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**Increasing Returns,
Path Dependence and
the Study of Politics**

PAUL PIERSON

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Pierson: Increasing Returns, Path Dependence and the Study of Politics



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Jean Monnet Chair Papers

Increasing Returns, Path Dependence and the Study of Politics

PAUL PIERSON

1997

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"No decade in the history of politics, religion, technology, painting, poetry and what not ever contains its own explanation. In order to understand the religious events from 1520 to 1530, or the political events from 1790 to 1800, or the developments in painting from 1900 to 1910, you must survey a period of much wider span. Not to do so is the hallmark of dilettantism."
Joseph Schumpeter (1946)

"There simply are no logical or even methodological distinctions between the social sciences and history - appropriately conceived." Anthony Giddens (1979, p. 230)

Introduction¹

It is increasingly common for social scientists to describe political processes as “path dependent.” Although often presented without careful elaboration, the notion of path dependence is generally used to support a few key claims: that specific patterns of timing and sequence matter; that a wide range of social outcomes are often possible, and large consequences may result from relatively small and contingent events; that particular courses of action, once introduced, are often virtually difficult or impossible to reverse even if their consequences prove to be disastrous; and that consequently, political development is punctuated by critical moments or junctures which shape the basic contours of social life². All of these features stand in sharp contrast to prominent modes of argument and explanation in political science, which emphasize the prevalence of unique, predictable political outcomes, the irrelevance of small or accidental events, and the capacity of rational actors to design optimal solutions (given their resources and constraints) to the problems that confront them. If path dependence arguments are indeed appropriate in substantial areas of political life, they will shake many subfields of political analysis. This essay argues that they are.

My analysis begins by outlining, in abstract terms, the basic characteristics of increasing returns processes which are the source of path dependence. While it will be immediately apparent that these characteristics carry considerable implications for political science, a full discussion of those implications will be postponed until later in the paper. In Part II, I consider the development of path dependence arguments in the social science discipline where they have received the greatest attention: economics. This review suggests the wide sweep of potential applications, even in a field that might be expected to be

¹ Jean Monnet Visiting Professor Lecture, European University Institute. An earlier version of this paper was prepared for presentation at the American Political Science Association meetings, San Francisco, September 1996. I am very grateful to Andy Rudalevige for his extensive research assistance on this project, and to the German Marshall Foundation for financial support. I have received helpful comments on earlier versions from David Collier, Andrew Moravcsik, and Alec Stone, and have benefited from discussions at the EUI, the University of California at Berkeley, and Yale University.

² For useful discussions see Krasner 1989, Collier and Collier 1991, and Ikenberry 1994.

hostile to the idea³. More important, these economic applications provide the most analytically-developed discussions of path dependence. Economists have successfully highlighted both the aspects of a particular social environment that generate path dependence and clarified its principal implications.

This discussion of economics prepares the way for an exploration of the distinctive characteristics of *politics* (Part III). Rather than simply applying extant arguments in economics to political phenomena, we need to consider the features of the political world that require appropriate modifications in the use of path dependence claims. From this discussion I conclude that path dependence arguments are likely to be even *more* relevant to an understanding of politics than they are in other areas of the social sciences. Factors such as the greater ambiguity of political processes and outcomes, the central role of formal, change-resistant institutions, and the prominence of collective activity in politics make this a domain of social life which is particularly prone to the characteristic tendencies of path dependent processes.

In the final section of the paper I discuss what path dependence arguments can and cannot contribute to political analysis. There are important limits. For many purposes, analysts will want to continue to take historical circumstances as “givens”, analyzing how current environmental conditions produce current political outcomes. The difficulties involved in developing path dependence arguments will also mean that in many cases a sensitivity to path dependence will serve primarily a “negative” purpose - that is, as an important caution against a too easy conclusion of the inevitability, “naturalness”, or functionality of observed outcomes.

Given the ubiquity of claims about efficient or functional elements in politics, this alone would be an important corrective. Yet path dependence arguments can do more. They can direct attention toward particular variables, and generate promising hypotheses about the sources of particular political phenomena. At least as important, by stretching the temporal horizons of political analysts, they can reorient both the answers given and the questions asked in ways that contribute to a richer appreciation of the sources of variation in

³ Indeed, an additional reason for focusing on economics, the traditional homeland of equilibrium analysis, is rhetorical. Because the arguments presented here raise difficulties for those drawn to models emphasizing unique equilibria in social processes (e.g., many rational choice theorists), demonstrating the growing acceptance of “increasing returns” or path dependence arguments in economics may diminish their resistance to the analysis developed here.

political life. Finally, they can help orient political scientists to a realistic - which is to say modest - set of aspirations regarding the possibilities for achieving parsimony and predictability in the study of politics.

I. The Distinctiveness of Increasing Returns Processes

Imagine a very large urn containing two balls, one black, one red⁴. You remove one ball, and then return it to the urn, accompanied by a new ball of the same color. You repeat this process, say, until the urn fills up. What can we say about the eventual distribution of colored balls in the urn? Or about a series of trials in which we fill the urn and then start over again one hundred times?

- for each individual trial we have no idea what the eventual ratio of red to black balls will be; it could be 99.9% red, or 0.01% red, or anything in between. If we were to run 100 trials, we could easily get 100 different outcomes.

- on any individual trial, the ratio will eventually reach an equilibrium. Since later draws in a particular series contribute only minutely to the distribution of balls in the urn, the distribution settles down onto a stable path.

- sequence is thus crucial. Early draws in each trial, which have a considerable random element, have a crucial effect on which of the possible equilibria will actually emerge.

Mathematicians call this a *Polya urn process*. Its characteristic qualities stem from the fact that an element of chance (or accident) is combined with a decision rule linking current probabilities to the outcomes of preceding (partly random) sequences⁵. It is a process where history matters.

⁴ The following discussion relies heavily on Arthur 1994, which collects Arthur's ground-breaking essays on increasing returns and path dependence. When citing a particular essay from this collection, I have placed the date of original publication in brackets.

⁵ This case depicts a very specific type of path dependent process, where the probability of a particular "draw" precisely equals the ratio between the two alternatives in the existing population. Arthur (1994) has shown that many of the features of this case have a greater range of application, but not all of them.

Polya urn processes exhibit *increasing returns* or *positive feedback*. Each step along a particular path produces consequences which make that path more attractive for the next round. If such effects begin to accumulate, they generate a powerful virtuous (or vicious) cycle of self-reinforcing activity. Brian Arthur (1994) has summarized the main characteristics of increasing return dynamics as follows:

1. *Unpredictability*. Because early events have a big impact and are partly random, many outcomes may be possible. We cannot predict ahead of time which of many possible end-states will be reached.

2. *Inflexibility*. The further into the process we are, the harder it becomes to shift from one path to another. In applications to technology, a given subsidy to a particular technique will be more likely to shift the ultimate outcome if it occurs early rather than later. Sufficient movement down a particular path may eventually “lock-in” one solution⁶.

3. *Non-ergodicity*. This mouthful means that individual, accidental events do not cancel out. They cannot be treated (which is to say, ignored) as “noise.” Instead they are fed back into future choices. Small events are remembered.

4. *Potential Path-Inefficiency*. The outcome that becomes locked-in may not in fact generate higher pay-offs than a foregone alternative over the long run. In this case, the process may be called path-inefficient.

To this one can add a general point, which is that these are processes where sequencing may be critical. Early events, including “noise”, matter much more than later ones. Different sequences produce different outcomes.

In the last part of the paper, I will argue that these characteristics carry major implications for both the kinds of questions we should ask about politics, and the kinds of answers we should expect to find. Most important, they suggest the need to think of social processes, including political ones, as fundamentally historical in nature. Politics occurs in time, and political outcomes are the result of temporal processes. In searching for explanation, we need to

6 This *emerging stability* represents a critical distinction between increasing returns processes and chaotic processes which may generate *no* stable equilibrium and instead constantly change and evolve. For an interesting discussion of this quite different framework see Fearon 1996.

think about causes and effects that are often separated in time, rather than focusing exclusively on synchronic explanations (Skocpol 1992; Pierson 1996).

II. Path Dependence Arguments in Economics⁷

Economics has traditionally focused on the search for unique equilibria. The goal was attractive, because it suggested a world of potential predictability and efficiency. Given a knowledge of existing factor endowments and preferences, equilibrium analysis would point to a single optimal outcome.

Moreover, because economists assumed a context of decreasing marginal returns, this goal was potentially achievable. With decreasing returns, economic actions will engender negative feedback, leading to a predictable equilibrium. A sharp rise in oil prices leads to increased conservation, exploration, and exploitation of other sources of energy, leading to a fall in oil prices. Each step away from equilibrium is more difficult than the one before. As Arthur (1994 [1990], p.1) summarizes, negative “feedback tends to stabilize the economy because any major changes will be offset by the very reactions they generate. ... the equilibrium marks the ‘best’ outcome possible under the circumstances: the most efficient use and allocation of resources.”

During the past decade, however, this decreasing returns tradition has faced a mounting challenge. Economists have exhibited a growing interest in the idea of increasing returns. On a wide range of subjects, including the spatial location of production, the development of international trade, the causes of economic growth and the emergence of new technologies, path dependence arguments have become increasingly prevalent.

⁷ Some social scientists also have been drawn to arguments about path dependence, critical junctures, and punctuated equilibria in evolutionary biology, especially the work of Stephen J. Gould (see especially Krasner 1989; Spruyt 1994). Without denying the relevance of this literature, I find it a less useful point of departure than the economists’ focus on increasing returns. Most aspects of politics lack anything like the mechanism of natural selection which drives Darwinian theory (international relations, and certain characteristics of electoral systems constitute important exceptions). Furthermore, socially-created constructs of norms and formal institutions have no real analog in evolutionary theory. Norms and formal institutions, however, are crucial features of politics and, as we shall see, are a critical element in path dependent social processes.

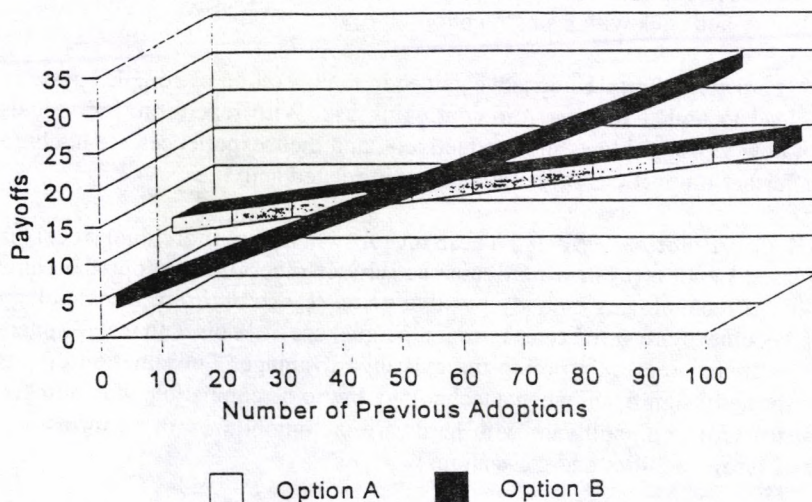
Many of the ideas developed in this research are not entirely new. The concept of increasing returns received attention in the work of Adam Smith and (especially) Alfred Marshall. In the 20th century, an underground of "institutionalist" scholarship, including figures such as Kaldor, Myrdall, and Veblen, continued to explore these issues (Kaldor 1972; Myrdal 1978; Veblen 1898). Yet in the past few years, prominent mainstream economists have embraced the idea of path dependence. Their work has received considerable attention in leading journals. Douglass North, who places great emphasis on such arguments in his analysis of the development of modern capitalism, was recently awarded the Nobel Prize for economics.

I focus first on arguments about technology, because these have provided the most fertile ground for exploring the conditions conducive to increasing returns. I then briefly discuss developments in other areas of economics to show the growing range of applications, including North's crucial contributions. Finally, I consider some recent criticisms. This discussion will provide a transition to the analysis of political phenomena developed in Sections III and IV.

Work on technological change has revealed some of the factors which promote path dependence. As Brian Arthur and Paul David have argued, under certain conditions a single technology may achieve a decisive advantage over competitors, even though it is not necessarily the most efficient one in the long-run (Arthur 1994; David 1985). Once the initial advantage is gained, however, feedback effects may lock in this technology, excluding other alternatives.

Figure 1, taken from Arthur's work, summarizes the process. Each technology improves (generates higher payoffs) as it becomes increasingly prevalent. In other words, these technologies are subject to increasing returns. Because technology B starts with lower payoffs, however, early users gravitate to technology A. This movement activates the increasing returns process, improving the performance of technology A, inducing more new users to adopt it, and widening the gap between technology A and B. Eventually technology A becomes locked in, even though technology B would have generated higher pay-offs if it had ever reached a critical threshold of usage (here, 30 users).

Figure 1: Adoption Payoffs



As in other formulations of path dependence the crucial idea here is that of *increasing returns*. If a new technology is subject to increasing returns, being the fastest out of the gate (if only for reasons of historical accident) becomes key. With increasing returns, there are strong incentives for actors to focus on a single alternative, and to continue moving down a specific path once initial steps are taken in that direction.

Crucially, Arthur has addressed not only the characteristics of path dependent processes, but the conditions which are likely to give rise to them. He offers a short list of the conditions which make a technology prone to increasing returns. Understanding these conditions is essential for the broader concerns of this paper, because as we shall see in Section III, analytically similar circumstances occur frequently in the world of politics.

Arthur argues that four features of a technology and its social context generate increasing returns:

(1) *Large set-up or fixed costs*. These create a high pay-off for further investments in a given technology. By moving to larger production runs, fixed costs can be spread over more output, leading to lower unit costs. When set-up

or fixed costs are high, individuals and organizations have a strong incentive to identify and stick with a single option.

(2) *Learning effects.* Knowledge gained in the operation of complex systems also lead to higher returns from continuing use. With repetition, individuals learn how to use products more effectively, and their experiences are likely to spur further innovations in the product or in related activities.

(3) *Coordination effects.* These occur when the individual receives increased benefits from a particular activity if others also adopt the same option. If technologies embody positive *network externalities*, a technology will become more attractive as more people use it. This enhanced appeal attracts more users, reinforcing the existing advantage. Coordination effects are especially significant when a technology has to be compatible with a linked infrastructure (e.g., software with hardware, automobiles with an infrastructure of repair facilities and gas stations).

(4) *Adaptive expectations.* Individuals may feel a need to “pick the right horse” because options that fail to win broad acceptance will have drawbacks later on. Although the dynamic here is related to the point about coordination effects above, it focuses on the self-fulfilling character of *expectations*. Projections about future aggregate use patterns lead individuals to adapt their behavior. These adaptations help to make those expectations come true.

It is a useful exercise at this stage to take a step back from the discussion of technology and recognize the broad applicability of the qualities just presented. Many social interactions have precisely these features. New social initiatives - such as the creation of organizations or institutions - usually entail considerable start-up costs; individuals, and organizations, learn by doing; we often have powerful incentives to coordinate our activities with those of other social actors; it is frequently important to bet on the right horse, and therefore we adapt our behavior in light of our expectations about the behavior of others. I wish to stress at the outset that the following discussion of technology is important primarily because it clarifies a set of relationships characteristic of many social interactions.

A number of economists have argued that the conditions which Arthur outlines have been relevant in the development of new technologies, especially those in complex, knowledge-intensive industries. Increasing returns/path dependence arguments have been applied to the development of the

“QWERTY” typewriter keyboard, the triumph of the light-water nuclear reactor in the United States, the battles between Betamax and VHS video recorders and DOS-based and Macintosh computers, early automobile designs, and competing standards for electric current⁸.

While path dependence arguments about technology are probably the best known, economists have applied similar analyses in other contexts as well. In fact, the range of such applications is striking. Both Krugman (1991) and Arthur (1994 [1990]) have pointed to the role of path dependence in the spatial location of production. Given the importance of physical proximity in many aspects of economic life, *agglomeration effects* are widespread. Initial centers of economic activity may act like a magnet, influencing the locational decisions and investments of other economic actors. Established firms attract suppliers, skilled labor, specialized financial and legal services, and appropriate physical infrastructure, which makes the particular location attractive to other firms making similar products. So do social networks, which allow for easy exchange of information and expertise. Increasing returns arguments help explain the prevalence of pockets of specialized economic activity, from Silicon Valley to the high-end textile manufacturers of Northern Italy. Indeed, as Krugman has concluded, “[i]f there is one single area of economics in which path dependence is unmistakable, it is in *economic geography* - the location of production in space. The long shadow cast by history over location is apparent at all scales, from the smallest to the largest - from the cluster of costume jewelry firms in Providence to the concentration of 60 million people in the Northeast Corridor (Krugman 1991, p. 80).”⁹

These claims closely parallel a set of arguments about international trade. In fact, trade theory was one of the first places where arguments about increasing returns gained wide acceptance. Researchers began by focusing on economic trends which appeared anomalous from the perspective of traditional trade theory - not notably, the explosion of *intra-industry* international trade after World War II (Krugman 1994). If comparative advantage results from

8 Many of these examples have been contested in turn by critics who deny the empirical claim that superior technologies lost out. Since these criticisms raise broader issues about the usefulness of path dependence arguments, I will postpone discussion until the end of this section.

9 Spatial concentration of production does not by itself demonstrate that one region was able to consolidate its position because of historical accident. Often geographic advantages (location near crucial natural resources, or transportation networks like the Great Lakes) may play a key role. In many cases, both “natural” advantages and historical accidents play a part.

“natural” features of different countries, one would expect most trade to occur between quite different countries - e.g., North-South trade of manufactured goods for raw materials. Most international trade, however, is North-North. Developed economies trade primarily with other developed countries, including extensive exchanges within particular industries. This pattern suggests a puzzling result: broadly similar countries appear to have developed highly specialized “niche” comparative advantages.

Increasing returns provided an answer to this puzzle. Knowledge-intensive sectors will be prone to positive feedback. Countries which gain a lead in a particular field, for whatever reason, are likely to consolidate that lead over time. The result is a high degree of specialization. Even countries with quite similar *initial* endowments develop quite divergent areas of economic strength. Comparative advantage is not simply given, it is often *created* by a sequence of events over time.

It is worth noting that this research on trade has been used to derive some controversial policy implications. If first-mover advantages are significant, free trade may not be an optimal policy for a country competing with countries willing to subsidize emerging sectors. Under certain (restricted) conditions, a policy of “picking winners” may make considerable economic sense (Krugman 1994; Tyson 199x). There remains considerable dispute about the significance of such opportunities for strategic intervention. Krugman, for instance, maintains that they will appear relatively infrequently - not so much because path dependence is rare, but because of the difficulty of a government identifying winners *ex ante*. Whatever the appropriate policy implications of path dependence in comparative advantage may be, however, its existence is now widely recognized in mainstream economics¹⁰.

Economists have also applied increasing returns arguments to economic change more broadly. The most prominent development in recent discussions of economic growth has centered on “endogenous growth” theory (Romer 1986; Romer 1990). Economists in the 1980s became puzzled by the existence of growth rates (notably in developed countries during the post-World War II period) that seemed far greater than what measured increases in inputs of capital and labor could explain. Romer and others argued that increasing returns associated with economic applications of knowledge could help account for the

¹⁰ As Krugman (1996, pp. 110-11) notes, in the American Economic Association’s classification system for journal articles one will now find “models of trade with increasing returns and imperfect competition” alongside the category for “conventional trade models.”

anomaly. Unlike capital and labor, many aspects of knowledge are non-rival - their use in one firm does not prevent their use in another. Thus, a single gain in knowledge can be applied in many settings, and can lead to dramatic improvements in productivity. Economic growth generates the kind of positive feedback that distinguishes increasing returns or path dependent processes.

A somewhat different analysis of growth based on increasing returns has emphasized the importance of complementarities (Milgrom and Roberts 1990; Milgrom, Quian and Roberts 1991). Various economic activities (e.g., in information technology) are often complementary to other related activities. Improvements in a core activity can thus spill over by improving related parts of the economy (lowering costs or increasing productivity). These improvements in turn may increase the attractiveness of the core activity. From their formal analysis of such a dynamic, Milgrom, Guian and Roberts derive what they call the "momentum theorem": "...once the system begins along a path of growth of the core variables, it will continue forever along that path or, more realistically, until unmodeled forces disturb the system" (Milgrom, Quian and Roberts, 1991, p. 85).

In short, economists are now applying path dependence and increasing returns arguments to a wide range of important economic phenomena, including the emergence of new technologies and product innovation, patterns of trade, the spatial location of economic actors, and the sources of economic growth itself. Perhaps most important for students of politics, however, has been Douglass North's application of path dependence arguments to issues of institutional emergence and change (North 1990a). North argues that all the features identified in investigations of increasing returns in technology can be applied to institutions as well. In contexts of complex social interdependence, new institutions will often entail high fixed or start-up costs, and involve considerable learning effects, coordination effects, and adaptive expectations. Established institutions generate powerful inducements that reinforce their own stability and further development. "In short", North concludes, "the interdependent web of an institutional matrix produces massive increasing returns" (North 1990a, p. 95).

This argument provides the core to North's sweeping reinterpretation of economic history. The central puzzle motivating North's inquiry is the limited convergence of economic performance across countries. Neo-classical theory suggests that it should be relatively easy for laggard countries to adopt the practices of high performers, and therefore we should see fairly rapid conver-

gence. But we don't. According to North, institutions, which he defines broadly to include "the rules of the game in a society or, more formally, ... the humanly devised constraints that shape human interaction" (p. 3), explain the anomaly of continued divergence in economic performance among countries over time. Once in place institutions are hard to change, and they have a tremendous impact on the possibilities for generating sustained economic growth. Individuals and organizations adapt to existing institutions. If the institutional matrix creates incentives for piracy, North observes, people will invest in becoming good pirates. Thus, where institutions fail to provide incentives to be economically productive, there is unlikely to be much economic growth.

For political scientists, North's insight is crucial for two reasons. First, he highlights the parallels between characteristics of technology and certain characteristics of social interactions. In this context, it is worth noting that Arthur's arguments about technology are not really about the technology itself but about the characteristics of a technology *in interaction with* certain qualities of related social interactions. This is a promising line of thought which will develop further in the next section. My view is that North has focused on only some of the appropriate parallels. There are other important ones.

That being said, the second reason North's argument is so useful is because he rightly emphasizes that institutional development is subject to increasing returns. It is through their role in patterns of institutional emergence, persistence, and change that path dependent social processes are most significant. Given the prominent role institutions have played in recent political science theorizing, the possible implications should be evident, but I will discuss them in more detail later in this essay.

Thus, the range of applications within economics is sweeping. The economic dialogue surrounding path dependence is the impassioned discourse of an emerging paradigm. Economists talk of "new" growth theory, "new" trade theory, and so on - all based on arguments involving increasing returns. Yet despite the prevalence of such arguments and the intellectual excitement associated with them, there is good reason to believe that the range of application should be even wider in politics than it is in economics. To understand why, it is helpful to consider the major objections to path dependence arguments that have recently surfaced in economics.

In a forceful critique, Liebowitz and Margolis (1995) have raised some tough questions about this new literature on increasing returns. They argue that there is little reason to believe that accidents matter much, or that economic systems are very likely to get locked onto courses of sub-optimal performance. Two aspects of their critique are relevant here¹¹. First, they emphasize that only “remediable” path dependence is really of theoretical significance. Second, they claim that market mechanisms insure that remediable path dependence is rare. I will take up each point in turn¹².

Following Williamson (1993), Liebowitz and Margolis distinguish remediable and non-remediable path dependence. They note two kinds of path dependence (“first degree” and “second degree”) that are non-remediable, by which they mean that there are no *feasible* improvements in the path, either now or in the past. First degree path dependence “is a simple assertion of an intertemporal relationship, with no implied claim of inefficiency” (p. 207). Everyone accepts that current events depend on prior ones, in the minimal sense that these prior events create the stock (e.g. of factors of production) which current actors must work with. It is not clear that the claim that “history matters” in this sense carries many powerful implications.

Second-degree path dependence “stipulates that intertemporal effects propagate error” (ibid). With hindsight, we wish that some other alternative had been chosen. Yet Liebowitz and Margolis are also unconvinced of the implications of second degree path dependence. If we acted as best we could with the information available at the time, the mistake was unavoidable, and we cannot reasonably describe the outcome as inefficient.

Liebowitz and Margolis argue that the only kind of path dependence with major ramifications is path dependence that is potentially remediable: “third-degree path dependence, ... /which/ supposes the feasibility, in principle, of improvements in the path ... is the only form of path dependence that conflicts with the neoclassical model of relentlessly rational behavior leading to efficient, and therefore predictable, outcomes” (ibid). This distinction between remediable and unremediable path dependence is crucial to their argument,

¹¹ Liebowitz and Margolis also develop an empirical critique of an alleged case of path dependence: VHS vs. Betamax. Elsewhere they have criticized other favored examples, such as the QWERTY keyboard (Liebowitz and Margolis 1990).

¹² Note that the Margolis/Liebowitz critique depends on *both* parts of their argument being true. The significance of path dependence for social scientists can be sustained if *either* the relevance of non-remediable path dependence or the prevalence of remediable path dependence can be sustained.

because Margolis and Liebowitz believe that instances of the more theoretically troubling, remediable kind occur very infrequently.

Is their dismissal of non-remediable path dependence convincing? As Williamson notes, for policy purposes remediability is likely to be an appropriate standard. Recognizing the existence of path dependence may not help policymakers much if they do not know how to identify it *ex ante*¹³. But if our purpose is instead to understand - perhaps *ex post* - why societies move in particular directions and the consequences of such movements, this objection loses some of its force. Indeed, since it will often be impossible *in principle* to demonstrate that an alternative course of action would have been superior (either because the meaning of superiority itself is subject to dispute or because we cannot know what improvements in an alternative technology would have occurred if another path had been followed), the remediability test seems more like a debater's point. By insisting on an impossible burden of proof, suggestions that the actual path chosen may have been problematic are simply ruled out of court by fiat.

The second part of the Margolis/Liebowitz analysis is the claim that remediable path dependence is rare. Here, their argument is straightforward. If one of two options is superior in the long-run but not in the short-run, market arrangements will generally assure the adoption of the superior path. The ability of private actors to capture the returns from long-term investments prevents bad choices. Institutions of property rights, provisions for patents, etc. facilitate the internalization of possible externalities, and market arrangements such as a plentiful supply of venture capital mean that options with low short-run pay-offs will nonetheless receive the support that they deserve. Economic actors, in short, calculate in the shadow of the future, and are thus unlikely to indulge in myopic, short-term maximizing behavior at their own long-term expense.

This argument clearly has some force¹⁴. How much, however, depends on the strength of these mechanisms for over-coming short-term thinking or free-riding. In my view, Margolis and Liebowitz are more than a little complacent about the capacity of such mechanisms to fully internalize the considerable externalities that are central to increasing returns arguments. I think it wise to

¹³ As noted before, it is precisely for this reason that Krugman questions those making broad claims about the implications of increasing returns arguments for trade policy.

¹⁴ Indeed, Arthur explicitly recognized this possibility, although as far as I know he did not systematically pursue the implications. See Arthur 1994, p. 28, fn 11.

leave this matter to economists, however¹⁵. Instead, what I would point out is that this effort to refute path dependence arguments in economics has very limited relevance for political scientists. However strong market mechanisms for “far-sightedness” may be, they are almost certainly far weaker in politics. I explain why in Section III.

III. Moving From Economics to Politics: The Applicability of Path Dependence Arguments

The application of economic methods to the study of politics has been unquestionably fruitful. In areas such as the study of party competition (Downs), the formation of interest groups and social movements (Olson) and voting and legislative behavior (Arrow), imports from economics have illuminated important features of the political landscape. The value of economists’ academic exports is greatly enhanced, however, if the political science importers take careful account of the distinctive features of the “local” environment (Moe 1990). Arguments drawn from economics must be sensitive to the quite different nature of the political world¹⁶.

This is as true for arguments about path dependence and increasing returns as it has proven to be for other kinds of analysis. Politics differs from economics in many ways. The key is to identify those aspects of the political environment which are most relevant to an investigation of the sources and consequences of path dependence. I divide this discussion into two parts. First, I consider three prominent aspects of politics which are conducive to increasing

¹⁵ Except for one observation. The Liebowitz/Margolis critique focuses on choice of technologies or products. As noted earlier, this is but one of the many ways that increasing returns arguments are invading economics. How well could their argument be extended to other increasing returns processes? As I will make clear in the next section, it has little relevance to the development of institutions, which are also subject to increasing returns. In this regard it is revealing that the Liebowitz/Margolis essay does not even cite North’s work. As North has argued, path dependent processes of institutionalization are crucial to the development of particular market economies. Here far-sighted financial markets are generally of limited help. Thus the argument developed in Section III about path dependent processes in politics is relevant for economists as well. Features of the polity - which may themselves be path dependent - determine whether the mechanisms upon which the Liebowitz/Margolis argument relies will in fact be present.

¹⁶ The following discussion is particularly indebted to Lindblom 1977, Moe 1984, Moe 1990, and North 1990b.

returns processes: (1) the extremely high density of institutions; (2) the central role of collective action; and (3) the intrinsic complexity and opacity of politics. After briefly explicating each of these characteristics, I discuss their relevance to the current discussion. *All of these features make increasing returns processes more prevalent in politics.* They increase the likelihood that multiple paths will be potentially viable.

In the second part of this discussion, I complement these claims by explaining why the ameliorative mechanisms which Williamson and Margolis and Leibowitz identify in economic systems are less effective in correcting path dependence in politics. In particular, I emphasize three characteristics of politics: the weakness or absence of efficiency-enhancing mechanisms of competition and learning; the shorter time horizons of political actors, and the greater "stickiness" of political institutions. *All of these features make increasing returns processes in politics more intense.* They increase the difficulty of moving off a path once actors have started down it.

Thus having shown in Part II that increasing returns processes are now seen as central to economics, I wish to argue here that these dynamics will be both more prevalent and more intense in politics. I begin by discussing the reasons for expecting path dependence to occur more frequently, before turning to the reasons to expect it to place more powerful constraints on the course of political development.

The Institutional Density of Politics. Many central features of political systems are *compulsory* rather than voluntary. Legally binding rules are not just a foundation for political activity (like property rights in the economy). They are instead the very essence of politics (Lindblom 1977; Moe 1990). Politics involves struggles over the power to establish, enforce, and change rules governing social action in a particular territory. Both formal institutions (such as constitutional arrangements) and public policies place extensive, legally-binding constraints on behavior.

Although unorthodox, the inclusion of public policies as well as formal institutions in this formulation is important (Pierson 1993). While policies are generally more easily altered than the constitutive rules of formal institutions, they are nevertheless extremely prominent constraining features of the political environment. Policies, grounded in law and backed by the coercive power of the state, signal to actors what has to be done, what cannot be done, and what activities will be associated with particular rewards and penalties. Most

of these policies are also remarkably durable (Rose 1990). Especially in modern societies, extensive pre-existing policies fundamentally shape the incentives and resources of political actors.

Much of politics, in other words, is based on authority rather than exchange. Established constraints apply to all - those who do not approve as well as those who do - and they are backed up, ultimately, by force. Rhetorical flourishes aside, politics rests on coercion. Thus the "exit" option will often be unavailable (or prohibitively costly) to actors who feel poorly served by existing arrangements. Institutional constraints are ubiquitous in politics.

Such institutions, of course, are subject to massive increasing returns. North's analysis, outlined in Part II, noted that institutions induce increasing returns processes that make reversals of course increasingly unattractive over time. In contexts of complex social interdependence, new institutions and policies will often generate high fixed costs, learning effects, coordination effects, and adaptive expectations. Institutions and policies may encourage individuals and organizations to develop specialized skills, make certain investments, purchase particular goods, or devote time and money to certain organizations. These activities increase the attractiveness of existing institutional arrangements relative to hypothetical alternatives. In institutionally-dense environments, initial actions push individual behavior onto paths that are hard to reverse. As social actors make commitments based on existing institutions and policies, the cost of exit from existing arrangements generally rises dramatically (Pierson 1996).

Now this is true of economic institutions as well as political ones, but *institutional density* is simply greater in politics than in economics. Sets of mandatory constraints are more central to what politics is about. Since institutions are prone to path dependence, the greater prevalence of institutions in politics means more path dependence in the political system as a whole.

The Collective Nature of Politics. Suppose you are working for a firm with an annoying boss and bad pay. You have a clear option: acting on your own, you can seek work elsewhere, either at one of a large number of other firms or by setting up business on your own. Your ability to move depends on the state of the labor market, but the existence of competitive options sets clear

limits on how annoying your boss can afford to be, and how bad the pay can get¹⁷.

Or suppose you invent a great new product. Assuming that you can get financial backing (which you should be able to do - remember, it is a great idea, and the market generates a ready supply of venture capitalists), your prospects are good. There is nothing stopping you from going in to business, or selling the idea to someone who will. Either way, the new, superior product gets to see the light of day, and you reap considerable benefits from your innovation.

The setting of consumers is similarly atomistic. In the textbook economics case, my decisions as a consumer are taken to be essentially independent of my expectations regarding the choices of other consumers¹⁸. There is no need for explicit attempts to coordinate behavior; the market simply aggregates the isolated decisions of individuals.

These highly stylized examples illustrate the flexibility, fluidity, and atomization of economic markets. Political "markets" are different. They are far from being flexible and fluid. In politics, my actions are highly dependent upon the actions of others. What I get depends not just on what I do, but (mostly) on what others do. Following Olson's path-breaking work, students of politics have long recognized the "logic of collective action." Most of the "goods" produced in politics are public goods; it is difficult to limit their consumption to those who helped provide them. As a result, individuals will have a strong tendency to free-ride. Coordinating the activity of many people - creating conditions favorable to collective action - is a principal issue in political life.

There is another reason why political action frequently requires coordination. Many of the goals which political actors pursue have a "lumpy" or "winner-take-all" quality to them (politicians, coup plotters, and lobbyists either win or lose; legislation either passes or is rejected). Unlike economic

¹⁷ I am not trying to glorify the labor market here, but merely to point out a crucial difference between politics and economics in the nature of "exit" options.

¹⁸ Although this represents a critical difference between economics and politics, one would need to make a number of important qualifications. The decisions of other consumers clearly do affect the price, supply, and quality of the goods available to me. Furthermore, much economic activity, both on the production and consumption side, involves significant externalities, which make the implications of consumption interdependent. For a good discussion of some of these complications see Hirsch 1977.

markets, where there is usually room for many firms, finishing second often does not count for much in politics. Indeed - the Menshiviks in 1917 come to mind - it can be extremely problematic. Here too, the effectiveness of my actions depends heavily on the actions of others. This is less true of some aspects of politics - such as answering an opinion poll question or voting - than others. Even in voting, however, the lumpiness of election outcomes means that if a person does not want to "waste" her vote, her actions may well turn on what she expects others to do.

Under these circumstances, actors must constantly adjust their behavior in the light of expectations of how others are likely to behave. Whether I put energy into developing a new party, or provide resources to an interest group, may depend to a considerable degree on my confidence that others will do the same. To take a more dramatic example, a protestor's willingness to join a demonstration against an oppressive regime under the watchful eyes of the security police depends heavily on her confidence that she will be joined by many others (Kuran 1991; Lohmann 1994). In short, problems of collective action abound in politics.

Collective action represents the second core feature of politics that is subject to massive increasing returns. Like institutional development, the dynamics of collective action are highly path dependent, since they involve many of the qualities conducive to increasing returns: high set-up or fixed costs, coordination effects, and a prominent role for adaptive expectations¹⁹. Thus, the kinds of incremental, micro-level adaptations that drive competitive adjustments towards efficient outcomes in the marketplace (e.g., consumers "voting with their dollars" by shifting from one product to another, or workers switching firms in search of higher wages) are likely to play a much less prominent role in politics.

Because individual adjustments in the absence of coordinated action are often ineffective in politics, change will be muted unless a "critical mass" can be generated. Creating such a critical massive generally requires some kind of coordination. Adaptive expectations are likely to be crucial. If this critical mass occurs, however, collective behavior is likely to exhibit increasing

¹⁹ Although "threshold" models of collective action are now prevalent (see Granovetter 1979; Chong 1991), I am not aware of anyone systematically applying the core elements of increasing returns arguments to collective action problems. Arguments in Mancur Olson's *The Rise and Decline of Nations* (Olson 1981), however, contain considerable similarities and could in my view easily be recast in these terms.

returns and major disruptions may take place (Baumgartner and Jones 1993). Collective action is therefore prone to unpredictability. Small events feedback into the possibilities for further activity. It is a process where history matters (Chong 1991).

The Complexity and Opacity of Politics. Economics is built in large part around the useful and plausible assumption that economic actors are good optimizers. Firms operate to maximize profits. The metric for good performance is relatively simple and transparent. Various features of the economic environment can be analyzed in terms of how they contribute to or detract from firm performance. Observable, unambiguous, and often quantifiable indicators exist for many of these features. Workers can easily obtain fairly good information on the wages and working conditions on offer from different firms. Consumers, too, are reasonably adept at navigating most aspects of the economic world. Prices send strong signals which facilitate comparisons. The quality of goods is generally evident in relatively short order, and repeated purchases allow consumers to sample alternatives and correct mistakes. Links between choices and outcomes are generally clear: I take a new job and my income rises; I buy a car and my checking account balance shrinks.

Of course, one could add many complications to this simple picture of the economic realm. My claim is not that economics is completely transparent. Rather, I wish to highlight that key features - specially the role of prices, the prevalence of repeated interactions, and the presence of relatively short causal chains between choices and results - make it relatively easy for economic actors to correct mistakes over time.

Politics is a far, far murkier environment. Politics lacks anything like the measuring rod of price, despite some reductionist efforts to make the search for votes the equivalent of the search for dollars. Political actors often pursue a range of goals. While politicians often will be focused on reelection, others (e.g., bureaucrats, interest groups) have different ambitions. Thus, it is difficult to say what an "effective" political system would look like - what it would optimize - even in theory.

It is even harder to actually identify observable aspects of political performance, or, if we believe that a system is not performing well, to determine which elements in these highly complex systems are responsible and what adjustment would lead to better results. The complexity of the goals of politics, and the loose and diffuse links between actions and outcomes, render

politics inherently ambiguous. As North has argued, "political markets are far more prone /than economic markets/ to inefficiency. The reason is straightforward. It is extraordinarily difficult to measure what is being exchanged in political markets and, in consequence to enforce agreements" (North 1990b, p. 362).

It is important to note that North is not simply arguing that political decision-making is prone to greater inefficiency. It is not just, or even primarily, that politics deals with the same issues as economics but does so less efficiently because of the way that political decisions are made. Rather, politics gets stuck with the more difficult problems. Where transaction costs are low, market mechanisms are likely to be effective, but they tend to break down when transaction costs are very high. Thus, it is complex and ambiguous issues and problems that gravitate toward the public sphere.

Even if mistakes or failures in politics are apparent, improvement through "trial-and-error" processes is difficult. Most participants in politics (voters, members of interest group) engage in activities only sporadically. Their tools of action are often crude, such as the blunt instrument of the vote, and their actions have consequences only when aggregated. There are often long lags and complex causal chains connecting these political actions to political outcomes. The result is that mistaken understandings often do not get corrected.

Instead, as North (drawing on work in both cognitive psychology and organizational theory) has argued, actors operating in a social context of high complexity and opacity are heavily biased in the way they filter information into existing "mental maps" (North 1990; Denzau and North 1994). Confirming information tends to be incorporated, while disconfirming information is filtered out. Social interpretations of complex environments like politics are themselves subject to positive feedback. The development of basic social understandings involve high start-up costs and learning effects; they are frequently shared with other social actors in ways which create network effects and adaptive expectations. Mental maps are subject to increasing returns.

North's work here converges with long-standing views of those studying political culture as well as the recent contributions of cognitive science. Once established, basic outlooks on politics, ranging from ideologies to understandings of particular aspects of governments or orientations towards political groups or parties, are generally tenacious. They are, in other words, path dependent.

There are, then, very strong reasons to believe that politics will be unusually prone to the increasing returns dynamics typical of path dependent processes. Increasing returns in fact characterize three of the most prominent features of political environments: processes of institutional development, processes of collective action, and processes of social interpretation. This conclusion should be underlined. By itself, it suggests why path dependence is a critical concept for those thinking about the sources of political stability and change. If a recognition of the significance of increasing returns is shaking up economics, political scientists have an even greater need to consider its implications. Yet there is also reason to believe that path dependence effects in politics will often be particularly intense. In the remainder of this section I consider why it will generally be more difficult to move off an existing path in politics than it would be in economics.

Economists have rarely worried about the possibilities of inefficient outcomes, because they believe the market provides two powerful mechanisms for restoring efficiency: competition and learning. Competitive pressures in a market society mean that new organizations with more efficient structures will develop, eventually replacing suboptimal organizations (Alchian 1950). Learning processes within firms can also lead to correction. According to Williamson (1993), one can rely on the "far-sighted propensity" or "rational spirit" that economics ascribes to economic actors... Once the unanticipated consequences are understood, these effects will thereafter be anticipated and the ramifications can be folded back into the organizational design. Unwanted costs will then be mitigated and unanticipated benefits will be enhanced. Better economic performance will ordinarily result. (pp. 116-17)

It is worth emphasizing that neither of these mechanisms represents a compelling protection in the increasing returns contexts explored by Arthur, North and others, because inferior options possessing initial advantages will often reinforce themselves over time. Moreover, both these corrective mechanisms are even less applicable when one shifts from Williamson's focus on firms in private markets to the world of political institutions (Moe 1984, 1990). This is clearest for mechanisms of competition. Political institutions rarely confront a dense environment of competing institutions that will instantly capitalize on inefficient performance, swooping in to carry off an institution's "customers" and drive it into bankruptcy. While models of competition may be helpful for understanding some important aspects of politics (such as international relations), there can be little doubt that political envi-

ronments are typically more permissive than economic ones (Krasner 1989; Powell and DiMaggio 1991).

The complexity and ambiguity of politics also creates problems for learning arguments. It may be appropriate in some circumstances to argue that politics involves learning processes, in which responses to public problems proceed in a trial-and-error fashion (Heclo 1974; Hall 1993). There is little reason, however, to think that this acts as a selection mechanism with anything like the efficiency-enhancing properties of market competition in economics or Darwinian natural selection in biology. As already noted, because political reality is so complex and the tasks of evaluating public performance and determining which options would be superior are so formidable, such self-correction will often be limited. The development of what North calls our "subjective models" of the political world is itself path dependent - we tend to feed back in information that confirms pre-existing views, rather than correcting them (North 1990b).

There is an additional problem in politics. Even where learning does occur, it must still be "folded back into the organizational design." Here, all the barriers to change in systems subject to increasing returns become relevant: long movement down a particular path will have increased its desirability relative to possible alternatives. Furthermore, in politics the pursuit of such change faces two additional obstacles: the short time-horizons of political actors and the strong status quo bias (i.e., stickiness) associated with the decision rules governing most political institutions. These factors will often make lock-in effects particularly intense in politics.

Time Horizons. A statement attributed to David Stockman, budget director during the Reagan administration, is unusual among political decision makers only for its candor. Asked by an adviser to consider pension reforms to combat Social Security's severe long-term financing problems, Stockman dismissed the idea out of hand, exclaiming that he had no interest in wasting "a lot of political capital on some other guy's problem in [the year] 2010" (quoted in Greider 1982, p. 43).

Many of the implications of political decisions - especially complex policy interventions or major institutional reforms - only play out in the long run. Yet political actors, especially politicians, are often most interested in the short-term consequences of their actions; long-term effects are often heavily discounted. The principal reason is the logic of electoral politics. Keynes once

noted that in the long run, we are all dead; for politicians in democratic politics, electoral death can come much faster. Because the decisions of voters, which determine political success, are taken in the short-run, elected officials employ a high discount rate. They have a strong incentive to pay attention to long-term consequences only if these become politically salient, or when they have little reason to fear short-term electoral retribution.

The absence of serious attention to this issue of discount rates, or time horizons, in politics is striking. An interesting literature is developing on "credible commitments" - the attempt of political actors to create arrangements that facilitate cooperation by lengthening time horizons. Yet we know relatively little about the time horizons of different political actors, or about the institutional arrangements that are conducive to lowering their discount rates (i.e., increasing the political relevance of the future)²⁰. Recent research suggests that particular institutional designs (such as independent central banks) empowering particular kinds of political actors (e.g., bankers) may succeed in lengthening time horizons in politics.

In general, however, there is reason to expect that such mechanisms will be less effective in politics than in economics. As noted in Part II, the market place possesses strong mechanisms for lengthening time horizons - especially the basic continuity of firms over time and the presence of capital markets. Such mechanisms in politics are generally far weaker. It is difficult to monitor political behavior over time because indicators of performance are frequently so limited. Thus it is no accident that much of the typically optimistic rational choice discussion of "credible commitments" in politics has focussed on relatively transparent *financial* issues (e.g., budget deficits, monetary policy). In these instances, performance indicators are clear and behavior easy to monitor. While these issues are clearly important, it must be stressed that for reasons already noted they are fundamentally atypical of the kinds of matters dealt with in politics. Not only is monitoring often exceptionally difficult in politics, but it is also hard to hold actors accountable, because of the relatively rapid turnover of key positions (see below). Politics, in short, lacks the characteristic property rights that facilitate the linkage of actors' decisions over time in the economic sphere. In many cases, the long term is essentially beyond the political horizon. A statesman, Bismarck said, is a politician who thinks about his grandchildren.

²⁰ For an introduction to the literature on credible commitment see North and Weingast (1989), Shepsle (1991), and North (1993).

The different natures of time horizons in politics and in economics matters a lot. This can be seen by revisiting the critique of path dependence presented in Section II. Liebowitz and Margolis properly point to the mechanisms of financial markets as a protection against "Type III" path dependence. If it is known that long-term benefits, applying a market discount rate and allowing for uncertainty, will be greater using option B, then investors should gravitate toward that option even if in the short-term it will perform more poorly than option A. Thus, they argue that market mechanisms should allow the more efficient outcome (B) in Figure 1.

In politics, however, the outcome may well be different. Assume that the crucial decision-maker is a politician up for re-election in two years. In this context, effects after the election cycle do not count for much²¹. A politician focusing on the short term pay-off would choose Option A. This is not a small point. If political decision-makers face many decisions like those outlined in Figure 1, and if their time-horizons tend to be short, we can expect movements onto less-than-optimal paths to be common. Crucially, we can also expect that once on such a path political actors will generally have little incentive to jump off of it. The costs of doing so are borne in the short-run, while the benefits will generally only accrue in the long run - hat is, to someone else.

Institutional "Stickiness" in Politics. Political arrangements are unusually hard to change. An individual with a new idea for a product need only secure the finance to put it on the market. If enough consumers (choosing independently) find it sufficiently appealing, the product will be a success. Change can be engineered through competitive success against existing products. Similarly, those with property rights over a firm are generally in a strong position to remake their organizations as they choose. Lines of authority are clear, and the relevant decision makers are likely to share the same broad goal of maximizing profits.

By contrast, key features of political life, both public policies and (especially) formal institutions are change-resistant. Policies and institutions are in fact *designed* to be difficult to overturn. There are two broad reasons why. First, those who design institutions and policies may wish to bind their

²¹ These long-term effects *will* count if an actor with longer time-horizons (such as an interest group) is able to make them relevant to politicians - e.g., through campaign contributions or votes. The question is whether such mechanisms are anywhere near as effective as the capital markets operative in the economic sphere. In my view, there are strong reasons to be skeptical of this, but it is clearly an issue deserving considerable attention.

successors. Moe terms this the problem of "political uncertainty." Unlike economic actors, political actors must anticipate that their political rivals may soon control the reins of government. To protect themselves, these actors therefore create rules that make pre-existing arrangements hard to reverse. As Moe (1990, p. 125) puts it, designers do not want 'their' agencies to fall under the control of opponents. And given the way public authority is allocated and exercised in a democracy, they often can only shut out their opponents by shutting themselves out too. In many cases, then, they purposely create structures that even they cannot control.

Political actors do not only wish to bind their successors, however. In many cases, they are also compelled to bind themselves. The key insight of the "credible commitments" literature is that actors can often do better if they can succeed in removing certain alternatives from their future menu of options. The economy of a country will grow faster, for instance, if a monarch can credibly commit himself to refrain from expropriating an excessive amount of the hard-earned wealth of his subjects (North and Weingast 1989). This can be done if he accedes to Parliamentary control over the power to tax. Stickiness is built into the design of political institutions to reduce uncertainty and enhance stability, facilitating forms of cooperation and exchange which would otherwise be impossible. Like Ulysses preparing for the Sirens, political actors often bind themselves, restricting their own freedom to serve some greater goal. To constrain themselves and others, designers create institutions that are sticky. Often, the barriers to reform are extremely high: e.g., unanimity requirements in the European Union, multiple supermajorities to alter the American constitution.

The relevant point for the current discussion is that this institutional stickiness characteristic of political systems reinforces the already considerable obstacles to movement off of an established path. Combined with the lack of competitive mechanisms, the weakness of learning processes, and the short time horizons characteristic of politics, it suggests that path dependent tendencies in political development are likely to be particularly intense. Both the prevalence and intensity of increasing returns processes in politics support the broad claim that path dependence arguments are particularly important for understanding political dynamics.

To end this section and make the discussion somewhat more concrete, let me offer a brief sketch of the recent politics of health care in the United States.

This case provides a good illustration of path dependence effects²². Discontent with the inefficiencies of the American health care system increased significantly in the late 1980s and early 1990s. By a number of basic criteria, the American health care system possessed clear shortcomings (White 1995). Costs were extremely high by international standards and were rising quickly. The number of Americans without insurance - a phenomenon essentially unknown in other developed economies - was also high and growing rapidly. In response to these challenges, the Clinton administration expended a great deal of political capital during its first two years on efforts to move towards national health insurance. Despite high initial aspirations, the administration eventually suffered a crushing defeat.

Three factors contributed to this outcome, each of which underscores the significance of the processes discussed in this essay. First, the task of convincing voters to reorient their thinking to support a major expansion of government's role in the health care sector was a very difficult one. Although voters in other countries, which have experience with national health insurance, see it as a effective vehicle for assuring access and cost containment, basic understandings of how health care systems can function are quite different in the United States. Given the complexity of health care and deep political cleavages over the role of government in the United States, there was tremendous disagreement about the appropriate policy response. Mobilization of potential supporters was therefore difficult.

A second factor was the massive array of interest groups which had gradually grown up around the existing public-private mix of health care provision - a classic illustration of the increasing returns effects associated with pre-existing public policies and the patterns of collective action they help to induce. Health care was on the verge of becoming a trillion dollar industry, and those who benefited from these arrangements devoted enormous resources to preserving the status quo.

The final factor was the stickiness of formal institutions, which increased the obstacles to reform. The Madisonian structure of the federal government created multiple veto points and supermajority requirements (60 votes in the Senate), which facilitated the efforts of health care opponents to first delay

²² On the origins and fate of the Clinton initiatives see Hacker 1996 and Skocpol 1996. The Republican initiatives are discussed in a number of the essays in Weir 1997.

reform, then erode popular support, and finally prevent efforts to bring a compromise bill to a vote in the fall of 1994 (Steinmo and Watts 1995).

Conservative critics would argue that the Clinton plan was undermined by its own unpopularity and strong anti-government sentiment, but the events following the election of 1994 illustrate similar constraints on an anti-government initiative in health care. Following their historic victory, Congressional Republicans launched a sweeping proposal to cut and reform Medicare and Medicaid as part of their push to balance the budget and finance an extensive array of tax cuts. Again, tremendous amounts of political capital were expended to generate collective action in favor of radical reform. Had these proposals succeeded, they would have considerably diminished the role of the federal government in health care. Yet the Republican proposals ran into the same two problems that had hindered the Clinton administration's effort to move health care policy onto a different path. Political interests which had grown up around the status quo (this time, those who benefited from Medicare and Medicaid) rallied in support, and sticky institutions (in this case, the Presidential veto) blocked the momentum of reform advocates. Thus even when an area of public policy is widely seen as problematic, it may be extremely difficult to engineer serious reforms if the policy has become deeply institutionalized.

Politics differs from economics in many ways. Applying tools of economic analysis to politics is treacherous, unless these differences are systematically taken into account. In the case of arguments about path dependence, attention to the character of politics suggests a striking result. The political world is unusually prone to increasing returns.

IV. Path Dependence and the Study of Politics

Let me briefly summarize the discussion so far. Where increasing returns processes are at work, the following are also likely to be true:

(1) *Multiple Equilibria*. Under a set of initial conditions conducive to path dependence, a range of outcomes - perhaps quite a wide range - are generally possible.

(2) *Contingency*. Relatively small events, if occurring at the right moment, can have large and enduring consequences. Accidents can happen.

(3) *Timing and sequencing* become crucial. In path dependent processes, *when an event occurs may be just as important as what occurs*. Because early parts of a sequence matter much more than later parts, an event that happens "too late" may have no impact, though it might have been of great consequence if the timing had been different.

(4) *Punctuated Equilibria*. Path dependence arguments generally imply that rather than exhibiting gradualism, the phenomenon under investigation may be subject to long periods of relative stability followed by brief bursts of rapid change. These brief bursts are often associated with exogenous shocks and *tipping points*. Pressures may be dormant for long periods until they build up to the point where increasing returns set in, the pace of change accelerates, and movement to widely different outcomes becomes possible.

Thus far I have emphasized two points: that there has been an explosion of interest in path dependence among economists, and that there are good reasons to think that path dependent processes are far more prevalent in politics. What are the implications for political scientists? What can an appreciation of path dependence contribute to our understanding of politics, and, equally important, what can't such an appreciation do? These are the issues which I take up, admittedly in a very preliminary way, in this final section.

One virtue of path dependence arguments is that they provide a very important corrective to functionalist tendencies in political science. Although not always explicitly stated, functionalist arguments are prevalent among political scientists. They are common, for instance, among those who emphasize the rational choices of individual actors that underlie political activity, and the reasonably efficient nature of collective responses to social needs (Keohane 1984; Shepsle 1986; Weingast and Marshall 1988).

Functionalist arguments take the following form: outcome X (an institution, for instance) exists because it serves the function Y. In a world of purposive actors, it may indeed be the case that the effects of an institution have something to do with an explanation for its emergence and persistence. Arguments about path dependence, however, suggest the large dangers in any assumption that an existing institution arose or continued to exist because it serves some particularly useful purpose. Thinking in functionalist terms about an existing

institution, policy, or social organization may be a good way to derive causal hypotheses, but functional accounts are far from being the only plausible ones. Many alternatives might have been possible, and a dynamic of increasing returns may have locked in a particular option even though it originated by accident, or the factors that gave it an original advantage have long since passed away. *Rather than assuming relative efficiency as an explanation, we have to go back and look.*

Thus an awareness of the possibility of path dependence necessarily draws social scientists to an investigation of history, if only to evaluate the validity of functionalist assertions. Yet this is merely a prelude. More broadly, path dependence arguments can help political scientists to think more clearly and explicitly about the role of time, and history, in social analysis.

At one level, all social scientists agree that "history matters." The existing conditions which influence current social outcomes came into being in some way. Those earlier processes are thus relevant to a full understanding of contemporary social events. Yet the standard argument is that for most purposes we may safely put such issues aside. Looking back leads to the familiar problem of infinite regress, with an exploration of each preceding event leading to the conclusion that some other preceding occurrence was also part of the chain of events, and so on. Social scientists, by this line of thought, need to break through the seamlessness of history somewhere, and the present is as good a place as any to do so. George Homans (1967) compared the situation of social scientists to that faced by mine-sweepers who needed to know the magnetic charge of a ship. Such a charge resulted from an infinite range of small factors accumulated over the ship's lifetime, but for practical purposes a simple expedient could be used: the current charge of the ship could be measured. If the task is to understand the ship's vulnerability, one can simply cut through the Gordian knot of historical regress²³.

This is a strong argument, and for many purposes, an appropriate one. In practice, social scientists will often have good reason to focus on synchronic causality - to try to understand how variations in current variables affect present social outcomes. Path dependence arguments, however, suggest that there will often be a number of problems with such a strategy.

²³ For a discussion of Homans's argument, see Knapp 1983.

Path dependence arguments rest on a conception of "historical causes" (Stinchcombe 1968, pp. 103-18; Ikenberry 1994), where some original ordering moment caused current patterns, and the activity is continuously reproduced even though the original event no longer occurs. While under conditions of path dependence it is true that current circumstances in some sense "cause" current outcomes, a focus on these simultaneous occurrences is highly misleading. It provides a "snapshot" explanation for what should be seen as a moving picture. In path dependent processes, the necessary and sufficient conditions for current outcomes may have occurred in the past. Reproduction of the current path is now commonplace, perhaps basically invisible or at least analytically uninteresting. The crucial object of study, the critical juncture, lies in a preceding set of events which set development along a particular path.

Path dependence arguments also direct attention to the role of timing and sequence in politics. Under conditions of path dependence, the same event (e.g., an exogenous shock such as recession or war) will often have a radically different impact depending on when in a sequence of events it occurs. In a masterful analysis, Ruth Collier and David Collier (1991) have shown how the timing of exogenous shocks in relation to domestic sequences of political events was crucial in determining divergent patterns of labor incorporation across Latin America. Steven Skowronek (1993) has persuasively argued that we cannot understand the opportunities, constraints and demands that a president faces without placing him within a sequence of presidencies that support or oppose the governing coalition of a particular period.

Indeed, the central properties of increasing returns argument provide considerable support for many of the key claims of historical institutionalist analyses in political science. Although much of this work has been essentially inductive in orientation, it has stressed the need to study temporal processes in order to explain critical political outcomes. Historical institutionalism has focused precisely on identifying critical moments in politics, distinctive developmental sequences, and the rigidities that make it difficult for social actors to escape from established paths²⁴.

Of course, recent works of historical institutionalism build on a healthy tradition of attention to history in the social sciences. Particularly for those pressing to answer critical questions about the experiences of real polities, the

²⁴ Ikenberry 1994 offers an excellent review of the literature which stresses precisely these themes.

turn to history has been common. Issues of timing, sequence, and critical junctures figure prominently in this research. Moore's work on transitions to democracy (Moore 1966) and Lipset and Rokkan's analysis of the formation of party systems (Lipset and Rokkan 1967) are two classic examples, but many others could be mentioned. Indeed, it is fair to ask whether the current investigation offers anything new - whether incorporating path dependence into the study of politics is akin to the man who discovered that he had been speaking prose all his life. Is path dependence merely a trendy name for old ideas?

Discussions of path dependence would be worth having if they did no more than focus the attention of fad-prone political scientists on the insights and continuing relevance of this earlier body of work. Yet there is every reason to believe that the concept can do more. First, understanding the dynamics of increasing returns processes can greatly sharpen our understanding of *why* particular junctures (and which aspects of those junctures) are critical and *why* timing often matters so much. While it would take a detailed literature review to document this claim, most of the work just mentioned has been rather vague on this point. The specific characteristics of positive feedback provide the key to making sense of the complex mix of stability and bursts of rapid change which characterize so many political processes. In an oft-abused but still useful phrase, attention to the character of increasing returns can help provide the *micro-foundations* which lay bare how the actions of individuals aggregate to produce fundamental, macro-level outcomes.

Second, an investigation of the sources of increasing returns processes provides a basis for developing important hypotheses about political stability and change. To repeat, Arthur's work on increasing returns is ground-breaking not simply because he described the characteristics of these processes, but because he has begun to identify the conditions which are conducive to path dependence. The major ambition of this essay, building on North's work, has been to begin the process of adapting these arguments to the study of politics. Doing so has required careful attention to the distinctive features of the political world - its intrinsic ambiguity, the prevalence of highly sticky institutions, the prominence of collective action problems, and the pervasiveness of short time-horizons. Not all aspects of political life are subject to increasing returns. Furthermore, this paper has highlighted more specific features of political environments (e.g., those that affect the time horizons of key political actors) which are likely to influence the initiation and reinforcement of increasing returns processes. In short, this is fertile territory for developing new propo-

sitions about the conditions that facilitate or impede various types of political change.

An understanding of increasing returns processes can make one final contribution to political scientists: a healthy dose of humility. Since the rise of behaviorism, many political scientists have had lofty aspirations about developing a science of politics, rooted in parsimony and generalization, and capable of great predictive power. Despite modest achievements over a period of four decades, these aspirations remain. Setbacks are shrugged off with calls for more time or more sustained application of the proper methods. Yet the inability of political scientists to generate powerful generalizations that facilitate prediction remains a puzzle. If the prevalence of increasing returns processes is indeed a distinctive feature of politics, however, then we have been looking in the wrong place for an explanation. The problem lies not in our methods, but in the character of the political world itself.

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