

Editorial

Infinite repercussions

‘Boomerang’ is an aboriginal name for an object, usually fashioned as a particular form of stick, that, when thrown in a certain manner, traces a trajectory that returns the object to the thrower, so that it can be easily retrieved and used again. In more popular parlance, the term refers to an action that turns back on itself sometimes taking the actor by surprise, if the person is unaware of its properties. It is an effect that is opposite to the one intended: in short, a backfire, usually unanticipated, and often very damaging. The current global financial crisis has all the elements of boomerang. Indeed, Michael Lewis (2010) whose book *The Big Short* is a fascinating tale of how Wall Street was completely unprepared and failed entirely to anticipate the impact of its own actions, has written a follow-up with the title *Boomerang* (Lewis, 2011). This recounts not only how he, the author (and everyone else), failed to see the repercussions from what happened after the first meltdown in the markets in 2007–08, but of how debt continues to be transferred within a system that is strongly connected globally. In hindsight, it is easy to see that, if the banks go into debt by manufacturing paper assets and governments bail them out (with more paper assets), then the debt is simply transferred. Witness the current crisis over sovereign debt where the Euro zone finds it impossible to print more money to itself to simply transfer the debt sideways. In short, it is hard to see how these repercussions in terms of ‘who owes who’ and ‘what is owed’ will ever die out unless those responsible are prepared to take a loss. Indeed, solutions to the crisis are premised not on resolving the debt but on defining it away as a proportion of its value through the magical concept of ‘growth’.

None of this is very hard to understand if one considers that in a strongly connected network (where everything is indirectly connected to everything else), flows that start in one part reach every other part in time and, unless they dissipate, their motion continues forever. If the flow is debt, then the only way this can be reduced is by endogenously producing growth. Of course, the other way of dissipating the debt is simply by reducing the value of the assets that those in debt hold, but very often they have no assets (or not enough they say, in the case of the banks!) Government has to pick up the tab and, in many cases, this is simply beyond the assets available to governments themselves. Of course, these assets are those of the general citizenry; hence the current anger about who is paying.

In essence, then, if a system is strongly connected and there is no way in which flows can be dissipated, these repercussions never die away but persist forever. In fact, sometimes, the repercussions gather steam, gain momentum like a snowball in that rather than dissipate, the size of their impact increases. ‘Throwing good money after bad’ is an appropriate analogy. In economies and ecologies, these kinds of impact are obviously possible and probably present, but in cities their effect is much harder to trace, largely because of the way we look at cities as systems in equilibrium. The physical form of cities does not appear to change very much and, if our entry point to urban science is through an analysis of urban form, then it is hard to extract the internal dynamics which is likely to be little different from an economy or ecology.

The usual kinds of impact in cities tend to be phrased as chains of dependence structured around negative feedback. For a long time, our theories and models of urban systems have been dominated by the notion that events can set off a chain

of consequences that lead to the occurrence of related events through time, either activating such events or changing their size. These are multiplier effects and in many models they are regarded as benign; that is, they tend to decline in importance with time as a form of negative feedback. A decline in employment leads to declines in related employment that depends on the employment first affected. Such multiplier effects lie at the basis of many cross-sectional static models such as input–output, but their essential characteristic is that they die away, for these chains of dependence are always finite.

In contrast, positive feedbacks which constitute endogenous growth and innovation are extremely hard to pin down spatially. The impact of financial crises on cities, although evident in the loss of jobs directly attributable to the functioning and location of activities, always appears to have a marginal impact on spatial form. Insofar as such dynamics have been articulated, these are in terms of discontinuities that tend to force the equilibrium of the city into a new regime: as a catastrophe or bifurcation that leads to a qualitatively new equilibrium rather than a series of repercussions that never stabilise. The notion that there are chains of instability in cities that continue indefinitely is not something that is clearly evident in physical terms for these are often hidden from our immediate observational apparatus, difficult to define, hence hard to measure, generating cascades that pulse across diverse networks (Batty, 2009).

The most difficult of repercussions to define and track are those that die away at first but are in essence akin to a slow burn, gathering speed in cumulative fashion. Classic exponential growth is of this form, for on the early part of the curve there is little change in comparison with later periods although the rate of change is always increasing. In fact, this type of growth is rare in cities, for it is usually limited in some way. What is more likely is change that has little impact at first and remains dormant but, due to extraneous and unrelated events in the future, is eventually sparked into life and then makes a considerable impact. We have countless examples where ideas or events come into existence, lay dormant, and then become popular long after the originators have gone. Whether or not we can trace such effects in cities is an open question and one that we need to rapidly unravel if we are to construct a science with an appropriate dynamics that shows how cities evolve and change.

The current crisis is not only a wake-up call to focus our attention on the dynamics and dependence structures which comprise our cities but a sobering demonstration of the fact that globalisation has lulled many into thinking that growth might be infinite. As we have found to our cost, the impact of our decisions based on this assumption has led to negative repercussions that show no end. Eventually these chains will be dissipated by new technological developments, but there is still the distinct prospect that, as debt continues to be transferred in a never-ending circles and cycles, these crises will continue. The need for a new view of social dynamics has never been more urgent.

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References

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