SHOCK THERAPY VS. GRADUALISM: A NEOCLASSICAL PERSPECTIVE

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One of the central policy questions in the new field of transition economics concerns the optimal speed of policy reform. How quickly should tariffs and other distorting instruments be removed? This debate is often couched in terms of "shock therapy" and "gradualism," which, while colorful, may be somewhat misleading, since they suggest two polar opposites, whereas, in reality, a spectrum of reform speeds are possible, from eliminating the relevant distorting instruments instantaneously at the beginning of the reform (shock therapy) at one end of the spectrum to no reform (maintaining the status quo) at the other.[1]

A key result in this literature is what has been dubbed the "Mussa proposition," which asserts that, absent other distortions,shock therapy is the optimal reform plan, even in the presence of costs of adjustment. In other words, even though resources may move slowly between sectors, policy should adjust instantaneously. This proposition still occasionally strikes some readers and seminar audience members as counterintuitive: in fact, it is nothing other than a simple appplication of the fundamental theorems of welfare economics. Given that the economy inherits a set of distorting policy instruments at the beginning of the reform process, the best that policymakers can do is set those distorting instruments to zero immediately, which serves to equalize the structure of domestic relative prices to world relative prices at the very beginning of the process.[2] It follows that the equilibrium trajectory of the economy after that date will represent a welfare optimum, since the economy is now undistorted, so that private marginal costs and benefits of adjustment equal their social counterparts; the economy's speed of adjustment in response to the shock to the structure of relative prices is therefore optimal. It would certainly be better never to have had the distortions in the first instance, but, given that the reform-minded policymaker has inherited them, the best that she can do is to eliminate them in one fell swoop at the very beginning.

Of course, the phrase "absent other distortions" is key in the statement of the proposition. If other unremovable distortions are present, which the policymaker cannot touch, then we are in a second-best world, and the Lipsey-Lancaster theorem of the second best applies. Stated loosely, the theorem tells us that whenever unremovable distortions are present, it is no longer the case that eliminating all those distortions which the policymaker can control is now necessarily optimal. The beacon of the first-best ceases to be a lighthouse, and the unsuspecting policymaker navigating in second-best waters may well be dashed against the rocks as a consequence. It follows that shock therapy is now *not necessarily* optimal; it all depends on the specifics of the situation.

To put it another way, the Mussa proposition and the Lipsey-Lancaster theorem together tell us that any case for gradualism must rest on second-best considerations of some sort, since it cannot be the first-best. The cleanest example of this is afforded by Gavin [1993], who builds a two-sector model of adjustment which in most respects is neoclassical; the twist is that workers who exit the declining sector must be matched with an employer in the expanding sector. With the assumption of a congestion externality in the matching process, so that the pool of unemployed workers searching for work in the expanding sector is suboptimally high under shock therapy, Gavin proves that gradualism is the second-best policy alternative.

In recent research [Dehejia, 1995], I have considered the implications of another departure from the first-best world of the Mussa proposition, which in some ways is the most obvious and most important way in which the assumptions of the proposition deviate from reality. This concerns the assumption, so basic that it is often not stated explicitly, of the possibility of lump-sum income redistribution by the policymaker. In this context, it is what assures us that the achievement of aggregate economy efficiency, effected by a policy of shock therapy, leaves all agents at least as well off as they were before the change, with some agents strictly better off. Put more succintly, it is the assumption of lump-sum redistribution that allows us to invoke the principle of potential compensation, since a *potential* Pareto improvement can be converted into an *actual* Pareto improvement by the appropriate mix of lump-sum taxes and transfers, costlessly administered by the reforming policymaker.

It need hardly be said that lump-sum income redistribution is perhaps the most elusive of the standard neoclassical assumptions when one searches in the domain of economic reality; with the possible exception of Margaret Thatcher's Britain, it has never even been attempted in recent times. As a matter of empirical fact, governments simply do not engage in lump-sum taxation and transfers amongst their citizens. It is possible that they might wish to but recourse to such instruments is ruled out on political or ethical grounds, but much the more likely explanation is that the costs of administering individual- (or at any rate group-) specific taxes and transfers would be prohibitive, to say nothing of the extraordinarily stringent information requirements of such interventions. This level of "fine tuning" of the effects of policy changes on individuals would make Keynesian countercylical policy seem like child's play in comparison!

If one accepts that lump-sum redistribution is not within the feasible policy domain, and if one additionally assumes that the market cannot remedy this failing by facilitating Coasian-style "bribing" of the losers by the winners, profound implications follow. The first, and most obvious, is that the market-determined income-distributional effects of policy changes do matter, and it is very possible, in fact more than likely, that some individuals will be made worse off by a policy change, while others are made better off.[3] The fact that, in principle, the winners can bribe the losers, and still be better off themselves, is presumably small comfort to the losers who are not, in fact, compensated.

This fact—of the uneven distribution of the fruits of reform—has both positive and normative implications. At a normative level, the criterion of efficiency ceases to be innocuous. The reason is evident, but worth spelling out: in a world with costless lump-sum redistribution, the goals of efficiency and equity can be legitimately delinked, since the appropriate choice of economic policy (in our context, shock therapy) ensures that efficiency is achieved, while redistribution ensures that the appropriate social welfare function is maximized. Metaphorically, with lump-sum redistribution, the goals of maximizing the size of the pie and slicing up the pie justly can be viewed as distinct, or at any rate, separable, so that benevolent social policy can be viewed as a two-step process: in the first, make the pie as big as possible; and, in the second, divide it up in accord with your view of the just.[4]

But when lump-sum redistribution is ruled out, the size of the pie and the size of individual slices are inextricably linked through the market mechanism, the two-step recipe for the just society sketched above breaks down, and it is no longer obvious that achieving economic efficiency should be the primary goal of economic policy. It might, or it might not be; but now other criteria, such as the utilitarian and Rawlsian to name but two, need to be seriously considered. We are taken very quickly into the realms of philosophical discourse and speculation, where many economists (and certainly this one) tread cautiously for fear of losing their footing.

But, even leaving aside the philosophical issues and doggedly assuming that efficiency is still the appropriate criterion of social welfare, now positive, political economy issues come to the fore. In particular, in most political systems of the democratic variety, those who are adversely affected by a policy change, or expect to be hurt by a planned reform, have recourse through the ballot box. In those cases in which the majority of individuals stand to lose from an efficiency-enhancing policy change, such a policy will be defeated if it needs to be ratified through majority voting. Even in a non-democratic polity, the would-be losers from reform have fora for venting their frustration, such as public demonstrations, riots, civil disobedience, or insurrection, with which even dictatorial policymakers to some extent need to reckon. In this context, the following proposition presents itself: even a hard-headed neoclassical policymaker, bent on achieving economic efficiency, may have to modify this policy goal by considering the income-distributional implications of the policy change, not because she wants to, but because she has to, to survive politically. To turn Milton Friedman on his head, the neoclassical policymaker will have to behave "as if" income distribution matters, else she will not survive in the political marketplace.

To focus explicitly on the policy question under investigation here, the preceding observations suggest the following questions: in a world without lump-sum income redistribution, and in which a reform proposal needs ratification through majority voting,[5] will shock therapy be politically feasible? What characterizes whether it will be or not? If it is not politically feasible, will gradualism be a sensible alternative? In other words, will gradualism be the appropriate second-best policy alternative to respond to the "political market failure" caused by democratic policymaking in the absence of lump-sum redistribution?

These are the questions posed in Dehejia [1995], which weds a neoclassical model of structural adjustment with a political economy model of policy formation, in a world without lump-sum redistribution. The remainder of this paper will briefly sketch the model and state the results. Readers interested in exploring the formal argumentation underlying the non-technical presentation which follows should consult Dehejia [1995].

The economic framework is a garden-variety two-sector Mussa model, which, as readers steeped in trade theory will be aware, represents an interesting intermediate case between the Heckscher-Ohlin-Samuelson (HOS) model, in which both factors are costlessly and hence instantaneously mobile, and the Ricardo-Viner-Jones (RVJ) model, in which one factor is costlessly mobile and the other is completely immobile. In the Mussa model, one factor (capital, in Dehejia [1995]) is costlessly mobile, while the other (labor) is subject to convex costs of adjustment, so that it moves only slowly in response to a given wage differential. The assumption of convex costs ensures a "well-behaved" model, in which the wage differential induced by a given shock (for example, a change in the terms of trade) disappears monotonically over time, until wages are equalized across sectors in the eventual steady state to which the economy converges.[6] I assume that the economy is labor-abundant, and inherits initially a distorting tariff (or production subsidy), the elimination of which constitutes the policymaker's reform problem. Thus, in this context, shock therapy constitutes eliminating the tariff instantaneously at the beginning of the reform, whereas gradualism entails dismantling it slowly over time.

We know from the Stolper-Samuelson theorem that, in the eventual HOS steady-state that the economy will approach in the aftermath of a shock therapy reform, all workers, regardless of their sectoral affiliation, will benefit, whereas capital will lose. Workers are thus the long-run beneficiaries of reform, and capitalists the losers. This strikes me as a not-unreasonable approximation to the likely consequences of trade policy reform in most transition and developing countries.

However, in the short run, the economy behaves like a sequence of RVJ economies, in which workers who begin in the labor-intensive (exportable) sector will gain, workers who are in the capital-intensive (import-competing) sector will lose, and capitalists will either gain or lose, depending on their consumption pattern (the famous "neoclassical ambiguity").

What is the net effect? Clearly, workers who begin in the exportable sector will be unambiguously better off, since they gain in the short and long runs. Capitalists will probably lose, at any rate if the long-run effect dominates or if their consumption pattern is not biased too heavily towards the (now cheaper) import-competing good. But what of workers who begin in the import-competing sector? For them, there is a tension between the short run losses induced by reform—since they were so unfortunate as to begin life in the declining sector—and the long run gains—since eventually they, along with their brethren in the expanding sector, will enjoy the fruits of reform. This ambiguity hanging over the latter group of workers captures quite nicely the conundrum of reform, which delivers long-run gains but only at the expense of short run losses, at least for some groups.

Suppose, therefore, that workers in the exportable sector will support a shock therapy reform proposal and that capitalists will oppose it.[7] Suppose further that neither group constitutes a majority of voters. It follows immediately that workers who begin in the import-competing sector will be pivotal or decisive: if they vote with the other workers, a shock therapy reform proposal will succeed, and, if they vote with the capitalists, it will fail. Exploiting this logic, we can henceforth confine our attention purely to these decisive voters, since they will carry the day in any binary election contest between the status quo and any reform proposal, shock therapy or gradualist.[8]

We can, therefore, sharpen our earlier question: will the decisive workers, those who begin in the import-competing sector, support a shock therapy reform proposal when maintaining the status quo is the alternative? In the spirit of the rational choice framework of the political economy model, it is supposed that these workers base their decision on a comparison between the present discounted value of the stream of wages in the two alternative scenarios.[9]

Dehejia [1995] presents two lemmata which considerably simplify the analytics. First, suppose we allow workers to vote continuously during the duration of the reform, that is, to press a "panic button" if at any stage they wish to abort the reform. Will they choose to do so? It turns out that they will not: if they support reform at the beginning, they will never switch their vote (Lemma 1). Second, what of a worker who transits between sectors during the course of reform—will she wish to change her vote? Again, it turns out not, since it is proved that the value function of a worker who begins in the import-competing sector is simply the "asset value" of an "installed" worker, that is, Tobin's "q" (Lemma 2).

Having disposed of the two lemmata, it is possible to establish the first major result, which is Proposition 3 in Dehejia [1995]: there exists a critical level of adjustment costs at which workers in the import-competing sector are just indifferent between shock therapy and the status quo.[10] If costs are greater than this critical level, they will prefer the status quo to shock therapy; and if costs are less than this critical level, they will prefer shock therapy to the status quo. The intuition is transparent: with large adjustment costs, and hence a protracted period of adjustment, the short-run losses from reform will dominate the long-run gains, which materialize rather late, and the status quo will be preferable to shock therapy; whereas, with small adjustment costs and rapid adjustment, the long run gains are realized early enough to dominate the short-run losses.

If a given economy's costs of adjustment are less than the critical value, the story ends. If not—and this is surely the interesting case—we come to the next question: given that shock therapy is now not a politically feasible option, will gradualism work instead? To tackle this question, it is necessary to be precise as to what we mean by "gradualism." In this context, Dehejia [1995] develops a concept which is dubbed "delta gradualism." This defines a one-parameter family of reform trajectories, for a given magnitude of the initial distorting tariff, characterized by log-linear decay, with "delta" representing the decay parameter itself. In this setting, shock therapy and the status quo both emerge as limiting cases of delta gradualism. As delta goes to infinity, reform becomes instantaneous, corresponding to shock therapy; and, as delta goes to zero, reform ceases, corresponding to the status quo. Limiting the policy space to a selection of a constant delta considerably simplifies the analytics, and serves only to change the question from "what sort of gradualism will be optimal when shock therapy is infeasible?" to "does there exist a delta-star such that gradualism at the speed delta-star will be feasible when shock therapy is not?" Restricting the policy space is thus reasonably innocuous when our primary concern is establishing the *existence* of a gradualist alternative to shock therapy when the latter is infeasible.

The second major result is stated as Proposition 4 in Dehejia [1995]: when shock therapy is infeasible, a gradualist alternative exists, characterized parametrically by a delta-star, which will be feasible, in that it will dominate the status quo, for workers in the import-competing sector and hence for the majority of voters in the economy.[11] Intuitively, by tempering the adverse income effect of the terms of trade shock in the initial stages of reform, gradualism serves to boost the discounted income stream of workers in the import-competing sector, which makes gradualism a politically palatable and attractive policy option when shock therapy is politically unavailable.[12] For those unmoved by pen-and-paper analytics or woolly intuition, Dehejia [1995] also presents a battery of numerical simulations of the model, under a wide variety of parametric specifications, which serve to reconfirm the message.

To sum up, this paper has emphasized the inability of policymakers to use lump-sum redistributive instruments as a major constraint on their ability to engage in efficiency-enhancing economic reforms of the shock therapy variety. Apart from the ethical issues, shock therapy may simply be politically infeasible, since it stands to hurt a politically influential group. If it is infeasible, then gradualism is a sensible policy alternative: it achieves the same goal in the long run—the elimination of the inherited distortions—but does so in a fashion which wins over the dissenters to shock therapy. It does this by tempering the initially adverse effects of shock therapy on the affected group, while ensuring that reform is accomplished eventually. The bottom line: if shock therapy is not feasible, try gradualism instead.

NOTES

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1. Comprehensive recent surveys of the relevant literature may be found in Dewatripont and Roland [1995] and Tommasi and Velasco [1995].
2. This holds strictly for the case of a small economy. For a large economy, which can affect its terms of trade, shock therapy would correspond to a jump in the vector of tariffs to their optimal levels at the instant that the reform begins, with all distorting production and consumption subsidies and/or taxes still being set to zero, as in the small country case.
3. The reader might object that, while lump-sum redistribution does not occur, there are other, distorting forms of redistribution, e.g., through progressive income taxation. The point is that such imperfect forms of redistribution constitute distortions in themselves and hence only further complicate the policymaking problem. In the sequel, therefore, it will be assumed that no redistribution whatever is possible, which, while not literally true, is probably closer to the truth than the standard assumption. On an empirical note,most studies of putatively redistributive policies find that very little redistribution occurs in practice.
4. Doubtless this characterization of the just society, and of economist as engineer, will seem hopelessly simple-minded to philosophers and social scientists other than economists (or for that matter to anyone who has leafed through Rawls recently), but here I can only claim the ubiquity of the offense amongst economists as an extenuating circumstance!
5. Or through a political mechanism isomorphic to majority voting.
6. The reader will likely be aware that, in an ill-mannered model with linear costs of adjustment, hysteresis becomes a possibility, which makes the comparison of steady states characterized by no intersectoral wage differential distinctly moot.
7. This amounts to supposing that their long-run losses exceed their short-run gains, if any; not a particularly stringent assumption.
8. This is because, even when considering a gradualist policy reform, the rank-ordering of reform and the status quo remains identical for each of the three groups (even though the magnitudes of gains and losses will generally be different).
9. In the case of the status quo, it is simply the annuitized value of the steady state wage in the status quo, since agents in the model are infinitely-lived and have perfect foresight.
10. This is parameterized in the paper in terms of a scalar which multiplies a quadratic adjustment cost function.
11. A number of assumptions are made to derive this result, chiefly a linearization of the nonlinear ordinary differential equation system around the final steady state. For technical details, and a discussion of the implications of the assumptions, see Dehejia [1995].
12. In fact, the intuition is not quite as clear-cut as is presented here; for a more nuanced treatment, the reader should consult Deheiia [1995].

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