THE WILLIAM DAVIDSON INSTITUTE
AT THE UNIVERSITY OF MICHIGAN BUSINESS SCHOOL

Resource Misallocation and Strain:
Explaining Shocks in Post-Command Economies

by Daniel Daianu

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Comments Welcome

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An economic explanation of strain
(abstract)

A fundamental tenet in economic theory - which was confirmed by reality - is that a command system allocates resources poorly because of the impossibility of economic calculation[1]. Therefore, once prices are freed and start to operate at quasi-equilibrium (market-clearing) levels, the hidden inefficiencies come into the open and a massive resource reallocation would have to take place - from low to high productivity areas. More precisely, the issue refers to the possible and probable intensity of resource reallocation in view of constraints such as: the balance between exit and entry in the labor market, the size of the budget deficit and the means for its non-inflationary financing, social and political stability, etc. This paper argues that the magnitude of the required resource reallocation - the imbalance between exit and entry - brings about tremendous *strain* in the system. It also submits that when the expansion of the private sector is slow, the foreign support is insufficient, the external (negative) shocks are powerful, and the underground economy is not effective enough in absorbing the labor shed by the official economy, the *strain* in the system can lead to its growing destabilization. By looking at post-command economies, mainly, this study makes an attempt to show why *strain* emerges within an economic system and what are implications for stabilization policy. A formalized expression of strain is suggested and illustrated for both closed and open economy cases. The distributional struggle, as a consequence of resource reallocation, is highlighted. Taken as an example it is argued that inter-enterprise arrears are a symptom of strain. The line of reasoning espoused herein can help in explaining shocks in post-command economies.

Non-technical summary

The working hypothesis of this study relies on the exceptional magnitude of the required resource reallocation in the former command economies; it aims at emphasizing the extraordinary *strain* these systems are undergoing. Ignoring this *strain* would be equivalent to accepting a nonsensical proposition - that the command system was capable of allocating resources satisfactorily eventually. One needs to highlight also another factor that enhances *strain*: the change of the regime of functioning of the economy and the scarcity of organizational and institutional capital which explain high systemic fragility and vulnerability. It can be argued that the degree of *strain* in post-command economies is the main impediment for the achievement of quick and durable macroeconomic stabilization.The assessment of realistic policy choices needs to consider various constraints: the size of the budget deficit and the available non-inflationary means for its financing, the concern not to fuel inflationary expectations, the impact of restructuring on the dynamics of the private sector, the level of external aid (financing), the social consensus regarding the speed of restructuring, the privatization policy, etc. Economic policy decisions are hard to make not

only because of our limited knowledge, but since they entail painful tradeoffs, irrespective of choices. Viewed from this perspective, the attitude of those who relate failures to the lack of political will only is fairly remote of what can be called the 'real political economy' of transformation. Aside from the attempt to decypher *strain* this study has three main message. Firstly, it does underline that what can be done quickly should be done accordingly; delays can bring about very damaging detours and can create a hard to escape 'path-dependency'. Secondly, it cautions against unavoidable tradeoffs among policy goals and commends the need to understand what is possible and probable to achieve bearing in mind the complexity of transformation and the *strain* in the system. From this perspective it is argued that durable macroeconomic stabilization and bringing inflation to a one level digit takes time and depends on the evolving institutional body of the post-command economies and on the pace of restructuring (resource reallocation). Finally, it is contended that the reasoning proposed herein can be applied to any socio-economic aggregate (economy) undergoing heavy shocks (external and internal) and, in which, consequently, an intense *strain* emerges.

RESOURCE MISALLOCATION AND *STRAIN*[*]

- explaining shocks in post-command economies -

by
Daniel Daianu

A fundamental tenet in economic theory - which was confirmed by reality - is that a command system allocates resources poorly because of the impossibility of economic calculation[1]. Therefore, once prices are freed and start to operate at quasi-equilibrium (market-clearing) levels, the hidden inefficiences come into the open and a massive resource reallocation would have to take place - from low to high productivity areas. More precisely, the issue refers to the possible and probable intensity of resource reallocation in view of constraints such as: the balance between exit and entry in the labor market, the size of the budget deficit and the means for its non-inflationary financing, social and political stability, etc.

A hypothesis I used in other studies[2] is that the magnitude of the process of resource reallocation - the imbalance between exit and entry - brings about tremendous *strain* in the system. Flemming (1992), Aghion and Blanchard (1993), Sachs and Woo (1993), Gavin (1993) are among those who captured analytically implications of the magnitude of required resource reallocation in a post-command economy. Flemming, for example, focuses on the very shock caused by the brutal changes in relative prices which - as it is argued - would ask for temporary subsidies for the declining sectors. These analyses should be contrasted with Mussa (1982), who considered adjustment in a frictionless environment. It can be submitted that when the expansion of the private sector is slow, the foreign support is insufficient, the external (negative) shocks are powerful, and the underground economy is not effective enough in absorbing the labor shedded by the official economy, the *Strain* in the system can lead to its growing destabilization - in spite of possibly vigorous efforts at macroeconomic stabilization. *strain* should not leave decision-makers insensitive to how they evaluate macroeconomic linkages and work out the policy-mix.

By looking at post-command economies, mainly, this study makes an attempt to show why *strain* emerges within an economic system and what are implications for stabilization policy. Begining with the closed economy, after which the open economy case is looked at, a possible formalized expression of strain is suggested. The distributional struggle, as a consequence of resource reallocation, is highlighted. Next, and taken as an example, it is argued that inter-enterprise arrears are also a symptom of strain. The study concludes with final remarks. The annex mentions some empirical work done by Joaquim Oliveira Martins on the explanatory power of *strain*. Thee line of reasoning espoused herein can help in developing an economic explanation of shocks in post-command economies.

1. The closed economy case

The relevance of the closed economy framework could be questioned. I would argue that, apart from a purely theoretical interest and the help it provides in scrutinzing the open economy model, its features fit the case of a very large economy - like the Russian economy, though even this economy suffered the impact of the collapse of Eastern markets.

Let us take the simplified case of a two commodity economy (Figure 1). The initial production combination, (a_1, b_1), still reflects the central planners' preferences; the latter are indicated by the price line P^1. Were consumers sovereign, the production combination would be (a_2, b_2) and the price line denoting equilibrium (market-clearing) prices would be P^2.Given resource reallocation without friction - with no imbalance between exit and entry - there would be no *strain* in the system; the shift from (a_1, b_1) to (a_2, b_2) would take place along the production possibilities curve.

In a real economy friction is unavoidable. Furthermore, the imbalance between *exit* and *entry* can be considerable, and it can cause the production combination A to be substantially inside the production possibilities curve - the fall of the output of (a) is not accompanied by a corresponding growth of the output of (b). This means a significant reduction of aggregate utility - from I_1 to I_2 - if the expansion of the unofficial economy does not offset it. Over time the production combination would have to come ever closer to (a_2, b_2). This process is shown by the thick arrow in figure 1.

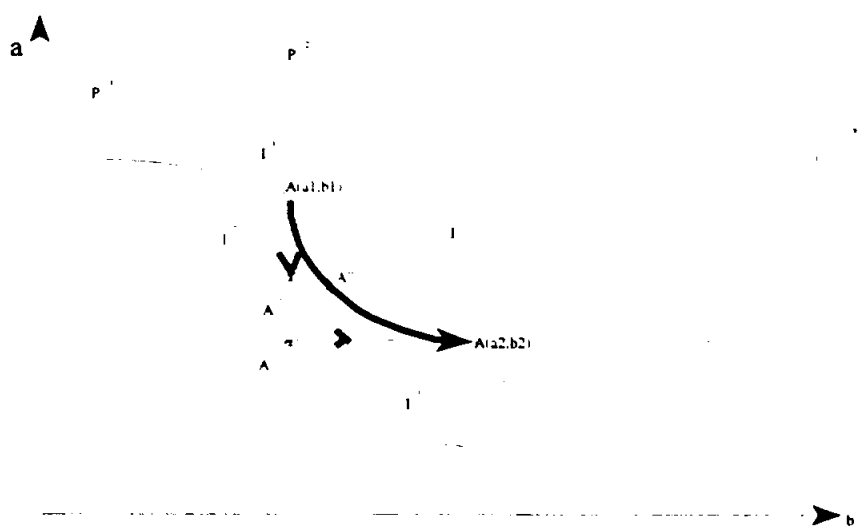

Figure 1: Reallocation in a closed economy

The magnitude of the required resource reallocation can be illustrated by the ratio:

$$J=\frac{p_a^*|q_a^*-q_a|+p_b^*|q_b^*-q_b|}{p_a^*q_a^*+p_b^*q_b^*} \qquad (1)$$

where (p*) and (q*) refer to equilibrium values, whereas (p) and (q) correspond to the current (distorted) resource allocation. J can be viewed as a measure of aggregate disequilibrium (in the system) as against the vector of equilibrium prices and quantities.[3] The general form of (1) is:

$$J=\frac{\sum p_i^*|q_i^*-q_i|}{\sum p_i^*q_i^*} \qquad (2)$$

The size of the above ratio measures the *strain* within the system and reflects the magnitude of aggregate disequilibrium.

It can be assumed that the possible level of unemployment is related to the degree of *strain* in the system: the higher is *strain* (resource misallocation) the higher is the unemployment that would be brought about by the required resource reallocation. This is a major reason which lies behind the temptation to tolerate high inflation rates as a way to diffuse the tension within a system. Thus, in the social cost function

$$Z(U, \pi) = (U - U^n) + \beta \cdot \pi^2$$

the weighting parameter (β) is lower the more pressuring is the unemployment level, or when inflation emerges as the only way for diffusing tension in the system. Thus let us consider the Phillips curve relationship, $U=Un - \alpha(\pi-\pi^e)$, where π^e is the expected inflation rate. The social cost function can be written as $Z(U, \pi)=(U^n- \alpha(\pi-\pi^e)-U^n)+ \beta\pi^2$, or $Z(U,\pi)= -\alpha(\pi-\pi)+ \beta\pi^2$. It can be seen that Z is inversely linked with unexpected inflation, and directly linked with effective inflation. Minimization of the social loss function implies: $Z'(\pi)= -\alpha+2\beta\pi=0$. Therefore, the optimum level of inflation is $\pi=\alpha/2\beta$. The smaller is (β) - i.e., the more disturbing is the unemployment level - the higher would be the optimal inflation rate. U^n denotes the natural unemployment rate when resource misallocation would have been, basically, dealt with. Therefore, U^n is to be distinguished from the NAIRU (the non-accelerating inflation rate of unemployment) under circumstances when there is an intense pressure to reallocate resources; (π) is the inflation rate.

It can be argued that the above mentioned trade off is less valid the more distabilizing is the very level of inflation - like in the case of a hyperinflation that can lead to an implosion of production. In the latter case, the fight against the highly destabilizing inflation should be the top policy priority.Therefore, analysis needs to consider the dynamics of inflationary expectations and, further, of money velocity.

Let us consider the following aspect. It is beyond contention that U^n, the unemployment

that would be involved by an immediate and total resource redeployment, would not be tolerated by the system. Therefore, an optimal level of unemployment, U^*, can be imagined - a level that reflects the various constraints connected with the budget, the concern not to fuel inflationary expectations, the need not to impair the dynamic of the private sector in particular, and of the economy, in general, etc.[4] This optimal level implies a resource transfer via explicit and implicit subsidies. The transfer appears as a combination of non-inflationary and inflationary financing. The major inference is that by presuming a limit to the volume of available non-inflationary financing, a higher *strain* makes more likely and raises the amount of unavoidable inflationary financing - either through deliberate money creation, or through the growth of temporary quasi-inside money (inter-enterprise arrears[5]). It follows that the expected inflation, π^e depends on *strain*: $\pi^e = \pi^e$ (J). Figure 2 shows how *strain* (J) affects the tradeoff between inflation and unemployment; a higher J leads to an outward shift of the curve. In figure 2. $J_1 < J_2 < J_3$.

Are there any phenomena which can alleviate *strain*? Yes, and some of the most important are: inter-enterprise arrears[6], monopoly pricing, explicit and implicit subsidies, spillover effects[7], the elimination of negative value-added activities, *learning*, and last, but not least, the efficiency reserves of producers (who operate within their production possibilities curves themselves). In figure 1, A' denotes the action of the mentioned phenomena, whereas A" indicates the expansion of the production of (b) as well.

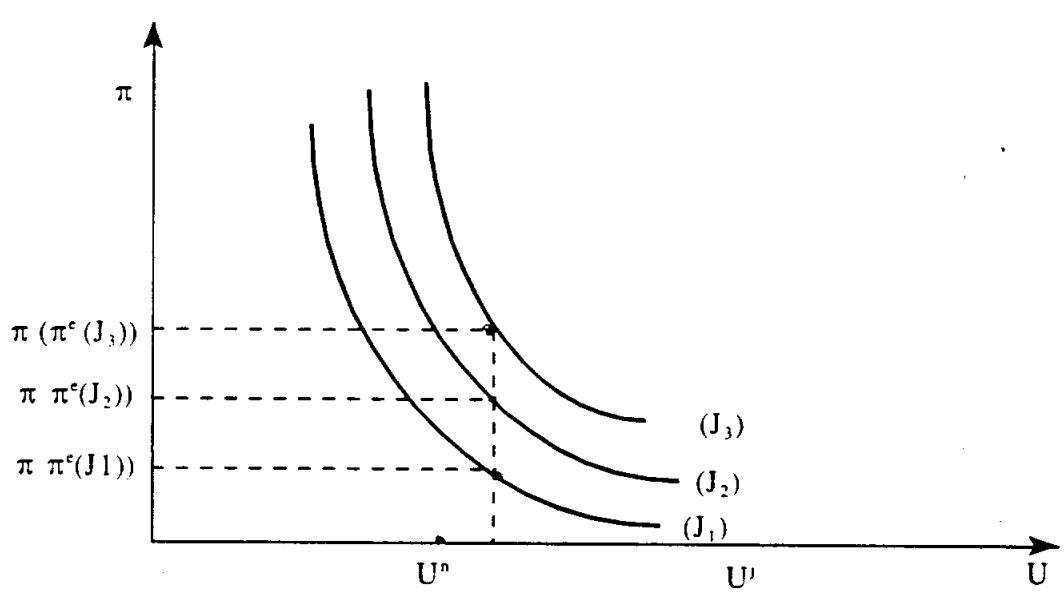

Figure 2: How *strain* affects expected inflation

.The more numerous are those who would lose their jobs because of the needed

resource reallocation the more intense would be the opposition against it, against restructuring. Paradoxically, but not surprisingly, *strain* and, relatedly, the acutely felt need to reduce it, can induce a logic of motion of the system that is liable to perpetuate flaws of the old mode of resource allocation.

2. The open economy.

There are several notable differences as compared to the closed economy model. The main one is the existence of comparative advantages which, supposedly, orient - together with consumers'preferences - the allocation of resources. As it is known, under a complete specialization of the economy comparative advantages - alone - would determine the structure of production, while consumption would be determined by the structure of demand and by foreign trade. But no real economy evinces complete specialization; either comparative advantages are not fully transparent, or total specialization is not possible (and desirable) - at least, because of the existence of non-tradeables. Besides, sometimes it pays to think in terms of dynamic comparative advantages.[8] It is noteworthy that in the case of post-command economies the structure of demand overlaps considerably with the structure of production suggested by comparative advantages - in the sense of the needed expansion of 'hard' goods. This is shown in Figure 3. where the optimal production indicates the opportunities for specialization (A_3). For the sake of simplification Figure 3. overlooks non-tradeables.

A second major difference is that domestic prices reflect the open character of the economy - the international exchanges. Since the economy is assumed to be a price-taker, world relative prices shape domestic relative prices. In Figure 3. this is shown by the world price line P^w. It is obvious that the best production combination is A_3, which, through international trade would bring about the highest aggregate welfare; I_3 is higher than I_2 (that does make use of foreign trade), and both are superior to I .

Another difference is that significant demand - and supply- related external shocks[9] lead to a compression (be it temporary) of the production possibilities curve - the broken curve in Figure 3. This compression amplifies both the reallocation problem and the related distributional struggle issue.

As in the case of the closed economy, intense friction and the magnitude of aggregate disequilibrium make it such that resource reallocation does not occur along the production possibilities curve; at the new prices P, and were the inefficient activities done away with immediately, A_1 would be considerably within the production possibilities curve. Taking into account the functional opening of the economy *strain* can be illustrated by a modified ratio:

$$J=\frac{\sum p_i^w|q_i^w-q_i|}{\sum p_i^w q_i^w} \qquad (3)$$

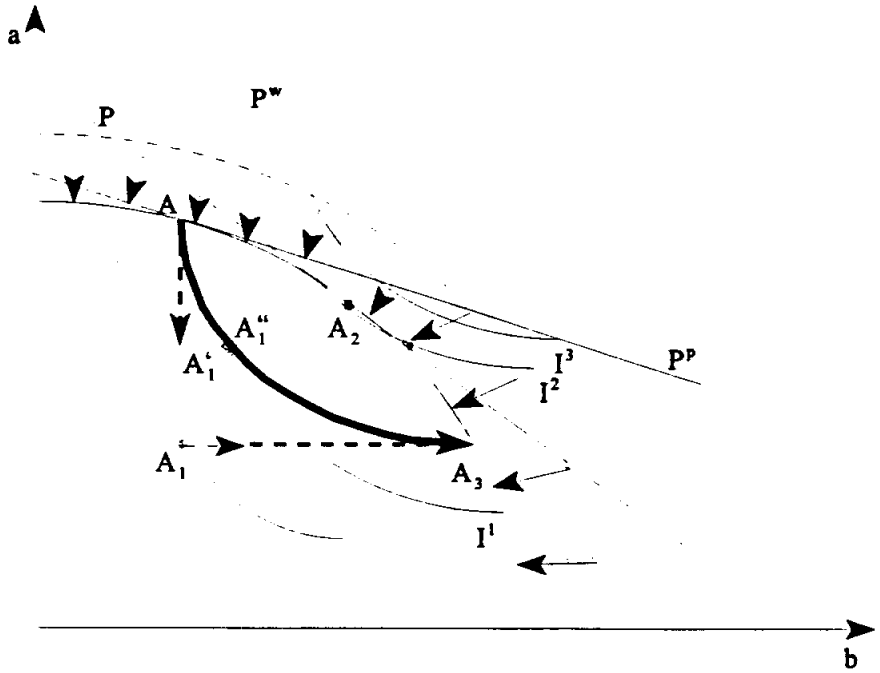

Figure 3: Resource reallocation in an open economy

As in the closed economy case, certain phenomena can alleviate the *strain* in the system. Additionally, there are three phenomena specific to the open economy. One is the possibility to export *strain*. The recent years provide a remarkable case-study in this respect. Thus, after reunification, Germany exported *strain* to her neighbours, which led to the facto desmantling of the Exchange Rate Mechanism and other consequences. This possibility is more likely to be present the more active (and sizeable) is an economy in the world space, and the more it operates as a price-maker. For example, after the dramatic rise in the oil price in the seventies, the major industrialized countries experienced a lot of *strain* under the guise of stagflation. But, since these countries (the USA, in particular) operate as price-makers in the world economy, a partial transfer (diffusion) of this *strain* took place via increases of the prices of capital goods. Moreover, the USA, due to their role as provider of the main world currency, were able to pay their way out by simply printing money - by exporting inflation. Exporting *strain* can take the form of protectionism as well.

Another phenomenon refers to how comparative advantages have to be viewed in a world of global sourcing and procurement. By this is meant the non-negligible chances for activities which, presumably, would have to be discarded, to be saved by their getting into a worldwide network of interconnected operations under the aegis of global companies. And finally, possible positive external shocks need to be taken into account.

The path suggesting the probable dynamic of resource reallocation in the open economy is indicated by the thick arrow in Figure 3.

3. The *distributional conflict.*

Another way of portraying *strain* is to focus on the scope of the required process of overall income (wages) readjustment which should fit the new market-clearing prices. Under market equilibrium conditions wages equal the marginal productivity of labor: $w_i = q'(n)=dq(n_i)/dni$. For the declining and substantially overstaffed sectors the equilibrium wage is fairly low - even below zero for negative value-added activities. The reverse is the situation for the sectors enjoying comparative advantages, or for which domestic demand is very high.

The modified form of J' that builds on wages is:

$$J' = \frac{\sum n_i |w_i^* - w_i|}{\sum n_i w_i} \qquad (4)$$

where n denotes labor in sector (i), and w_i^* and w_i refer to equilibrium and actual wage, respectively, for the sector (i). $\sum n_i = N$, where N refers to all labor resources. For the inefficient, subsidized (explicitly, or implicitly) sectors actual wage exceeds the marginal productivity of labor: $w_i > dq_i/dn_i$. The higher is J', i.e., the higher is strain, the more fierce would be the distributional struggle[10].

It is realistic to presume that the change of the regime of functioning of the economy (the revolution) has led to high expectations concerning steadily increasing incomes (wages) all across the social spectrum. Therefore J' can be written as:

$$J' = \frac{\sum n_i |w_i^e - w_i^*|}{\sum n_i w_i^*} \qquad (5)$$

where w^e_i denotes the expected income (wage) of agent (i) following the change of the regime of functioning of the economy. It is very likely that the expectations adjusted J' is higher than the level that overlooks them.

One should consider a factor that mitigates the intensity of *strain* when expectations are factored into the analysis. In the old system there were informal channels of income redistribution; most of redistribution was caused by shortages (which forced people to pay premiums for getting hold of goods in short supply), but also by perks and privileges enjoyed by the party and the bureaucracy nomenklatura. The closer those channels brought the initial income distribution to that outlined by the required resource reallocation (by the equilibrium prices) the more significant the above mentioned mitigation is.

The difference between equilibrium and actual wages reflects the resource transfer (subsidies) practiced by the system; the higher is this difference, the stronger will be the forces that oppose change. When the actual (subsidized) wage is significantly more attractive than the unemployment benefit and the labor market opportunities the resistance to quit job is heavy; therefore when:

$$w^*_i + | w_i - w^*_i | > \varrho \gamma d + (1-\rho) w^e_j \qquad (6)$$

where $| w_i - w^*_i |$ measures the total subsidy, (ϱ) is the likelihood of becoming unemployed, (d) is the unemployment benefit, (γ)ε(0,1) is a coefficient that corrects the utility of the unemployment benefit by a *psychological cost*, and (1 -ρ) refers to the likelihood of finding a job in a viable sector (j).The psychological cost can help explain the permanence of what was previously seen as temporary unemployment - the *hysteresis* phenomenon.

The distribution of income between labor and the other factors of production (capital) has an impact on the formation of coalitions of interests. In the potentially expanding sectors wages should be lower than the marginal labor productivity: $w< q'(n)$ - this would suggest the room for labor reallocation until $w=q'(n)$; the equalization would take place by a decreasing marginal labor productivity. Nonetheless, to the extent workers behave as quasi-owners and wages equalize the marginal labor productivity, or even the average labor productivity[11] (for tradeunions set the wage rates) a bizarre situation occurs: workers in the potentially expanding sectors, too, would oppose resource reallocation should the latter be seen as affecting the wage level which is equal to the marginal labor productivity. Here one meets a *wage illusion* since the workers in the efficient sectors do not realize that it is they who make up the source for the subsidies granted to the inefficient sectors - the inflation tax included. They do not realize, too, that following an adequate restructuring of the economy, the dynamics of subsidies (their diminishing) would more than offset the tendency for the marginal labor productivity to be reduced because of new labor resources entering the expanding sectors. But this realization would require the workers in the efficient sectors to optimize by comparing what they gain because of a diminished resource transfer - to the subsidized sectors plus unemployment benefits - with the effect of a lower marginal labor productivity owing to labor reallocation.

Critical elements for judging the prospects for resource reallocation is the unemployment benefit (d) and the size of wages in the expanding sectors (w_j). The lower are these the more difficult is reallocation. In this respect Blanchard and Aghion talk about an optimal speed of restructuring, which should be evaluated in conjunction with the state of the budget deficit and, relatedly, the impact on the development of the private sector - for the latter finances, partially, the budget deficit. Sachs and Woo underline, implicitly, the distributional struggle issue when they stress the requirement of providing financial incentives to the workers in the subsidized sectors in order to intensify job search and, consequently, to enhance labor mobility. To this end they stress the importance of foreign aid as a the means for breaking a vicious circle of macroeconomic stabilization.

For the post-command (transforming) systems, the *distributional struggle*, which is related to the required resource reallocation, appears as a structural origin of *strain* and as a structuralist-type explanation of inflation. Though it is aimed at the Latin-American experience mostly, Williamson's remark is quite relevant in this respect: 'One can look beyond the Patinkinian vision of the economy as a Walrasian system plus a money demand equation, and ask whether it may be necessary to incorporate one important idea in the postwar history of inflation theory...This idea is the notion of inflation as the result of inconsistent claims for real income shares' (1994, pp.68-69). He adds: '...stabilization is not only a matter of fiscal probity plus a nominal anchor plus credibility: it may also demand a choice between social confrontation and achievement of a social consensus' (Ibid., p.72).

I would submit that in the case of post-command economies the *distributional conflict* gets a dimension which goes beyond Williamson's meaning; this dimension is given

by 'the speed and, particularly, by the scope and magnitude of income redistribution entailed by the required resource reallocation'. In the countries Williamson[12] focuses on the distributional struggle takes place against the background of a pattern of income distribution which reflects a, relatively, stable allocation of resources. Therefore, individuals' expectations are relatively fulfilled. Differently, in the post-command economies a massive resource reallocation is underway, which affects considerably and brutally income distribution. Additionally, many individuals' expectations are profoundly unfulfilled. The frustration caused by unfulfilled expectations is magnified by exogenous shocks, which have led to a compression of production[13] under circumstances when individuals are used to a certain pattern and level of consumption.

4. A symptom of *systemic strain:* inter-enterprise arrears

Elsewhere I argued that inter-enterprise arrears reflect *strain* within a post-command economy (system), that they are a structural phenomenon[14] that will take time to solve as such. As *temporary quasi-inside money*, inter-enterprise arrears endogenize the money supply growth in a perverse way and emasculate monetary policy to a significant extent. This reinforces the train of thought of this paper. i.e., because of *strain* the achievement of durable macroeconomic stabilization and subduing inflation to a low level in a post-command economy can not be a one-shot affair; it is a process that will overlap in time and reflect an evolving environment that, will eventually, acquire the critical mass of traits of a fully-fledged market system.

Concerning inter-enterprise arrears in post-command economies there are other explanations which emphasize: the fuzzy state of property rights (Khan and Clifton, 1993), the primitive state of the financial system (Ickes and Rytermann, 1992), the real credit squeeze (Calvo and Coricelli), and the lack of policy credibility (Rostowski, 1994). The latter explanation seems to be espoused by Balcerowicz and Gelb as well(1994, pp.18-19). In what follows I will use a very simple model[15] in order to underline *strain*, vis-a-vis *policy credibility*, in explaining inter-enterprise arrears.

Let us suppose that the output of an agent is an increasing function of *market discipline* visualized as a public good, or as a *positive externality* - as a means for easing the efficient allocation of resources. *Market (financial) discipline* emerges as a public good and as a *positive externality* because of good collective (generalized) behaviour. The state does not supply it, though it can influence its production by the enforcement of bankruptcy procedures and the provision of other institutional means. Nonetheless, the state action (policy) of enforcement becomes irrelevant when good collective behaviour is impossible for various reasons, and as it is our contention, because of *strain* in the main.

Were market discipline perfect and resource reallocation fast enough, inter-enterprise arrears would not exist; any inefficiency would be promptly penalized. Should inter-enterprise arrears arise however, they would harm creditors, a fact which would be reflected by their output. Taking as a working hypothesis *immediate resource reallocation*, it can be assumed that the production of agent (i) is:

$$q_i = q + c\,g \text{ for the agents who do not cause arrears}$$
$$= q \text{ for the agents who do cause arrears}$$

Another assumption is that the level of *financial discipline*, (g), - seen as a positive externality - is determined by n·t, where (t) indicates whether agents pay their debts, and (n) refers to those who do not cause arrears. A final assumption is that $c<1<N$, where $N>1/c$.

Multiple equilibria situations can be imagined depending on agents'behaviour and the existence of financial discipline as a public good. If agents pay their debts in due time their incomes show up as q+c g-t, whereas if they produce arrears, their earnings appear as simply (q). The decision for an enterprise is: either to cause arrears if : $c\cdot g=c\cdot n\, t<t$, or $n<1/c$, i.e., when the number of those who pay in due time is low. A conclusion would follow: when policy credibility is low, and when financial discipline is widely disregarded, agents are tempted to produce arrears. Instead, if n=N, agent N is stimulated to pay her debts since $n=N>1/c$, as our assumption says.

It would seem that everything boils down to *policy credibility*, to the functioning of market discipline. But a critical question arises. What is going to happen, and what can be done if the number of those who do not pay is fairly high and, what is even more important, *non-payment is the result of the lack of capacity to pay* - and not an opportunistic response to the existing circumstances concerning market (financial) discipline, or the low policy credibility[16]. Consequently, whichever is the determination of decision-makers to pursue a policy course, the sheer number of those who can not pay makes $n<1/c$ - and thus, the vicious circle of arrears comes into being.

Moreover, the working hypothesis should be made more realistic by assuming that resource reallocation is slow. In this case, a *complete exit* of the inefficient but, still, positive value-added enterprises would mean that output is substantially less than if arrears emerge in the system[17]. Consequently, the short-run production function of an agent could be redefined as:

$q_i = q + c\cdot g$	no arrears and immediate resource reallocation
$= q$	arrears and no, or very slow reallocation of resources
$=q - k$	no arrears and no, or very slow reallocation of resources - the case of an efficient agent
$=o$	no arrears (full exit) and no resource reallocation -'the case of an inefficient agent

where k indicates the fall of output when there is full *exit*. It is clear that, under the circumstances, the second situation (that includes arrears) appears as a preferred solution for the short term. It should be stressed that the choice of agents is influenced by their - in most cases - *wage fund-centered goal function*.

Therefore, when resource reallocation is very slow and when the number of those who can not pay - because of the lack of capacity to pay - is fairly high, *policy credibility* can not be the main factor behind the growth of arrears[18]; the main factor is represented by the large number of enterprises which, at the new equilibrium prices, would have to get out of the economic circuit. And since such a huge *exit* is impossible[19], inter-enterprise arrears emerge as a symptom of *strain* in the system and as a way to diffuse *strain*.

5. Final comments

The working hypothesis of this study relies on the exceptional magnitude of the required

resource reallocation in the former command economies; it aims at emphasizing the extraordinary *strain* these systems are undergoing. Ignoring this *strain* would be tantamount to accepting a nonsensical proposition - that the command system was capable of allocating resources satisfactorily eventually[20].One needs to highlight also another factor that enhances *strain*: the change of the regime of functioning of the economy and, relatedly, the scarcity of organizational and institutional capital which explain high systemic fragility and vulnerability.

It can be argued that the degree of *strain* in post-command economies is the main impediment for the achievement of quick and durable macroeconomic stabilization.

The assessment of realistic policy choices needs to consider various constraints: the size of the budget deficit and the available non-inflationary means for its financing[21], the concern not to fuel inflationary expectations, the impact of restructuring on the dynamics of the private sector, the level of external aid (financing), the social consensus regarding the speed of restructuring[22], the privatization policy, etc.

Concerning the speed of restructuring a hypothesis can be submitted. Thus, to the extent restructuring has a positive impact on 'organizational behaviour' and, further, on the efficiency of the overall economy, a virtuous circle can be imagined: restructuring speeds up the change of organizational behaviour, efficiency rises and, consequently, the parameters for judging the optimal speed of restructuring need to be revised. But the functioning of this virtuous circle depends on the existence of a relationship whose practical validity is questionable. Moreover, a counter-interpretation can be put forward: under pressure enterprises use their efficiency reserves in order to avoid restructuring - though, in such a case, restructuring can only be postponed, for efficiency reserves are, supposedly, ubiquitous.

Economic policy decisions are hard to make not only because of our limited knowledge, but since they entail painful tradeoffs, irrespective of choices. Viewed from this perspective, the attitude of those who relate failures to the lack of political will only is fairly remote of what can be called the 'real political economy' of transformation. In this respect I fully endorse Kornai's remarks that 'Those who attach intrinsic value to democratic institutions must consider in their proposals the existing political power relations and the rules of parliamentary democracy. We are not going to achieve much if we rely on advice of this kind: It's our job to advise you about what's good for your country and your job to take our advice. If you don't take it, that's your problem. We can't help it if your politicians are stupid or malicious' (1994,p.5).

Aside from the attempt to decypher *strain* this study has three main message. Firstly, it does underline that what can be done quickly should be done accordingly; delays can bring about very damaging detours and can create a hard to escape 'path-dependency'. Secondly, it cautions against unavoidable tradeoffs among policy goals and commends the need to understand what is possible and probable to achieve bearing in mind the complexity of transformation and the *strain* in the system. From this perspective it is argued that durable macroeconomic stabilization and bringing inflation to a one level digit takes time and depends on the evolving institutional body of the post-command economies and on the pace of restructuring (resource reallocation)[23]. Finally, it is contended that the reasoning proposed herein can be applied to any socio-economic aggregate (economy) undergoing heavy shocks (external and internal) and, in which, consequently, an intense *strain* emerges[24].

Notes:

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1. Apart from the suppression, or divertion, of the entreprenurial spirit, which - as best indicated by the Austrian School (Schumpeter, von Mises, Kirszner, Rothbard) - is vital for the dynamics of an economy.

2. See Daianu (1994a, 1994b).

3. See also Portes, 1986)

4. Such constraints are highlighted by Aghion and Blanchard, or Sachs and Woo, for example.

5. Inter-enterprise arrears, as a sympton of *strain*, endogenize partially the money supply dynamics and emasculate monetary policy.

6. Daianu (1994b).

7. When supply does not react sufficiently fast consumers may persist in using certain substitues for a while.

8. I think, mainly, of segments of highly qualified labor.

9. Such like the collapse of eastern European markets and the worsening of the terms of trade of most post-command economies in their trade with Russia.

10. Daianu (1994a, pp.202-203).

11. When wages consume the whole product nothing is left for capital renewal or enlargement (for investment) - which is a paradoxical situation bearing in mind the potential for expansion of those sectors. An even worse case is when there is *asset stripping*, when wages are higher than the average labor productivity.

12. Williamson glosses on what he considers to be a standard thinking on macroeconomic stabilization - well exemplified by the book edited by Bruno, Fischer, Helpman, Liviatan and Meridor.

13. In the ratio (4) the denominator can be written as $(1-\phi)\ \Sigma n_i \cdot w_i, \phi \in [0,1)$, where $(1-\phi)$ illustrates the degree of reduction of the production possibilities curve (and,

implicitly, of incomes) because of exogenuous shocks. Clearly, J' increases and the *strain* in the system as well.

14. Daianu (1994b, especially section III).

15. Sachs makes use of such models in trying to depict the system (institutional) dissolution in the former Soviet Union (1994).

16. The very notion of policy credibility needs to be qualified in the case of post-command economies because of the 'thin' history of stabilization attempts. Without such a history agents react according to entrenched behavioral norms, and not on basis of learning from past policies and their eventual reversal. Certainly, when wide-ranging bail-outs make up a policy goal reversal stabilization starts off on the wrong foot and policy credibility is impaired from the very beginning. But, still, a question can be posed: under what circumstances is policy credibility a realistic policy trait and what policy choice favor its attainment. This question suggests the link between *policy credibility* (choices) and *strain.*

17. In this case, the damaging effect of inter-enterprise arrears on efficiency is more than counterbalanced by their mitigating effect on the drop of output.

18. As Agenor says, 'It is the persistance over time that matters to establish reputation of policy-makers, rather than the degree of restrictiveness of the policy measures implemented at the outset of a stabilization program. Macroeconomic adjustment measures that are not regarded as politically and economically sustainable (within the limits imposed by a democratic regime) can not be credible (1993, p.9).

19. Theoretically, a level of foreign aid (or external financing) can be thought of, which should enable a 'big bang' exit. Practically, however, this is more than unrealistic as a policy option, and may not even be the best choice.

20. This proposition does not cover the problem of incentives (of microeconomic efficiency) as well. Besides, the poor intra-sectoral allocation of resources would have to be considered, for enterprises of highly disparate performance potentials can be met in the same sector.

21. See Tanzi(1993). By considering the available means for non-inflationary financing of the budget deficit, and an optimal misery index, one can try to identify an optimal inflation tax.

22. A social pact can be a very useful institutional device to this end.

23. This conclusion is in line with the train of thought defended by the autor in two other studies (1994a, 1994b), including the need for an industrial policy, which should be construed as a 'damage-control' device.

24. Japan of the late seventies and early eighties --following the oil price shocks-- is an example of a remarkably succesfull macro- and microadjustment to strain. By paraphrasing Hammer and Champy (1993) reengineering post-command economies is a gigantic endeavour which has to deal with an extraordinary intensity of *strain* at both aggregate (system) and micro levels.

Annex

Strain and Structural Change[1]

As opposed to a command system, market economies are assumed to posses a high capacity for absorbing shocks due to their intrinsic flexibility and ongoing micro-adjustments.

When faced with a dramatic and sudden change in relative prices, as happened in the post-communist countries after 1989, an economy can adapt more or less easily. While the dynamics of such an adjustment process depends on many interaction (including non-economic factors) and therefore are difficult to measure, it is possible to provide an estimate of a *distance* between two states of an economy at two points in time. This distance conveys some information about the required adjustment.

Depending on the magnitude of this required structural change, an economy can be more or less under strain (a sort of temporary disequilibrium). For an economy (or any kind of organization), strain mai nevertheless act as a catalyst to concentrate resources, raise flexibility and thereby speed-up the transition; in other words, it can enhance adjustment. However, too rapid on adjustment may produce unacceptable social costs. When faced with unbearable levels of strain, an economy can move into expression. In a nutshell, the fine art of a policy-maker would be to find the feasible reduction of strain over time and manage the transition properly.

As proposed by Daianu, strain can be defined as the distance between two vectors of prices and quantities as follows:

$$J = \frac{\sum_i q_i |p_i - p_i^*|}{\sum_i p_i^* \cdot q_i^*}$$

where p_i and q_i refer to current prices and quantities (at the start of transition) for the sector (I) and the (*) denotes their level after the full adjustment takes place. The latter could be associated, for instance, with a shift towards international prices and an economic structure closer to a western country[2] (e.g. lower share of employment in the agriculture and in the industry, and expansion of the service sector). A higher J means a higher strain, i.e., a larger required change in relative prices. Another way of portraying strain is to focus on quantity rather on price adjustment:

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[1] Research done by Joaquim Oliveira Martins from the Economics Department of the OECD (Paris); he was assisted by Ms. Anne Legendre

[2] This may give a justification for computing the strain indicator at relatively aggregated level. At a detailed sectoral level, it would much less meaningful to use a western country as a benchmark.

$$J' = \frac{\sum_i p_i \cdot |q_i - q_i^*|}{\sum_i p_i^* \cdot q_i^*}$$

These two indicators are dual measures of required structural change. Normally, one would expect the economy to adjust both on prices and quantities at the same time. It may happen, however, that either the price or quantity adjustment proceeds more rapidly. In consequence, one should take into account the total level of strain in the economy, i.e. the aggregate distance of both price and quantity adjustments:

$$\bar{J} = \sqrt{J^2 + J'^2}$$

Figure 4 provides the basic intuition underlying this indicator.

The level of "strain" in labour market adjustment is compared with other countries in Table 1. The equilibrium level was defined, in a somewhat arbitrary way, as the structure of relative wages (on the price side) and employment (on the quantity side) in the U.K. for the year 1994 (latest data available). Another benchmark country could be used; the key results do not change dramatically if, for example, France were chosen instead of the U.K.

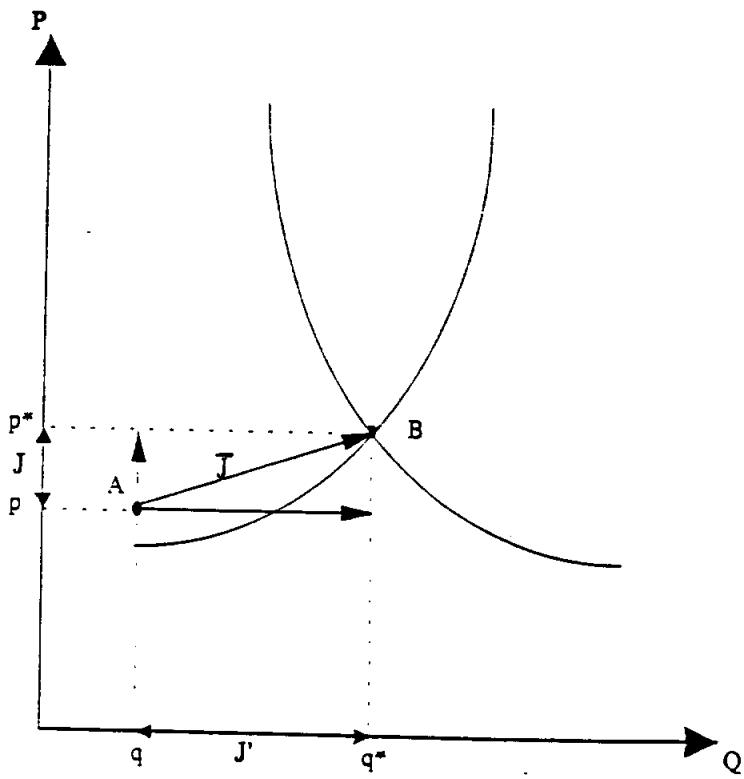
Table 1: Levels of strain in labour market adjustment).

The results suggest four main points:

i) As expected, the distance between the U.K. and the transition countries, in particular Romania, is much higher than the distance vis-a-vis a country like France. It is important to confirm this basic and intuitive result before pursuing further the interpretation of the indicator.
ii) The level of strain in Romania is much higher for the employment structure than for relative wages. Somewhat surprisingly, Romania had by 1995 a much closer relative wage structure to the UK than other countries in transition.
iii) However, the overall required adjustment (combining the price and quantity sides) is the highest in Romania.
iv) Finally, without the agricultural sector, the structure of the Romanian economy would appear much closer to the other countries in transition.

This indicator confirms some of the features of the Romanian economy. Notably, the legacy of the previous economic structure appears to be particularly heavy in Romania at least when compared with other transition countries in central and Eastern Europe. This may explain why there is so much resistance to structural change; and, also, why inflation and inter-enterprise arrears have become a way of diffusing the pressure in the system when unemployment was not allowed to exceed a certain upper limit (for political reason) and

Figure 4 **Illustration of one strain indicator**



A: pre-transition state
B: post-transition state

Table Structural adjustment in the labour market: a cross-country comparison

	Romania		Hungary		Poland		Czech Republic		Slovakia		Slovenia		*Memorandum item France*	*Reference Point UK*
	1990	1995	1992	1995	1992	1995	1991	1995	1991	1995	1993	1995	*1992*	*1994*
Relative wages (average monthly earnings = 100)[1]														
Agriculture and forestry	104.2	81.6	68.9	76.8	82.3	90.6	97.2	84.2	99.7	81.7	105.3	95.5	*72.5*	*77.9*
Industry	98.6	107.6	99.0	101.0	98.7	108.9	104.5	99.2	101.4	104.3	84.9	85.0	*111.1*	*116.5*
Constructions	110.9	106.4	90.2	84.4	106.1	92.5	106.2	108.0	102.4	104.8	83.0	82.5	*98.6*	*109.2*
Trade, hotel and restaurant	86.1	78.2	97.0	90.0	90.3	88.9	85.8	88.2	89.3	94.0	102.2	99.8	*90.9*	*69.9*
Transport, communications	108.5	121.0	105.8	106.5	102.1	101.2	102.1	100.7	102.1	108.4	115.0	110.9	*105.4*	*144.6*
Financial banking and insurance, Real estate and other services	109.3	126.8	114.7	137.4	147.7	137.3	99.9	130.7	103.9	131.4	143.8	124.6	*128.0*	*136.8*
education, health and social assistance	96.5	85.3	93.5	86.5	86.9	81.7	93.2	91.2	97.6	87.2	111.8	109.6	*75.8*	*51.0*
public administration and defense, other branches	88.9	88.6	118.0	111.3	115.7	108.9	88.5	103.8	103.4	102.5	127.8	132.7	*91.0*	*91.6*
Index of "strain"[2] **on prices**	23.0	9.8	24.1	19.7	18.3	17.0	21.1	19.1	23.8	17.2	33.9	33.1	*11.7*	
(excluding agriculture)	21.2	12.9	26.0	21.3	22.9	18.1	21.2	20.0	24.0	18.6	34.5	34.8	*12.0*	
Employment shares (%)														
Agriculture and forestry	29.0	34.4	11.4	8.1	25.5	22.6	12.1	6.6	15.8	9.2	10.7	10.4	*5.2*	*2.0*
Industry	36.9	28.6	30.2	27.1	25.2	25.9	41.0	33.2	35.9	30.3	38.7	38.0	*20.6*	*20.2*
Constructions	6.5	5.0	5.4	6.0	6.6	6.1	5.7	9.2	8.2	8.6	5.4	5.1	*7.2*	*6.4*
Trade, hotel and restaurant	6.7	10.4	11.8	15.9	10.7	13.6	7.8	15.7	8.1	13.1	14.6	15.4	*17.4*	*20.8*
Transport, communications	7.0	5.9	8.6	8.8	5.5	5.8	9.0	7.7	5.5	7.8	6.5	5.9	*5.8*	*5.8*
Financial banking and insurance, Real estate and other services	3.9	4.2	5.2	5.9	1.3	2.0	5.4	6.7	5.4	5.8	4.6	6.1	*10.8*	*12.5*
education, health and social assistance	6.7	8.1	13.6	15.6	13.1	13.3	13.8	12.1	16.5	14.5	10.2	11.4	*6.9*	*14.5*
public administration and defense, other branches	3.1	3.4	10.6	12.5	12.1	10.7	5.1	8.8	4.6	10.7	9.2	7.6	*26.2*	*17.9*
Index of "strain"[2] **on quantities**	91.4	76.6	47.6	37.2	60.4	56.7	68.1	47.1	68.7	45.9	62.2	56.7	*13.8*	
(excluding agriculture)	76.4	57.5	41.5	33.7	46.0	42.4	63.1	44.4	63.4	43.2	52.9	48.3	*21.8*	
Indicator of total "strain"[2]	94.2	77.2	53.3	42.1	63.1	59.2	71.3	50.8	72.6	49.0	70.9	65.6	*18.1*	
(excluding agriculture)	79.3	59.0	49.0	39.9	51.4	46.1	66.6	48.7	67.8	47.0	63.2	59.5	*24.9*	

1. Gross monthly earnings, except for Romania was net

2. The "strain" indicator is computed as a distance between the structure of relative wages and employment vis a vis the UK in 1994 (see text)

Source: National Commission for Statistics, OECD and Secretariat's calculations

when non-inflationary means for financing the budget were hardly available.

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