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Convergence to Long-Period Positions

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Questions and Suggestions re Gravitation

Ian Steedman

While some of the contributors to this symposium attempt, quite properly, to provide answers to certain questions concerning the important issue of how prices, profits, etc. do or do not gravitate towards their 'natural' levels, I propose to suggest some questions which ought, ideally, to be dealt with in the course of discussing 'gravitation'. It will be seen, I hope, that they are not questions raised merely for the sake of making already complex analyses yet more complex but, rather, refer to genuinely important matters. (It should perhaps be said at once that these matters were *not* faced up to in my own contribution to the 'gravitation' literature.¹)

I. THE MEANING OF GRAVITATION OR OF CONVERGENCE

Many of the models and analyses in this area turn around the question whether a particular system exhibits local asymptotic stability. How interesting is it really to the economist to know that, say, small deviations of market prices from production prices tend to zero as the date moves without limit into the future? To know that is better than to know nothing, of course, and I do not wish for one moment to suggest that it is easy to establish global stability or local stability within a finite (preferably short) time horizon; it is not easy. The fact remains that to establish local asymptotic stability (if that can indeed be established) is to make only a small first step towards showing that natural prices act as centres of gravitation in a sense which is useful to the economist trying to understand an ever-changing world. To say this is not to make a cheap criticism of stability theory but is simply to recognize that economic dynamics are hard to study.

¹ IAN STEEDMAN, "Natural prices, differential profit rates, and the classical competitive process", *Manchester School*, vol. 52, 1984, pp. 123-39; reprinted in IAN STEEDMAN, *From Exploitation to Altruism*, Cambridge, Polity Press, 1989.

It could also be asked whether *convergence* is really a necessary part of what an economist means by *gravitation*; is it not sufficient for the latter that, say, market prices never move 'too far away' from natural prices? Of course, this requirement could readily be made too undemanding, simply by the adoption of a sufficiently loose definition of 'too far away'. But it does not have to be made too easy to meet — and perhaps the requirement of convergence is too hard to meet, is unnecessarily demanding? Perhaps it would be a worthwhile substitution to put somewhat less effort into the study of convergence and somewhat more into the framing of a sensible definition of 'not too far away' and into the study of when market prices are then 'not too far away' from natural prices?

2. CHOICE OF TECHNIQUE

Many studies of (non-) convergence consider a single technique economy. Is there *no* choice of technique (as opposed to technical progress) available as $t \rightarrow \infty$? Of course there is. The deeper question, then, is what is taken to be the criterion for the choice of technique in the face of changing prices and profit rates? If it is to be expressed in terms of cost minimization, what precisely is the definition of the cost which is to be minimized?

3. CONSUMPTION AND PRIMARY INPUTS

It has sometimes been suggested that the presence of consumer substitution facilitates convergence. One might wonder whether this is necessarily true when there is a choice of technique, given what we have learned in capital theory. It must also be considered what role is played in convergence/gravitation by changing relative prices of primary inputs — whether or not there is any possibility of changing the proportions in which primary inputs are used in production. Indeed, even when there is just one primary input — homogeneous labour — it is disturbing that so many studies of convergence take the wage to be exogenously given. Is a relation between the wage rate and the extent of labour unemployment — as in Marx and in Goodwin's growth and cycles model — inherently inappropriate to a classical analysis of gravitation? Certainly, neither Smith nor Ricardo applied the market/natural distinction only to produced commodity prices.

4. FIXED CAPITAL

It is obvious enough both that fixed capital is of great importance in real economies and that its presence is a major source of difficulty in adjustment processes, not least when the scale of productive activity has

to be reduced. Consequently, the study of gravitation in economics must take full account of fixed capital — preferably using von Neumann-Sraffa accounting and not artificial radioactive depreciation accounting — and should recognize that expansion and contraction are *not* symmetrical processes. Unfortunately, it cannot be said that all such studies meet these requirements. It is to be noted, too, that particular pieces of land and particular workers are sometimes no more (economically) mobile than are many old machines and that these facts of life are highly relevant to the study of gravitation.

With respect to land, plant and equipment (but not to non-slave workers) it may be suggested that the stock market, like asset markets more generally, plays a vital role in constantly *revaluing* assets, thus tending to equalize — and perhaps quite rapidly — rates of return inclusive of capital gains and losses. This might seem to be a complete dimension of economic life which is often absent from convergence/gravitation models in which prices and rates of return appear to be related exclusively to *flows* of production and the uses of output. Perhaps asset markets and unceasing processes of revaluation make some aspects of gravitation very much easier and faster than are other aspects? Can the rate of return in European shipbuilding become as far out of line with ‘average rates of return’ as European shipbuilding physical capacity and employment levels can become with respect to long term requirements for such capacity and employment?

5. JOINT PRODUCTION

Fixed capital can, of course, be viewed as a special case of the empirically widespread phenomenon of joint production. In addition to the many, many cases of joint production in the most obvious sense, storage processes, inventories, transportation and fixed capital — all of them important for gravitation — usually introduce the complexities associated with joint products. How, qualitatively, does the presence of joint production affect the facility or difficulty of convergence/gravitation? Most studies do not even ask this question about a major real world phenomenon, let alone answer it. (However, Willi Semmler has told me informally of some simple experiments in which joint products greatly *hinder* convergence.) It must also be recalled, in connection with section 2, above, that joint production greatly complicates the analysis of choice of technique, even when prices are not taken to be changing over time.

6. NON-CONSTANT RETURNS TO SCALE

For readily understandable reasons, most gravitation studies suppose constant returns to scale (some of the work done in Nice, by Arena *et al.*, providing an exception to the rule). But returns to scale can in fact be

increasing. (And there are primary inputs in fixed supply so that 'in principle' constant returns processes exhibit 'in fact' decreasing returns to the variable inputs.) Constant returns cannot properly be assumed in every process. This both requires more careful specification of what is meant by 'the' natural price of a commodity and greatly complicates the analysis of actual price movements and of the choice of technique (since, with varying outputs, the relative costs of alternative techniques are now variable even for given prices).

7. OPEN ECONOMIES

All modern capitalist economies are *open* — often very open and increasingly open, with respect to both trade in commodities and capital flows. In so far as a given economy is a small open economy, many of its relative prices are exogenously given to it and cannot be affected by its own adjustment processes of changing outputs, investment reallocations, etc. At the same time, of course, to say that such relative prices are exogenous is not to say that they are constant, so that they may well have an exogenous but variable impact on domestic costs, rates of return, etc. How do these simple but important facts about real economies influence the likelihood of convergence/gravitation?

8. CONCLUDING REMARKS

I recall that the above questions and suggestions have not been raised in order to imply that gravitation theorists have been lazily avoiding perfectly easy questions. To the contrary, one can see only too readily that to tackle all of these questions simultaneously — which *is*, in principle, how they need to be tackled — would be a formidable undertaking. (Few readers, I suppose, will regard that as a wild exaggeration.) Is the whole project of providing a theoretical understanding of gravitation perhaps over-ambitious? At the recent Trieste International Summer School, 1990, Fabio Petri was arguing, I think, that if it is the observed fact that rates of return are 'never too far apart' then one may just start from there, whether or not one has 'proved' convergence.

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