Past experience and learning from others
Can they guide regional economic policy?

Gunther Maier

WU, Vienna University of Business and Economics,
Vienna, Austria

Past experience and learning from others
Can they guide regional economic policy?

Professor MAIER, Gunther,
WU, Vienna University of Business and Economics,
Vienna, Austria

1. Introduction

This paper deals with the question what policy makers in regional economic policy can learn from their own region's past experience and from the experience of other regions. Will we be able to achieve the same results when we copy a policy that was successful in the past or in another region? To what extent are policy outcomes generic or time and place specific?

Although "policy lessons" are quite commonly drawn in the literature (e.g., Pezzini, 2001; Chen et al., 2010; Whelan, 2010), this question is rarely raised in regional economic development. Both scholars and consultants typically leave it to the policy maker to take into account the specifics of the respective place and time.

As we will argue in this paper, in regional economic development the answer to the question of transferability of policy experience depends upon our view of how regional economies work. And when we look for comprehensive models of regional economic development that move beyond partial approaches, we can find only two candidates: the traditional "neoclassical view" and the recently developed "agglomeration view". They are the only theoretical concepts available that look at a regional economy from a comprehensive, general equilibrium point of view. Consequently, they are the only theoretical concepts that can inform us -- typically in a stylized fashion -- about all the direct and indirect effects that our policy interventions imply.

There are strong theoretical and empirical arguments in favor of the agglomeration view. It represents a more modern understanding of how the economy works than the neoclassical view and it is generally also more in line with empirical evidence. Also in terms of policy, the agglomeration view has gained grounds in recent years. Many of the regional policy approaches that have recently been promoted and applied widely are conceptually based in the agglomeration view and would not make any sense in a neoclassical world.

In the next section we will briefly sketch the neoclassical perspective. Then, we will turn to the agglomeration view.

2. The Neoclassical View

The neoclassical view is "what is taught to students, what is mainstream economics today" (Weintraub, 1993). Neoclassical economics is based on a set of assumptions and its theoretical conclusions are deduced there from. The most important tool of neoclassical economists is mathematics, in particular calculus. The application of these assumptions and of the economic toolbox has led to a consistent set of arguments and to principles that are widely shared by economists.

The most important assumptions of the neoclassical view are utility/profit maximization, perfect information, perfect mobility, and perfect competition. The neoclassical assumptions guarantee that economic actors always pursue their self interest and in doing so are not limited by limited information, transaction and mobility costs or power of rival actors. Market prices always represent the scarcity in the respective market and signal opportunities to increase their utility or profit. Because of the assumptions actors will always pursue these opportunities.

Take the neoclassical model of regional growth (Borts, Stein, 1964) as example. Assume two regions which differ by capital intensity. Since prices reflect scarcity, the more capital intensive region, "rich" region will have a higher wage and a lower capital rent than the less capital intensive, "poor" region. The higher wage in the rich region will attract labor from the poor, who know about the higher wages, want higher wages and are not limited by mobility barriers because of the assumptions. Similarly, capital will be attracted from the rich to the poor region. Resources flow from the region where they are relatively abundant to that where they are relatively scarce. This process equilibrates capital intensity, wages as well as capital rents. Moreover, since factors are used more efficiently, both regions benefit economically and grow.

The neoclassical view is based on a linear model. This has a number of implications which are important for its policy recommendations:

- **Marginal changes lead to marginal reactions:** In all markets, a small increase in demand yields a small increase in the respective price which in turn stimulates a small increase in supply equilibrating supply and demand.
- **There exists only one equilibrium:** This equilibrium is Pareto-efficient and socially optimal.
- **Disturbances are washed away over time:** They lead to deviations from equilibrium which triggers market forces that force the economy back toward equilibrium. Therefore, disturbances can only have a temporary effect that disappears over time. The long run outcome of the economy cannot be changed by external disturbances.

These implications lead to the famous policy recommendation of neoclassical economics that policy should better stay away from the economy. The market mechanism generates the optimal outcome through its "invisible hand" and does not need any help from policy makers. Can policy makers learn

from others and from their own past experience according to the neoclassical view? The answer is yes. But, what they can learn is probably not very useful. Although the economic system reacts in a consistent and very predictable way, the bottom line lesson to learn is that policy interventions only have temporary effects and cannot alter the long run outcome. They may actually just generate disturbances which temporarily prevent the system from reaching the equilibrium. At best they are useless, but probably even damaging and a waste of resources.

Because of the assumption of perfect mobility it is difficult for neoclassical economics to deal with regions and space. When we relax this assumption and allow for physical distance and transportation costs, we either get in conflict with other neoclassical assumptions or end up in the perverse structure of "backyard capitalism" (Mills, 1972, Starrett, 1978). With transportation costs it is profitable for producers to breakup production facilities and locate them as closely as possible to the location of the customers. Because of the assumption of perfect competition, which implies the absence of agglomeration economies, this can be pursued until all products are produced in the backyard of their respective customer. In this "backyard capitalism" there are only subsistence industrialists and no large scale production facilities that require external labor. No products are shipped from one location to another, no workers commute from home to work. Although transportation costs are the ultimate reason for this structure, in equilibrium no resources are used for transport.

Another conceptual problem of the neoclassical view is that although the long run growth rate of the economy is determined by the rate of technical progress, the model cannot explain technical progress. It has to happen by accident since due to the assumption of perfect information no company will be willing to invest in R&D. In the 1980s and 1990s these conceptual problems triggered attempts to endogenize technical progress (Romer, 1986, 1987, 1990). Ultimately, they led to the development of what we call "agglomeration view". This view combines among others theories of endogenous growth (Aghion, Howitt, 1998) and the so called "new economic geography" (e.g., Krugman, 1991, Fujita et al., 1999, Fujita, Thisse, 2002).

3. The Agglomeration View

In many respects the theories and models of the agglomeration view are quite similar to those of the neoclassical view. The main difference is that they relax the assumption of perfect mobility and the assumption of perfect competition. They assume (1) non-zero transportation costs, and (2) some agglomeration force. In this respect, the neoclassical view can be seen as a special case of the agglomeration view. As a consequence, the theoretical results of the neoclassical view represent results of this special case which may or may not hold in the more general case of the agglomeration view.

Transportation costs and agglomeration economies are counteracting powers. Without agglomerating forces transportation costs pull production facilities apart and toward the locations

of the customers. Agglomeration forces without transportation costs, on the other hand, pull all production facilities toward one location leading to one monopolistic world producer. As a consequence, the agglomeration view models use transportation costs and agglomeration economies as counteracting forces and many of their results are based on the relationship between transportation costs and agglomeration forces.

Transportation costs and agglomeration forces introduce externalities into the economic system. Whether a production facility locates in one region or another impacts all the other economic actors in the agglomeration view models. The additional producer generates agglomeration advantages for the other producers in his region and implies additional transportation costs for actors in the other region. Such externalities destroy the linearity of the neoclassical model and lead to peculiar model results. Externalities also destroy the comforting feature of the neoclassical model that the equilibrium established by market forces is socially optimal.

Some of the most important typical results of agglomeration view models are the following:

- **Marginal changes can lead to non-marginal reactions:** The counteracting forces of transport costs and agglomeration economies imply parameter constellations (bifurcation points) where with a marginal change of one variable, one of the forces takes over pushing the whole system into one or the other direction.
- **A-symmetric reactions:** Such bifurcation points imply that a reversal of the variable change that triggered the non-marginal reaction may not lead back to the original situation. This is called "local hysteresis".
- **Multiple equilibria:** Typically the models include parameter constellations where two or more stable equilibria exist. Which one of the equilibria is realized depends upon small random influences.
- **Path dependence:** With multiple equilibria, there are also multiple development paths that the economic system may take toward these equilibria. Once the system has started to move in one direction, its future path will be determined. A corollary to path dependence is "lock-in", meaning that through path dependence the economic system may be caught in one development path, although another one may be preferable.
- **Undetermined long-run outcome:** When there are multiple equilibria, it is unclear at which one the economy will end up in the long run. For a region and its population and policy makers one of those possible long-run outcomes may be more attractive than the others. Which one of those equilibria will be reached through market forces is unclear.

4. The Agglomeration View and Regional Economic Policy

These model features have fundamental implications for regional economic policy. First of all, the models indicate a need for regional economic policy since market determined outcomes may

not be socially optimal. Second, they also show that policy can have a long term effect. When the policy maker manages to push the regional economy at the right time in the right direction, path dependence through agglomeration forces may set in and move the regional economy toward the desired result.

To illustrate our arguments, let us use a typical equilibrium development path (Figure 1). It is called a pitchfork bifurcation. On the horizontal axis the graph shows time while the vertical axis gives the production share of one region (S_1) in a two-region economy. Before t_0 (the bifurcation point) production tends to be equally distributed between the two regions and deviations from that equilibrium are eliminated by market forces. In this section the system acts according to the predictions of the neoclassical view. The policy maker faces the problem that we mentioned above: His interventions (irrespective how large) will be eroded by the market forces which push the system back to the equal distribution equilibrium. At the bifurcation point, however, this equilibrium becomes unstable and production will either agglomerate in the region (upper branch) or leave the region (lower branch). Whether one or the other happens depends upon small differences between the regions at t_0. So, policy interventions at the bifurcation point or in its vicinity may set the system off in the desired direction.

The context for regional economic policy changes dramatically around the bifurcation point. Immediately before t_0 policies that have failed in the past will become promising because they can tip the scale. Whether this policy will be successful there or not also depends on the dose of the intervention. While the effects of a small scale policy will still be eliminated by market forces, a larger intervention may be able to overcome the threshold of the agglomeration forces at the same time. The closer the system gets to the bifurcation point the more sensitive it becomes to regional differences may they be generated by policy or just by chance. Past t_0 this sensitivity quickly disappears. Increasing concentration of production in one or the other region generates path dependence that will require larger and larger policy interventions to overcome.

When we follow the theoretical arguments of the agglomeration view, we have to conclude that the need for and the success of regional economic policy depends upon the system's position relative to a bifurcation point. The same policy that was successful in one context (at an earlier time or in another region) may not work in our region now because it is further from a bifurcation point. Or, the other way round: a policy that has failed in the past may suddenly work because "the time is right".

Whether a specific regional economy is close to a bifurcation point or not is very difficult to determine in practice. Neither we as analysts not the policy makers know all the parameters of the economy and therefore cannot draw a graph like Figure 1 and position the specific region in it. All we have available is information from the past and right up to t_0 all this information indicates that the system is characterized by a stable equal distribution equilibrium. Therefore, it is likely that we will find out about the bifurcation point only some time after t_0, when the system has started to deviate

from the equal distribution equilibrium, path dependence has set in and it may actually be already too late for policy intervention.

To complicate things even further, it is not only the timing of the policy intervention that decides about success or failure, but also its dose and – in a practical context – also the sector to which it is directed. Implementing policies that are large enough to overcome the thresholds implied by the agglomeration forces and identifying sectors characterized by agglomeration forces but have not yet strongly concentrated in other regions become severe problems for regional economic policy practice.

5. Summary and Conclusions

In this paper we briefly discussed the question to what extent regional economic policy can learn from other regions and from its own past experience. We argued that the answer to this question depends upon the view we have about the functioning of a system of regional economies and that only two such views are offered by economic theory: the neoclassical view and the agglomeration view.

The neoclassical view does not support any interventional regional economic policy at all. The agglomeration view, on the other hand, shows that policy may have to intervene in order to avoid undesirable results and may also yield long term effects. But, whether or not the regional economy is receptive to a certain policy intervention depends upon the state of the economy, particularly its position relative to a bifurcation point, and the design of the policy. To summarize the bottom line message of this paper, the agglomeration view informs the policy maker that his policies need to be well timed, dosed, and targeted, but that neither past experience with the regional economy itself nor knowledge of the experience of other regions (best practice examples) will provide a solid basis for making these decisions.

References

Aghion, P., P. Howitt, 1998. *Endogenous Growth Theory,* Cambridge, Mass.: MIT Press.

Baldwin, R.E., R. Forslid, P. Martin, 2003. Economic Geography and Public Policy, Princeton: Princeton University Press.

Borts, G.H., J.L. Stein, 1964. *Economic Growth in a Free Market,* New York: Columbia University Press.

Chen, C. M., K. A. Melachroinos, K. T. Chang, 2010. FDI and Local Economic Development: The Case of Taiwanese Investment in Kunshan, *European Planning Studies,* 18, 213-238.

Fujita, M., P.R. Krugman, A.J. Venables, 1999. *The Spatial Economy,* Cambridge, Mass.: MIT Press.

Fujita, M. J.-F. Thisse, 2002. *Economics of Agglomeration; Cities, Industrial Location and Regional Growth,* Cambridge: Cambridge University Press.

Krugman, P.R., 1991. Increasing Returns and Economic Geography, *Journal of Political Economy,* Vol. 99, pp. 483-499.

Mills, E.S., 1972. An Aggregative Model of Resource Allocation in a Metropolitan Area. In: M. Edel, J. Rothenburg (eds.), *Readings in Urban Economics,* New York: Macmillan.

Pezzini, Mario, 2001. Rural Policy Lessons from OECD Countries, *International Regional Science Review,* 24:1, 134-145.

Romer, P.M., 1986. Increasing Returns and Long Run Growth. *Journal of Political Economy,* Vol. 94, pp. 1002-1037.

Romer, P.M., 1987. Growth Based on Increasing Returns Due to Specialization, *American Economic Review,* Vol. 77, No. 2, pp. 56-62.

Romer, P.M., 1990. Endogenous Technological Change. *Journal of Political Economy,* Vol. 98, pp. S71-S102.

Starrett, D., 1978. Market Allocations of Location Choice in a Model with Free Mobility, *Journal of Economic Theory,* Vol. 17, pp. 21-37.

Weintraub, E. Roy, 1993. "Neoclassical Economics." The Concise Encyclopedia of Economics. Library of Economics and Liberty. Retrieved December 24, 2010 from the World Wide Web: http://www.econlib.org/library/Enc1/NeoclassicalEconomics.html

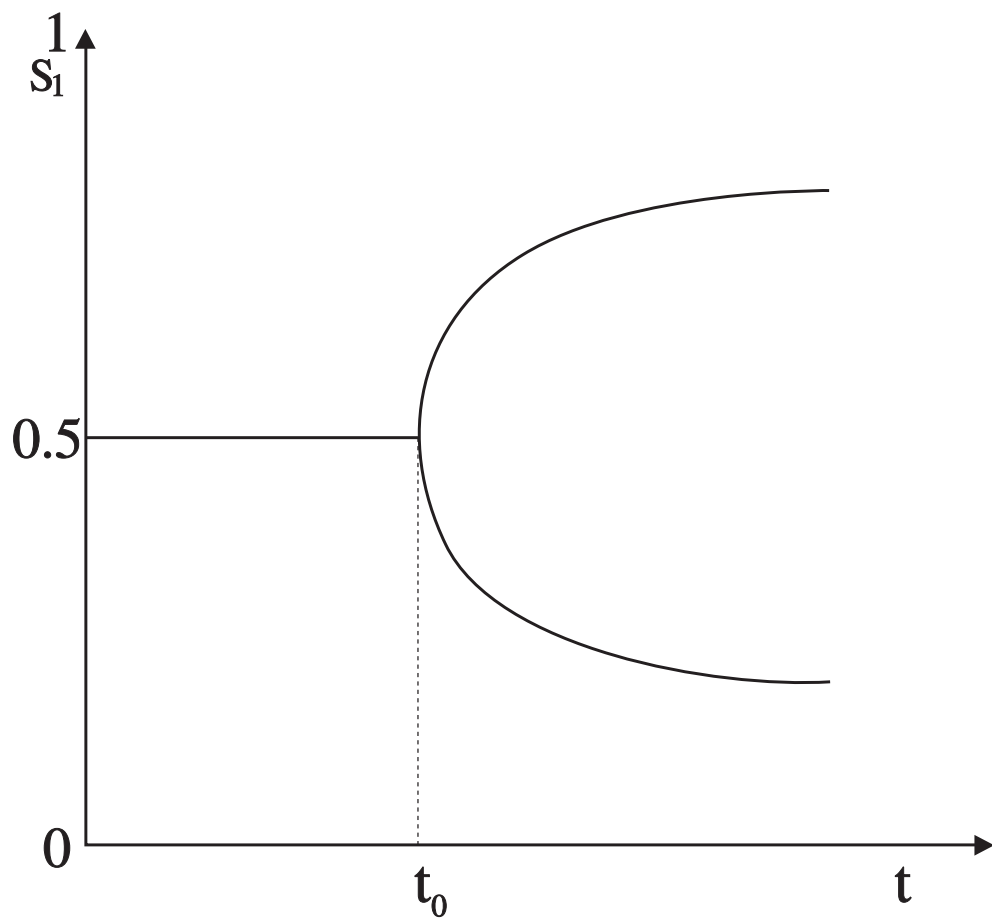Whelan, K. (2010) Policy Lessons from Ireland's Latest Depression. *Economic and Social Review,* 41, 225-254.

Figure 1: The Pitchfork Bifurcation