors with low degree of concentration: agriculture services, commerce/ small unions
Representation	Formally and centrally represented	Cannot be centrally represented
Control	Easy to control	Difficult to control

In an oligopolist structure, interdependence plays a central role in the fixation of prices. In general, it can be assumed that a 'price leader' fixes the price in accordance with its costs, and the other firms in the market follow the leader. Hence, the price in each sector is essentially guided by the movement of direct costs. Firms avoid using reductions in prices as a weapon to increase their share of the market. Moreover, prices are not very sensitive to changes in the degree of

capacity utilization or the level of excess demand. These assumptions imply that the size of the desired mark-up is relatively stable over cycle around 1 (that is, $h_o \cong 1$); and that the direct effect of excess demand on prices is negligible (that is, $j_o(ED) = 0$). In short, the actual mark-up changes very little over the cycle in the oligopolist sector.

In competitive industries, there is not much interdependence between the behaviour of firms. The phenomenon of price coordination assumed in oligopolist markets does not play such an important part in the process of price determination. Instead, it is assumed that prices are sensitive to the movement of demand. In terms of the model, it is assumed that the capacity to mark-up varies in accordance with changes in the degree of capacity utilization (that is, $h_c = h(z - \bar{z})$, with $h' > 0$), and that there is a direct effect of changes in excess demand on prices (that is, $j_c = j(ED)$ with $j' > 0$).

In general, because prices in the competitive sector are relatively more volatile and pro-cyclical, we would expect the rate of inflation there to gravitate arround the rate of inflation in the oligopolist industries. Hence in an expansion, prices in the competitive industries would grow faster than the average, and slower in the oligopolist industries; and vice-versa in a period of recession..

As for the labour markets, we shall assume that there is a certain relationship between the market structure and the degree of organization of the labour force. Labour unions are usually better organized in industries in which the major firms operate. Especially in economies where the labour market is segmented, the 'formal segment' can be roughly associated with the oligopolist industries, and the 'informal

segment' with the competitive industries. Obviously, in the formal segment, the long run capacity of unions to organize and mobilize the workers is greater than in the informal segment which implies that the unions in the formal segment tend to set the pace of the labour movement. Because they are better organized, the net bargaining power of unions in the oligopolist sector tends to be more stable, that is, less dependent on the cycle, than the bargaining power of unions in the competitive sector. In the latter, the bargaining power is clearly pro-cyclical not only because of the conditions in the labour market, but also because the expected capacity to mark-up costs of firms (which affects positively the degree of labour mobilization) is highly pro-cyclical in competitive markets.

In short, we can say that the unions in the oligopolist sector play the role of leaders of the labour movement. In a period of expansion, unions in this sector are able to rapidly increase the degree of labour mobilization, and have the greatest probability to attain an increase in real incomes. However, there is a limit for the increase in bargaining power: in very organized segments there are long term arrangements between firms and unions which constrain the movements in the degree of bargaining power. Workers in the competitive sector on the other hand see their bargaining power increase continuously over the expansion. In general we can say that g_o and g_c move in the same direction but that the latter is more volatile than the former.

The path over time of the actual profit margins, real wages and relative prices in each sector depend on the relative movements of the net bargaining power, the capacity to mark-up changes in money wages and the size of the effect of excess demand or supply over prices. In the scheme

developed below we shall examine alternative regimes of the economy, and hence different patterns of change in distribution and relative prices.

The representative agents in the oligopolistic sector are major firms and labour unions operating in highly concentrated industries. In the competitive sector, the agents usually are small firms and unions operating in industries with a low degree of concentration, and in particular, firms (or families) operating in the agriculture, commerce and personal services sectors. It seems clear that the agents in the oligopolist sector can be centrally and formally represented in negotiations over different types of decisions, and in particular in the preparation of incomes policies. They can also be easily controlled during a price & wage freeze. Agents in the competitive sector, on the other hand, can hardly be represented in negotiations, and specially in negotiations at high levels of centralization. Hence it is quite difficult to include agents from this sector in discussions over macroeconomic policies. It is also quite difficult to control the agents in this sector during a price & wage freeze. It will be shown when we come to the empirical analysis that the agriculture, personal services and commercial sectors in general behave as free-riders during heterodox shock programmes.

We may now turn to the formal description of the formation of prices and incomes in each sector, and the determination of income distribution and relative prices. In each sector (oligopolist and competitive) the paths of money wages and prices are given by the following equations, respectively:

$$w_o = v\,(p_{t-1}) + g_o$$

$$p_o = v\,(p_{t-1}) + h_o g_o + J_o(ED)$$

} oligopolist

$$w_c = v\,(p_{t-1}) + g_c$$

$$p_c = v\,(p_{t-1}) + h_c g_c + J_c(ED)$$

} competitive

As noted already, we assume that $J_o(ED) = 0$. The path of the profit margin in each sector is given by, respectively:[3]

1. $$\dot{\tau}_o = p_o - w_o = (h_o - 1)\, g_o$$

2. $$\dot{\tau}_c = p_c - w_c = (h_c - 1)\, g_c + J_c(ED)$$

The aggregate rate of inflation is a weighted average of the rate of inflation in the two sectors:

$$p = \varepsilon p_o + (1 - \varepsilon)\, p_c, \qquad 0 < \varepsilon < 1$$

where ε is the share of the oligopolist sector in agreggate output. Substituting from the inflation equations we have:

3. $$p = v(p_{t-1}) + [\varepsilon h_o + (1 - \varepsilon)h_o G]g_o + J_c(ED)$$

where $G = g_c / g_o$. Because we assume that in both sectors the indexation factor in each period is the same, we can write:

[3] We assume that only labour enters the direct costs of each sector.

$$v(p_{t-1}) = p_o - h_o g_o = p_c - h_c g_c - J_c(ED)$$

which implies the following relation between the rates of inflation in each sector:

4. $$p_c = p_o - (h_o - h_o G)g_o + J_c(ED)$$

We know from the above discussion that the most volatile elements in this equation are the capacity to mark-up costs (h_c) and the excess demand effect ($J_c(ED)$) in the competitive sector. Hence, whenever there is excess demand, the inflation rate in the competitive sector will tend to be greater than in the oligopolist sector. The same will be the case when, in an expansion, $h_c G$ becomes greater than h_o. Based on our assumptions, we can safely argue that the inflation rate in the competitive sector oscilates pro-cyclically around the inflation rate in the oligopolist sector; and that the relation between the inflation rate in the competitive sector and the average rate of inflation is also pro-cyclically.

The rate of change of real wages in the oligopolist and competitive sectors are given by, respectively:\[4]

5. $$w_o = w_o - p = [(1 - \varepsilon h_o) - (1 - \varepsilon) h_c G]g_o - (1 - \varepsilon)J_c(ED)$$

6. $$w_c = w_c - p = ([1 - (1 - \varepsilon)h_c]G - \varepsilon h_o)g_o - (1 - \varepsilon)J_c(ED)$$

We may now turn to the analysis of the likely behaviour of relative prices and distribution under alternative 'regimes.' We start with a reference regime in which there is no excess demand, that is, ED = 0, and the net bargaining power in both sectors is the same which implies

[4] We assume that workers consume goods produced in both sectors.

that $G = g_c/g_o = 1$. In such case, from equations 5. and 6. we derive the following relation between the capacity to mark-up in the two sectors:

$$W_o = W_c = 0 \Longrightarrow \quad h_c = \frac{1 - h_o}{1 - \varepsilon}$$

This relation is represented by the negatively sloped line in figure 1. Along this line, real wages in both sectors are constant. The positively sloped line, $H = h_c/h_o = 1$, represents the locus of points for which the capacity to mark-up is the same in both sectors. The case of distributive equilibrium (when neither the profit margins nor the real wages change over time) is represented by the point in which the two lines intesect. Assuming $g_o > 0$, points above the downward sloping line are associated with situation in which real wages in both sectors are falling, and vice-versa. In any of the two sectors, when the capacity to mark-up is smaller than 1, the actual profit margin will be falling, and vice-versa.

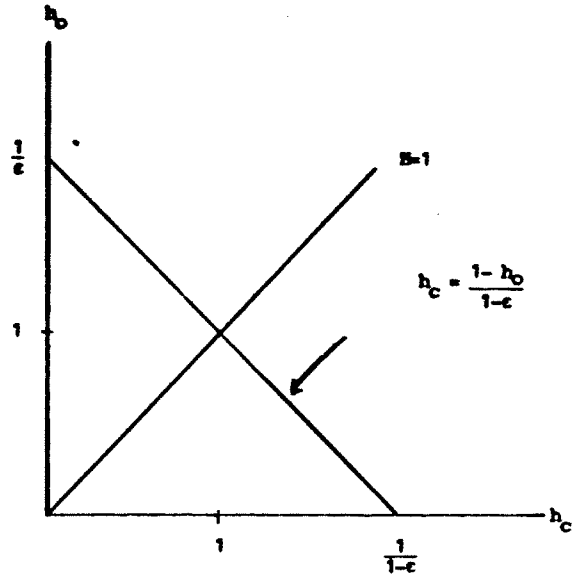

Figure 1

We may now modify the reference regime to consider the case in which the bargaining power is different in the two sectors, that is G is different from 1. We assume that there is no excess demand, and that the level of activity is relatively low, that is ED = 0 and $z < \bar{z}$. Think of a situation in which there is a supply shock, and assume that in face of the new situation, unions in the oligopolist sector are better prepared to mobilize workers to resist the erosion of wages than are unions in the competitive sector. In this particular case, assuming that $g_c > 0$, we would have $g_o > g_c$ which implies $G < 1$. Now the lines representing the loci in the $<h_c, h_o>$ space for which real wages are constant in each sector are different (as represented in figure 2):

$$W_c = 0 \Rightarrow h_c = \frac{1 - h_o}{(1 - \varepsilon)G}$$

$$W_o = 0 \Rightarrow h_c = \frac{1}{1 - \varepsilon} - \frac{\varepsilon h_o}{(1 - \varepsilon)G}$$

In figure 2, there are two downward sloping lines: the one to the right is the $W_o = 0$ frontier; the inside one is the $W_c = 0$ frontier. Now the area for which real wages in the competitive sector grow is smaller than the area for which wages in the oligopolist sector grow. Take as an example the situation in which $h_c = h_o = 1$: the actual mark-ups in both sectors will be constant, real wages in the competitive sector will be falling, and in the oligopolist sector they will be growing. Clearly, in this situation, there will be a distribution of income from workers in the competitive sector to workers in the oligopolist sector. The latter, in face of their capacity to mobilize workers, are able to resist the reduction in wages, and as a result of our assumption about the behaviour of the capacity to mark-up of firms in both sectors, even increase their

wages.

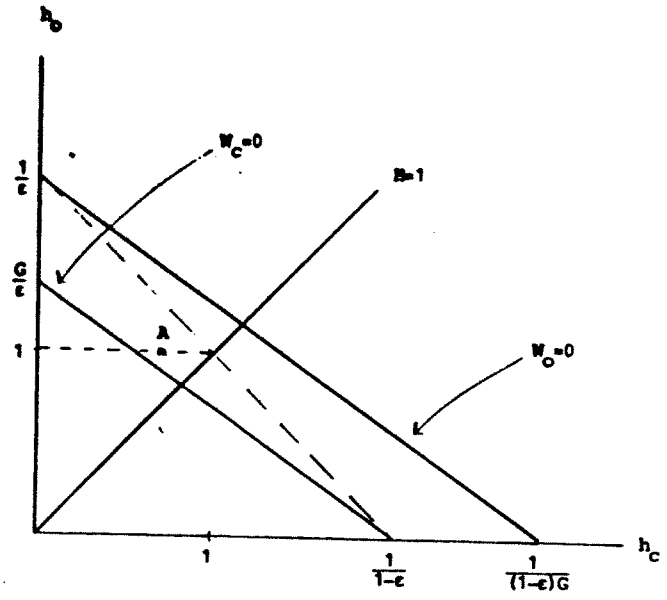

Figure 2

Consider a more realistic situation: since we have assumed that the level of activity is low ($z < \bar{z}$), it seems reasonable to suppose that whereas the capacity to mark-up in the oligopolist sector remains arround 1 ($h_o \cong 1$), it is smaller than one in the competitive sector ($h_c < 1$). In figure 2, point A represents the situation just described. In such case, we would have:

$$\left.\begin{aligned} \dot{\tau}_c &= (h_c - 1)\, g_c < 0 \\ \dot{\tau}_o &= (h_o - 1)\, g_o = 0 \end{aligned}\right\} \quad \dot{\tau}_c < \dot{\tau}_o = 0$$

$$\left.\begin{aligned} W_o &= (1 - \varepsilon)\,(1 - h_c G) g_o > 0 \\ W_c &= [(1 - h_c)G - \varepsilon\,(1 - h_c G)] g_o \gtrless 0^5 \end{aligned}\right\} \; W_c < W_o$$

$$p_c = p_o - (1 - h_c G) g_o < p_o \;\Longrightarrow\; p_c - p < p_o - p$$

These results imply that in a situation in which

(i) there is demand equilibrium (ED = 0) and the level of activity is relatively low ($z < \bar{z}$), and there are complementary reasons to suppose that

(ii) the net bargaining power of unions in the oligopolist sector is greater than in the competitive sector ($G < 1$), and

(iii) the capacity to mark-up in the oligopolist sector is around one (or greater than one) whereas in the competitive sector it is smaller than one, there will be a clear redistribution of income in favour of the oligopolist sector, with prices in that sector growing faster than the average rate, and prices in the competitive sector growing slower than the average.

A situation of this type is likely to occur when an acceleration of inflation is taking place. If the level of demand is not too high, so that firms in the competitive sector are not able to set $h_c = 1$ (that is, to defend their profit margins against inflation), and the oligopolist

5 The condition for $W_c > 0$ is the following:

$$\varepsilon > \frac{\left(1 - h_c\right)}{1 - h_c}\, a$$

firms are able to maintain $h_o = 1$, prices in the latter will be growing ahead of the average, and in the former behind the average. However, profit margins and wages in the oligopolistic sector will be growing, whereas in the competitive sector they will be falling.

We may now turn to a regime with positive excess demand, ED > 0. In this case, the lines representing a constant real wage in each of the two sectors are (refer to figure 3):

$$W_o = 0 \Rightarrow h_c = \frac{1 - \varepsilon h_o}{(1 - \varepsilon)G} - \frac{J_c(ED)}{g_c}$$

$$W_c = 0 \Rightarrow h_c = \frac{G - \varepsilon h_o}{(1 - \varepsilon)G} - \frac{J_c(ED)}{g_c}$$

In principle, in a situation of excess demand, workers in the competitive sector have a greater net bargaining power than workers in the oligopolist sector. [6] If this was indeed the case, we would have $G > 1$. We may also assume that oligopolist firms keep their h-factor around 1, but due to the excess demand situation, firms in the competitive sector fix h_c at a level greater than 1, that is: $h_o \cong 1$ and $h_c > 1$. Under these assumptions, the following results would hold:

[6] This may not be the case in the beginning of the expansion, when unions in the oligopolist sectors are able to mobilize workers faster than in the competitive sectors. However, as noted above, if the expansion of demand continues the situation is likely to be reversed.

$$\left.\begin{aligned} \dot{\tau}_C &= (h_C - 1)\, g_C + j_C(ED) \;\rangle\; 0 \\ \dot{\tau}_O &= (h_O - 1)\, g_O = 0 \end{aligned}\right\} \quad \dot{\tau}_O \langle \dot{\tau}_C = 0$$

$$\left.\begin{aligned} W_C &= [(1 - h_C)G - \varepsilon\,(1 - h_C G)]g_O - (1 - \varepsilon)j_C(ED) \;\rangle\langle\; 0 \\ W_O &= [(1 - \varepsilon)\,(1 - h_C G)]g_O - (1 - \varepsilon)j_C(ED) \;\langle\; 0 \end{aligned}\right\} \quad W_C \rangle W_O$$

$$P_C = P_O - (1 - h_C G)g_O + j_C(ED) \rangle P_O \Longrightarrow P_C - P \langle P_O - P$$

This situation, represented by point A in figure 3, is the reversed of the one examined before. Here, there is a redistribution of income in favour of the agents in the competitive sector. In particular, since the actual profit margin in the oligopolist sector remains constant, there is a redistribution of income from workers in the oligopolist sector to capitalists (and possibly workers) in the competitive sector. As for the path of relative prices, inflation in the competitive sector will be growing ahead of average, and below the average in the oligopolist sector.

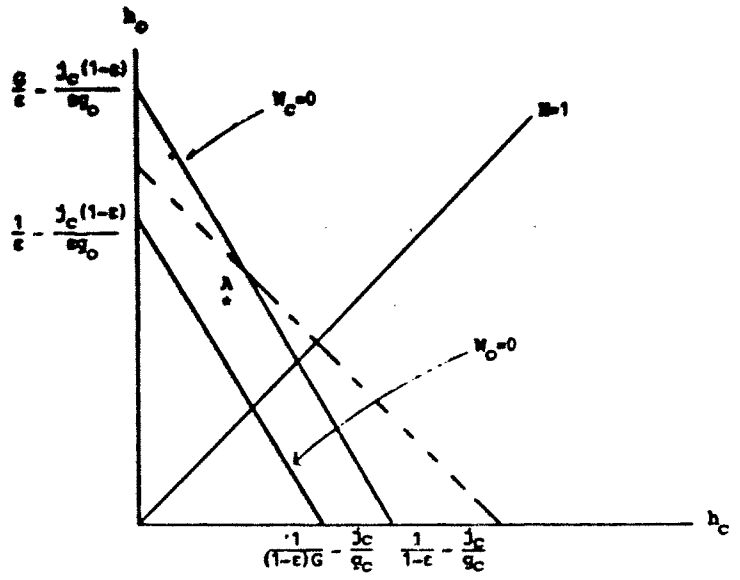

Figure 3

We finally come to the heterodox shock regime. If we assume that price controls are perfectly effective in oligopolistic industries and completely ineffective in competitive industries, the situation just examined becomes aggravated. That is, if we assume that during a freeze $h_o = 0$ and $G > 1$ with $g_o > 0$, then we would have the following configuration:

$$\left.\begin{aligned} \dot{\tau}_o &= (h_o - 1)\, g_o < 0 \\ \dot{\tau}_c &= (h_c - 1) g_o + j_c(ED) > 0 \end{aligned}\right\} \quad \dot{\tau}_c > \dot{\tau}_o$$

$$W_o = [1 - (1 - \varepsilon)h_c G]g_o - (1 - \varepsilon)j_c(ED)$$

$$W_c = [1 - (1 - \varepsilon)h_c]G - (1 - \varepsilon)j_c(ED)$$

According to this analysis, it would not be very likely that real wages in the oligopolistic sector could grow during the price freeze the chances of growth are greater the smaller the size of the competitive sector and the smaller the capacity to mark-up of firms in the competitive

industries and G. As for real wages in the competitive sector, the chances of growth are much greater: they also depend on the size of and the capacity to mark-up costs of firms in the competitive sector but the conditions are less stringent

Hence, in a heterodox shock, we would expect a distribution of income from the agents in the oligopolist sector to the agents in the competitive sector. In contrast with the analysis of an excess demand situation without a price freeze, here we would expect a profit squeeze in the oligopolist sector

What this simple exercise shows is that because the economy is permanently moving from one regime to another, a situation of distributive equilibrium is very rare. In general, there are changes in relative prices and income distribution taking place in the economy due to shocks and changes in aggregate demand. Hence, in an economy with a large competitive sector, not only the general notion of inertial inflation is very fragile (a conclusion discussed in chapter 2), but also the condition of distributive equilibrium implicit in it. The policy lesson resulting from this discussion is that a heterodox shock based as it is on a price & wage freeze, should never be attempted in a period of accelerating inflation or expansion of demand when relative prices and the distribution of income are changing very drastically. These changes and the changes resulting from the the shock itself are inconsistent with the freeze of prices and wages

4. Empirical Analysis

The empirical analysis developed in this section is an attept to illustrate some of the points discussed in the theoretical analysis. We start with an examination of the changes in relative prices (wholesale prices) in Brazil between 1983 and 1988, and a comparison between the degrees of price dispersion in Brazil and Israel before their respective plans. Then we look at changes in relative prices (consumer prices) during the plans in Israel, Argentina, Brazil and Peru. Finally we examine the changes occured in real wages and the distribution of wages during the programmes in Argentina, Brazil and Peru.

4.1 Wholesale Prices in Brazil

We divide the analysis of the changes occured in relative prices in Brazil in four periods:

1. January 83 - June 84, a period characterized by a recession and a process of acceleration of inflation;
2. July 84 - February 86, characterized by a strong expansion of demand and acceleration of inflation;
3. March 86 - October 86, the period of the heterodox shock experiment and
4. November 86 - December 87, the post-reform period.

In table 1 we list the average indexes for each of these four periods of the relation between the wolesale price of each sector and the aggregate wholesale price index. In table 2, we have the average indexes of the price of each sector deflated by the exchange rate. These two relations are taken as measures of the real or relative price of each sector over time. An increase of the index between two periods imply that there has

been an improvement in the relative price of the sector.

In the tables we also list the degree of industrial concentration of each sector -- an admitedly imperfect proxy for the market structure -- and the relations between the real price of each sector in the month of the price freeze (February 1986) and the average indexes in the period Jan83-Feb86 and the reform period.

TABLE 1

WHOLESALE PRICE INDEX - SECTOR / WHOLESALE PRICE INDEX - GENERAL INDUSTRY
AVERAGES OF SELECTED PERIODS

SECTORS	DEGREE OF CONCENT. (%) (8 BIGGEST)	AVERAGES FEB83-JUN84	JUL84-FEB86	MAR86-OCT86	NOV86-JAN88	FEB86/ AVERAGE OF FEB83-FEB86	AVERAGE OF MAR86-OCT86 / FEB86
AGRICULTURE		75.83	81.96	104.54	95.43	1.25	1.06
PROCESSING INDUSTRY		98.36	98.78	99.91	103.15	1.02	1.00
CLOTHES, SHOES & FAB.	32.13	87.77	93.92	95.75	85.40	1.09	0.96
FOODSTUFFS	36.81	77.00	82.40	99.38	92.01	1.27	0.98
PLASTIC PRODUCTS	41.59	133.11	132.78	90.02	91.04	0.75	0.90
MECHANICS	42.90	95.51	96.38	99.54	110.21	1.03	1.00
PAPER AND CARDBOARD	52.68	102.87	107.82	99.26	102.12	1.00	0.94
PROCESSING	55.58	86.66	98.07	98.95	123.45	1.07	1.00
ELETRICAL & TELEC.	60.27	101.57	95.12	99.95	92.66	1.04	0.98
METALLURGY	60.32	118.68	106.50	99.96	96.89	0.88	1.01
LIQUORS	61.89	98.60	96.89	101.44	115.03	1.01	1.02
CHEMICALS	66.61	120.74	116.93	102.63	108.15	0.84	1.03
TRANSPORT EQUIPMENT	72.15	129.45	104.35	100.33	120.59	0.85	1.02
RUBBER	81.47	129.34	113.56	99.83	103.85	0.82	1.01
EXTRACTIVE	86.43	123.95	115.23	100.78	74.43	0.83	1.02
TOBBACO	94.12	110.11	93.24	100.96	126.34	0.98	1.02

SOURCE: FGV AND FIBGE, ANNUAL INDUSTRIAL RESEARCH OF 1979 (DEGREE OF CONCENTRATION).

TABLE 2

WHOLESALE PRICE INDEX DEFLATED BY THE EXCHANGE RATE
AVERAGES OF SELECTED PERIODS

SECTORS	DEGREE OF CONCENT. (%) (8 BIGGEST)	AVERAGES FEB83-JUN84	JUL84-FEB86	MAR86-OCT86	NOV86-JAN88	FEB86/ AVERAGE OF FEB83-FEB86	AVERAGE OF MAR86-OCT86 / FEB86
AGRICULTURE		79.28	86.91	103.41	103.63	1.28	0.97
PROCESSING INDUSTRY		103.06	104.84	98.83	112.79	1.04	0.92
CLOTHES, SHOES & FAB.	32.13	91.98	99.46	94.72	93.16	1.12	0.88
FOODSTUFFS	36.81	80.64	87.50	98.30	100.28	1.30	0.90
PLASTIC PRODUCTS	41.59	139.46	140.98	89.06	99.72	0.77	0.83
MECHANICS	42.90	100.11	102.13	98.46	120.77	1.06	0.92
PAPER AND CARDBOARD	52.68	107.78	114.48	98.18	111.84	1.03	0.86
PROCESSING	55.58	90.88	103.98	97.88	135.48	1.09	0.91
ELETRICAL & TELEC.	60.27	106.43	100.92	98.86	101.47	1.06	0.90
METALLURGY	60.32	124.36	113.04	98.87	105.81	0.98	0.92
LIQUORS	61.89	103.35	102.71	100.34	125.36	1.04	0.94
CHEMICALS	66.61	126.42	124.24	101.53	118.19	0.86	0.95
TRANSPORT EQUIPMENT	72.15	135.76	110.91	99.24	131.84	0.87	0.93
RUBBER	81.47	135.68	120.63	98.74	113.99	0.83	0.93
EXTRACTIVE	86.43	129.82	122.46	99.69	80.90	0.85	0.94
TOBBACO	94.12	115.50	99.12	99.87	137.98	1.00	0.94

SOURCES: FGV, CENTRAL BANK OF BRAZIL AND FIBGE, ANNUAL INDUSTRIAL RESEARCH OF 1979 (DEGREE OF CONCENTRATION).

A comparison between the averages in periods 1 and 2, reveals a stringly clear change in relative prices: with the expansion of demand the relative prices of the less concentrated industries (competitive) increased whereas the prices of the more concentrated industries (oligopolist) fell. Hence, there was a significant change in relative prices (coupled with the acceleration of inflation) in the months preceding the plan. The extent to which relative prices changed can be evaluated by looking at the relation between the relative price of each sector in February of 1986 and the average price in the three years before the plan. [7] Refering to table 1, the relation is greater than 1 for the six less concentrated industries (with the exception of plastic products) and smaller than one for the eight more concentrated ones. The same pattern with minor modifications is observed in table 2.

It is interesting to compare the degree of price dispersion in Brazil and Israel when the respective programmes were launched, and their performances. In table 3, the third column is the relation between the relative price of each sector (measured in relation to the aggregate price index) in the last quarter before the Israeli plan and the average price in the 8 quarters before the plan. Whereas in Israel the degree of dispersion varies between 0.93 (electronics) and 1.14 (clothing), in Brazil (table 1) it ranges between 0.77 (plastic) and 1.30 (foodstuffs). Hence, in Brazil, the degree of dispersion was much greater than in Israel which implies that it would be much harder to keep prices frozen in the former than in the latter. Indeed, in Israel, six quarters after the plan started, relative prices remained almost constant: in relation with the third quarter of 1985, relative prices varied between - 5% (paper products) and 5% (ruber

[7] This relation can be seen as a measure of price dispersion in the month when the plan was launched.

and plastic) on a quartely basis. In Brazil (table 1), relative prices grew up to 20% per month (transport) and fell 11% per month (clothes) on average between November 1986 and January 1988.

TABLE 3

ISRAEL
WHOLESALE PRICE INDEX - SECTORS / WHOLESALE PRICE INDEX (TOTAL)
BASE: '85-3' = 100

SECTORS	AVERAGE 83-2 TO 85-2	AVERAGE 85-3 TO 86-4	85-2 / AVG. 83-2 TO 85-2	AVERAGE 85-3 TO 86-4 / 85-2
MINING AND QUARRYING	110.64	100.17	0.94	0.96
FOOD, BEVERAGES & TOBBACO	91.27	97.56	1.04	1.02
TEXTILES	105.20	98.57	0.96	0.97
CLOTHING	105.07	117.33	1.14	0.98
PAPER & PAPER PRODUCTS	102.86	97.85	1.00	0.95
RUBBER & PLASTIC PRODUCTS	103.12	102.62	0.95	1.05
CHEMICALS	101.51	100.62	0.98	1.01
NON-METALLIC MINERAL PROD.	100.36	93.83	0.98	0.96
BASIC METAL	95.38	97.42	1.04	0.98
METAL PRODUCTS	102.24	98.75	0.98	0.99
MACHINERY	97.85	98.02	1.02	0.98
ELETRONICS & ELET. EQUIP.	106.71	101.31	0.93	1.02
TRANSPORT EQUIPMENT	103.43	97.49	0.98	0.97

SOURCE: BANK OF ISRAEL

The great dispersion of prices before the plan was launched must have been an important factor for the failure of the Brazilian experiment. The change from a regime of recession to another in which demand was growing very fast led to a change in relative prices, and given the rigidities implied by a system of pervasive indexation, the acceleration of the process of inflation. Both the change in relative prices and the acceleration of inflation were inconsistent with a programmme based on a price & wage freeze. After the freeze was over, there was an inversion in the process of change in relative prices, as it becomes clear from table 1: whereas the real price of agriculture, foodstuff and clothes were falling in the last period, the prices of the most concentrated industries (with the exception of the extractive industry) rose quite significantly.

We now turn to an analysis of the coefficients of variation of absolute (or nominal) and relative (or real) prices in Brazil.\[8] As seen in table 4, the degree of dispersion arround the average <u>nominal</u> price increased in all sectors between the first and the second period. The rapid expansion of demand and the acceleration of inflation seems to have led to a greater dispersion of prices around their averages. As expected, the coefficient of variation fell considerably during the stabilization programme, and then increased considerably after October 1984. In comparison with the pre-reform period, dispersion fell in only three industries (clothes, foodstuffs and liquors). It was in the most

[8] We analise the coefficient of variation because, unlike the variance, it is an absolute number. In particular, it is suitable to analyse periods of acceleration of inflation when changes in the variance are clearly influenced by changes in the average. Because the coefficient of variation is normalized by the average, it measures the dispersion of the variable arround the average, and is therefore, independent of changes in the rate of inflation.

concentrated industries, whose prices were more effectively controlled during the heterodox plan, where the degree of dispersion grew more.

TABLE 4

WHOLESALE PRICE INDEX OF SECTORS
VARIATION COEFFICIENTS OF SELECTED PERIODS

SECTORS	DEGREE OF CONCENT. (%) (8 BIGGEST)	VARIATION COEFFICIENTS FEB83-JUN84	JUL84-FEB86	MAR86-OCT86	NOV86-JAN88
AGRICULTURE		0.55	0.67	0.04	0.52
PROCESSING INDUSTRY		0.46	0.58	0.01	0.57
CLOTHES, SHOES & FAB.	32.13	0.47	0.62	0.02	0.57
FOODSTUFFS	36.81	0.46	0.68	0.01	0.54
PLASTIC PRODUCTS	41.59	0.48	0.47	0.05	0.58
MECHANICS	42.90	0.43	0.60	0.01	0.61
PAPER AND CARDBOARD	52.68	0.45	0.54	0.01	0.57
PROCESSING	55.58	0.40	0.58	0.01	0.60
ELETRICAL & TELEC.	60.27	0.41	0.61	0.00	0.61
METALLURGY	60.32	0.46	0.56	0.00	0.55
LIQUORS	61.89	0.43	0.60	0.01	0.50
CHEMICALS	66.61	0.47	0.49	0.03	0.57
TRANSPORT EQUIPMENT	72.15	0.37	0.53	0.00	0.55
RUBBER	81.47	0.42	0.50	0.01	0.63
EXTRACTIVE	86.43	0.45	0.49	0.00	0.52
TOBBACO	94.12	0.46	0.54	0.00	0.55

SOURCES:FGV AND FIBGE, ANNUAL INDUSTRIAL RESEARCH OF 1979 (DEGREE OF CONCENTRATION).

TABLE 5

WHOLESALE PRICE INDEX - SECTOR / WHOLESALE PRICE INDEX - GENERAL INDUSTRY
VARIATION COEFFICIENTS OF SELECTED PERIODS

SECTORS	DEGREE OF CONCENT. (%) (8 BIGGEST)	VARIATION COEFFICIENTS FEB83-JUN84	JUL84-FEB86	MAR86-OCT86	NOV86-JAN88
AGRICULTURE		0.14	0.10	0.03	0.13
PROCESSING INDUSTRY		0.00	0.01	0.00	0.01
CLOTHES, SHOES & FAB.	32.13	0.04	0.07	0.02	0.07
FOODSTUFFS	36.81	0.06	0.09	0.00	0.05
PLASTIC PRODUCTS	41.59	0.03	0.09	0.04	0.08
MECHANICS	42.90	0.06	0.05	0.01	0.05
PAPER AND CARDBOARD	52.68	0.03	0.05	0.01	0.07
PROCESSING	55.58	0.08	0.04	0.01	0.11
ELETRICAL & TELEC.	60.27	0.06	0.04	0.01	0.05
METALLURGY	60.32	0.03	0.03	0.00	0.03
LIQUORS	61.89	0.08	0.06	0.01	0.10
CHEMICALS	66.61	0.03	0.07	0.03	0.04
TRANSPORT EQUIPMENT	72.15	0.11	0.06	0.01	0.07
RUBBER	81.47	0.07	0.07	0.01	0.12
EXTRACTIVE	86.43	0.04	0.08	0.01	0.13
TOBBACO	94.12	0.08	0.09	0.01	0.14

SOURCES:FGV AND FIBGE, ANNUAL INDUSTRIAL RESEARCH OF 1979 (DEGREE OF CONCENTRATION).

The dispersion of real prices (measured in terms of the aggregate price level) does not show a clear pattern of change between the first and the second period. Refer to table 5. It does tend to increase in most of the less concentrated industries (notably clothes, foodstuufs and plstic products), clearly the most affected by the expansion of demand. But it also increased in very concentrated sectors (extractive and tobacco). Real prices varied very little around their average during the program (third period). The coefficients of variation went back to their pre-reform levels after October 1986 in almost every industry but increased considerably more in the processing industry, and specially in the most concentrated industries.

We finally looked at the correlation coefficients for different periods between the price dispersion measures and the degrees of concentration of each sector. The results are reported in table 6. The first important result is that there is a systematic negative correlation between the degree of concentration and the coefficient of variation of nominal prices, implying that as expected prices in the competitive sector are more volatile than prices in the oligopolist sectors. The negative correlation becomes stronger in periods of growing demand and price freeze (periods 2 and 3 in our analysis of the Brazilian case).

Table 6

Correlation between the Degrees of Concentration and the Coefficients of Variation

	Feb83-Jun84	Jul84-Feb86	Mar86-Oct86	Nov86-Jan88
Nominal prices	-0.25	-0.54	-0.47	-0.15
Real prices\1	0.34	0.12	-0.18	0.61
Real prices\2	0.32	0.45	-0.48	0.47

1. Deflated by the aggregate price index;
2. Deflated by the exchange rate

As for the correlations with real prices, they are positive in all periods except during the price freeze. There is a reason for this change in the behaviour of the correlation coefficient. Let us consider the real price when deflated by the exchange rate. In general, in Brazil, the exchange rate follows the path of the inflation rate quite closely. As noted above, the coefficient of variation of nominal prices in the competitive industries is greater than in oligopolist industries. Thus, the coefficient of variation of the ratio nominal price:exchange rate should in fact be smaller in competitive industries -- where both the numerator and denominator have a large variance and move in the same direction -- and greater in oligopolist sectors -- where the denominator varies much more than the numerator. During the Cruzado Plan, the exchange rate was kept frozen. Hence, during the programme, the coefficient of variation of the real prices became proportional to the coefficient of the nominal prices, and that is why the correlation became negative.\[9]

[9] We are grateful to Gustavo Franco for calling our attention to this point.

By way of conclusions based on the recent Brazilian experience, we may note that:

- the relative prices of the less concentrated industries tend to increase during demand expansions, and those of the more concentrated industries tend to fall;

- price dispersion, both real and nominal, tend to increase when there is an expansion of aggregate demand and/or there is an acceleration of inflation;

- after the programme is over, the relative prices of the more concentrated industries (which are more effectively controlled during the price freeze) tend to grow; price dispersion also grow in these industries after the plan, even more than in the less concentrated industries;

- there is a negative correlation between the degree of concentration and nominal price dispersion, implying that prices in the less concentrated (competitive) industries are more volatile than they are in the more concentrated industries (oligopolist), probably due to the influence of demand; and

- there is a positive correlation between real price dispersion and the degree of concentration in 'normal' periods, and a negative correlation during the price freeze.

4.2 Consumer Price Indexes in Argentina, Brazil, and Israel

We now look at the relation between the aggregate levels of consumer and wholesale prices, and between the components of consumer prices during heterodox programmes in Argentina, Brazil and Israel. The relevant figures can be found in tables 7 - 9. Here we would expect those sectors where it is more difficult to control prices to have their relative

prices growing faster than the average price index during the heterodox experiment. In general, wholesale prices can be more effectively controlled than consumer prices, and amongst the components of the consumer price index, agricultural products, personal services, foodstuff, and clothing are the hardest to control.

TABLE 7

ARGENTINA
QUARTERLY RATE OF VARIATION, %

	P FLEX / CPI	WSP / CPI	PERS. SERV. / CPI	COMPONENTS OF CPI		
				FRESH FOOD	INDUST. GOODS	PRIVATE SERV.
85-3	14.4	-3.8	8.9	57.4	35.5	49.2
85-4	15.5	-5.5	3.5	23.8	2.1	10.8
86-1	11.3	-7.5	8.6	21.2	1.9	18.5
86-2	-1.5	-8.5	3.0	11.3	7.0	16.1
86-3	4.5	-2.0	1.8	26.3	14.1	23.4
86-4	0.6	-3.0	-0.4	20.7	18.6	19.4
87-1	-1.0	-2.2	3.5	19.6	19.6	25.0
87-2	-1.5	-2.6	2.8	15.3	13.5	20.1
AVERAGE	5.3	-4.3	3.7	24.4	13.9	22.7

SOURCE: FRENKEL AND FANELLI (1988)

TABLE 8

ISRAEL
RATE OF VARIATION, %

	CPI / WSP	AGR / CPI	IND / CPI	CONS / CPI	TRANS / CPI	PERS. S./ CPI
85-3	3.4	-8.5	0.0	-5.1	17.5	2.7
85-4	1.5	22.0	-5.3	0.0	-15.0	4.1
86-1	-3.0	8.8	0.0	-5.4	0.0	7.8
86-2	1.5	3.0	-2.8	-3.8	2.0	6.0
86-3	0.0	-6.9	1.0	-2.8	0.0	5.7
86-4	3.5	14.8	-2.8	1.0	-6.6	1.0
87-1	0.0	3.7	-1.0	0.0	0.0	3.2
87-2	0.0	-7.1	0.0	0.0	2.1	2.0
AVERAGE	0.9	3.8	-1.4	-2.0	-0.1	4.1

SOURCE: BANK OF ISRAEL

TABLE 9

BRAZIL
RATE OF VARIATION, %

	CPI / WPI	FOOD / CPI	CLOTHING/CPI	HEALTH / CPI	PERS. S./CPI	HOUSING/CPI	RESID. / CPI	PUBLIC S./CPI
MAR86-MAY86	8.0	-0.5	6.1	2.0	9.8	12.12	-10.60	-8.14
JUN86-AGO86	2.8	0.0	-0.9	-1.0	1.0	1.28	-1.83	-1.46
SEPT86-NOV86	3.6	2.0	1.0	-1.9	0.0	0.34	-1.67	-1.76
AVERAGE	4.8	0.5	2.06	-0.3	3.6	4.58	-4.70	-3.80

SOURCE: CONJUNTURA ECONOMICA

In the three cases examined, the consumer price index (CPI) grew faster than the wholesale price index (WPI) during the plan. Amongst the components of the CPI, personal services in all cases, agricultural goods in Argentina and Israel, and foodstuff and clothing in Brazil grew faster than the aggregate index. Industrial goods in Argentina, construction and transportation in Israel, and health services in Brazil lagged behind the average index.

In the Brazilian case, the WPI:CPI ratio in the foodstuff and clothing sectors, as well as the relation between the personal services CPI and the aggregate WPI fell considerably during the programme. Also the public services CPI fell in relation to the aggregate WPI implying a reduction in the real receipts of the public sector during the plan. We are led to conclude that there was a transference of income from the industry and the public sector to the commercial and services sector during the Brazilian Plan, in particular, and in heterodox experiments in general.

4.3 The Labour Market and Real Wages

According to our previous discussion, it should be expected that during a heterodox programme, real wages in the competitive sector, and in particular the informal and self-employed segments of the labour market, should grow faster than wages in the oligopolist sectors or the formal segments of the labour market. This should be the case especially when the programme is implemented in a period of expansion of demand, as it was in Brazil.

In tables 10 and 11 we examine the changes occured in the level of employment and the wage structure in Brazil between January 1984 and

June 1987. The first period (Jan84-Feb85) is marked by the begining of the upswing. Real wages grew arround 20% in the formal segment in São Paulo and 5.6% in Brazil as a whole. Real wages fell in the informal and self-employed segments. These figures imply that unions in the most organized segments, and especially in the most organized unions (those in São Paulo), were able to mobilize workers in the begining of the expansion and significantly increase their bargaining power.

In the second period (Mar85-Feb86), the strong expansion of demand led to an increase in employment in both the formal and informal segments of the labour market (around 12%). Employment did not increase in the self-employed segment. However, real wages grew in all segments: 28.3% and 13.9% in the formal segments in SP and Brazil, respectively, 25.85 in the informal segment, and 34.9% in the self-employed segment. During this period, the increase in real wages clearly reflects an improvement in the bargaining power of unions in the less organized segments.

TABLE 10

BRAZIL - REAL WAGES
RATE OF VARIATION, %

	FORMAL (SP)	FORMAL	INFORMAL	SELF EMPLOYED
JAN84-FEB85	20.5	5.6	-1.6	-2.3
MAR85-FEB86	28.3	13.9	25.8	34.9
MAR86-OCT86	4.0	15.0	21.8	42.4
NOV86-JUN87	-9.0	-24.0	-21.5	-37.6

SOURCE: DIEESE

TABLE 11

BRAZIL - EMPLOYMENT
RATE OF VARIATION, %

	FORMAL	INFORMAL	SELF EMPLOYED
MAR85-FEB86	12.8	12.2	0.0
MAR86-OCT86	5.5	4.9	13.1
NOV86-JUN87	2.6	4.4	6.3

SOURCE: DIEESE

The third period corresponds to the heterodox programme. Employment grew in all segments and especially in the self-employed segment where real wages grew 42% in only eight months. It should be noted that during the plan, wages in the formal segment, especially São Paulo, did not increase much, implying a significant distribution of income in favour of the low income workers in the labour force. Indeed, the Gini coefficient amongst employed workers and wage-earners fell, respectively, 14.2 and 14% between Mar86 and Mar87. It seems quite clear therefore that during the Cruzado Plan in Brazil the distribution of income between workers of the different segments of the labour market was substantially altered. Workers in the formal segment whose incomes were growing steadily in 1984/85, were not able to keep the pace with the incomes of other workers in the economy. On the other hand, self-employed workers, whose prices could not be effectively controlled, experienced an increase of almost 60% over the whole year of 1986.

The inversion of the process of incomes formation resulted from the combination of an effective price & wage freeze in the oligopolist sectors of the economy and an extraordinary expansion of demand. In this circumstances, the observed alteration in the distribution of labour incomes was inevitable.

In the fourth period (Nov86-Jun87) employment still increased but real wages fell considerably. In eight months, wages in the formal segment fell 9% (São Paulo) and 24% (Brazil), and in the informal and self-employed segments fell 21.5% and 37.6%, respectively. Workers in the formal and better organized segment (in São Paulo) were able to resist the reduction of wages. However, in all other segments, the explosion of prices which followed the plan led real wages to the same levels they were in the period

before the plan. Thus, in a very short period of time --the first semester of 1987-- both the relative prices and the wage structure returned to their status quo ante situation: a short-lived revolution of prices and incomes formation.

In Argentina and Peru aggregate demand did not expand as it did in the Brazilian case. However, the same pattern of changes in real wages was observed there: wages of the less qualified workers in industry, and especially in the services sector, increased in relation to the wages of the more qualified workers in Argentina.

TABLE 12

ARGENTINA - REAL WAGES
RATE OF VARIATION, %

	INDUSTRY		SERVICES
	QUALIF. WORKERS	NON-QUALIF.	
SEPT85-NOV85	-1.5	-6.0	4.0
DEC85-FEB86	4.1	-2.8	9.7
MAR86-MAY86	-1.0	24.1	2.7
AVERAGE	0.5	5.0	5.4

SOURCE: INDEC / ESPERRO (1988)

TABLE 13

PERU - REAL WAGES
RATE OF VARIATION, %

	FORMAL SECTOR		INFORMAL
	SALARIES	WAGES	
NOV85-JAN86	10.2	2.6	8.9
FEB86-APR86	3.4	8.3	5.7
MAY86-JUN86	-0.8	3.8	10.8
JUL86-AUG86	4.1	2.8	11.9
SEPT86-OCT86	4.7	5.8	9.4
NOV86-DEC86	-1.5	-2.7	14.3

SOURCE: INE / ESPERRO (1988)

In Peru, wages grew much faster than salaries in the formal segment of the labour market, and grew even faster in the informal segment. The change in the wage strucutre during heterodox programmes results from the fact that prices and wages cannot be effectively controlled in certain sectors of the economy such as the competitive sectors in the goods market and the informal segments (especially self-employed) segments of the labour market.

5. Conclusions and Policy Implications

In this paper we focused three aspects of heterodox experiments: the importance of institutional, political and, in particular, economic pre-conditions; the role of demand management especially in economies with large competitive and informal sectors, and the changes in relative prices and income distribution during the heterodox experiments; and the necessity to negotiate with those segments of the civil society which can be centrally and formally represented.

We showed that in Brazil, nominal prices in the less concentrated industries are more volatile than prices in the oligopolist industries, probably due to the influence of changes in aggregate demand on the former. The expansion of demand which took place in the period which preceded the programme led to a drastic change in relative prices. This implied a great degree of dispersion of relative prices -- indeed, much greater than in the case of Israel, and seriously undermined the success of the experiment.

In all cases examined there was a significant change in relative prices and the wage structure during the plan. In the case of the distribution of the wage bill in Brazil, there was a reduction of 14% in the Gini coefficient. During the plan the Brazilian economy experimented the greatest boom of its history, which obviously agravated the problem. Heterodox experiments should be neutral in terms of the distribution of income, relative prices and, hence, the level of agregate demand should be kept under strict control. The management of agreggate demand was neglected by the inertialists who, based a simplistic Kaleckian model, believed that inflation could be reduced only by abolishing the inertial factors and destroying the inflationary expectations. The central short-coming of this model is its relience on the notion of inertial equilibrium, a notion which

we have shown, is inappropriate to understand inflationary processes both in homogeneous economies and in economies with important competitive and informal sectors.

Finally we referred to the necessity to negotiate the incomes policies with the major groups in society. Heterodox shocks create institutional and economic discontinuities, and great gains and losses for different agents. The process of stabilization should be therefore negotiated so as to reduce the disequilibrating effects of the discontinuities created with the programme. Otherwise, those groups who are losing with the process will have an incentive to act as free-riders, thus undermining the chances of success of the plan. We also referred to the institutional and political pre-conditions for a centrally negotiated incomes policy -- a set of condition which, with the exception of Israel, could not be met by the other countries where heterodox experiments were attempted.

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