Confusion, Diffusion, and Innovation

ROBERT EYESTONE
University of Minnesota

In a recent article, Virginia Gray discusses the diffusion of policies in education, welfare, and civil rights among the American states.[1] Her work builds on an earlier article by Jack Walker.[2] Other recent studies, while not attempting to take sides in this interchange, have also added to our understanding of policy innovations.[3] A number of points in these articles merit comment, but in this research note I have restricted my attention to four. First, I suggest that several models of policy diffusion seem to be operating, and that there is more than one possible pattern of emulation of policy innovations. Second, I comment briefly on the problems of inferring anything useful about state politics from the study of policy innovations among the states. Third, I present a technique for identifying clusters of similar policies on the bases of their diffusion patterns, and illustrate its use with fair employment practices, civil rights, and labor legislation. Finally, I examine the history of state minimum wage legislation, showing the importance of repeals, amendments, and reinstatements in addition to initial adoptions.

[1]Virginia Gray, "Innovation in the States: A Diffusion Study," *American Political Science Review*, 67 (December 1973), 1174–1185.

[2]Jack L. Walker, "The Diffusion of Innovations Among the American States," *American Political Science Review*, 63 (September 1969), 880-899.

[3]In addition to the Gray and Walker articles, I have found the following useful: Douglas D. Rose, "National and Local Forces in State Politics: The Implications of Multi-Level Policy Analysis," *American Political Science Review*, 67 (December 1973), 1162–73; Donald C. Menzel, "Scientific and Technological Dimensions of Innovation in the American States," presented at the 1975 annual meeting of the Midwest Political Science Association; David R. Cameron, Stephanie H. Cameron, and Richard I. Hofferbert, "Non-Incrementalism in Public Policy: The Dynamics of Change," presented at the 1975 annual meeting of the Midwest Political Science Association. I wish also to thank Virginia Gray for the use of her original data, Jack Walker for some helpful suggestions, and two anonymous referees whose comments on an earlier draft have, I hope, improved this paper. I hasten to add that the "confusion" in the title is not a criticism of any of these writers, but is my impression of the collective impact of diffusion research on the unwary reader.

What is Diffusion?

Any pattern of successive adoptions of a policy innovation can be called diffusion. The interesting question, then, is how adoption decisions are made in the states. Which of several possible diffusion mechanisms is operating? Professor Gray fits the diffusion process with an interactive equation assuming complete intermingling and interchangeability of the states, and she finds significant interactive effects in six of 12 policy areas. But for those policies diffusing without interactive effects, the equation reduces to one of simple linear growth, equivalent to postulating independent adoption decisions by the several states.[4] Professor Walker, in contrast, had earlier suggested an emulative pattern with a regional component, in which states follow regional leaders.[5]

It might be tempting to see in these alternate models a choice between a "state forces" and a "national forces" explanation, or even between a "political" and a "bureaucratic" explanation. But I am afraid this is too simple. Unless we are willing to assume very powerful state bureaucracies, it must be expected that any innovation requiring legislative action would become law only if the legislature saw a need for it, over and above the suggestions of policy professionals in the state executive branch.

Or let us suppose that a problem rankles in the legislature, becoming a political liability for legislators and an issue on which they feel a clear need to act. In this instance they may emulate the policy of another state not because of expert pressure, but because the other state provides a *timely model* which may be seen as the solution to a vexing local political problem.

In the situations just described, the impetus to action is both "in-state" and "extra-state," and it is not really possible to separate the two. The existence of emulation effects certainly does not prove that any substantial extra-state forces (whether national or regional) are involved. Nor does the apparent absence of emulation effects in a given policy area deny

[4]Gray, "Innovation in the States," p. 1179.

[5]Walker, "Diffusion of Innovations," pp. 892-896.

the possible existence of individual emulators of the sort described above. Dealing as they do with policies and not with states as units, the Gray and Walker models are limited in what they can say about the motives for individual state adoptions.

Interaction effects can be, at best, only a partial explanation for policy adoptions by the states. A state's propensity to adopt a policy probably depends on three factors: some intrinsic properties of the policy, a state's politics, and emulative (interaction) effects. Of these, only the policy itself can be assumed to be invariant over time.

At the moment we do not know much about these relationships, but there are several ways we might improve our knowledge of them. If we assume that states exchange *favorable* assessments of new policies when they interact, then we can give a more precise form to the interaction concept. The initial consequence of interaction will be to hold back adoptions, but once the halfway point has been reached, interaction will stimulate adoption of the policy.[6] Thus a policy innovation which diffuses through interaction should complete its diffusion sooner than a policy diffusing without interaction effects. In the Gray article, however, the policies showing significant interactive diffusion are also the *slowest* to diffuse, as shown in Table 1. What kind of diffusion process could be operating here?

I believe there are two plausible interpretations of the data. First, many of the policies diffusing rapidly are adopted by point source diffusion, where the states respond directly to a federal government example and not to each other.[7] Such a pattern appears in the social security area especially, following the passage of the federal Social Security Act in 1935.[8] Later in this paper I will describe a case of intermediate federal involvement, where federal legislation spurred a second round of state adoptions of minimum wage laws.

Second, those policies diffusing over a long period, and showing interactive effects, may be following a kind of segmented emulation process which spreads adoptions over a number of years. In the case of regional emulation, for instance, regional leaders must adopt a policy first, only then becoming models for the other states in the region. In contrast, a completely intermixed model would allow any state to emulate any other state already having adopted a law, whether in the same region or not. It is worth noting that such a segmented model need not be regional. Similar effects could be achieved if states simply emulated "other states like us" or "other states with similar problems." Regional identity is only a special case of this pattern.[9]

The Mysteries of State Politics

If we can temporarily neglect interaction effects, or if we can find several policies where interaction appears to have been unimportant, we may be able to sketch out the relationship between adoption propensity and state political patterns. This is Jack Walker's concern when he seeks to identify and describe the policy leaders among the states.[10] But focusing on particular policies has its problems. For a given policy, the order of state adoptions will reveal something about the fit between that policy and the politics of states only if we examine a time period short enough so that state political patterns do not change much. For if a state's politics changed substantially before it adopted

[6]Gray, "Innovation in the States," pp. 1175–1176.

[7]See the expanded version of Walker's article, "Innovation in State Politics" in *Politics in the American States*, 2nd ed., Herbert Jacob and Kenneth N. Vines, eds. (Boston: Little, Brown, 1971), pp. 377-378, for a discussion of the ACIR as a national clearing house for state innovations.

[8]Gray, "Innovation in the States," pp. 1180–1181.

[9]Walker's general explanation of state emulations allows for nonregional factors. See Walker, "Diffusion of Innovations," p. 889. But the expanded version of Walker's article presents evidence showing the persistence of regional patterns of emulation. See Jacob and Vines, *Politics in the American States*, pp. 378–85. Cameron, Cameron, and Hofferbert, *Non-Incrementalism in Public Policy*, pp. 51–53, also argue for the existence of regional effects.

[10]Walker, "Diffusion of Innovations," p. 882.

Table 1. Interactive Effects and the Length of Diffusion Periods

	Diffusion Period		
	1–29 Years	30–59 Years	60 Years and Over
Significant interactive effects	1 case	2 cases	3 cases
No interactive effects	4 cases	1 case	1 case

Source: Virginia Gray, "Innovation in the States: A Diffusion Study," *American Political Science Review*, LXVII (December 1973), Tables 1 and 3, p. 1175 and p. 1179.

a policy which had been "available" for some while, the difficulty of adoption would probably have altered, and the timing of adoptions by the several states would not be a consistent guide to the relative difficulty of adopting the policy under study.

In common usage, we often imply that policies diffusing in similar time periods are themselves similar, whether or not their patterns of adoption among the states coincide. Thus we speak of the Progressive Era policies that were adopted by many states between 1910 and 1930, or the policies of the post–World War II period, from 1945 to 1960. While there may be similarities among these policies, I am taking the more cautious position that similarity should not be assumed unless the diffusion patterns of these policy groups among the states are also similar. By a parallel argument, I would not assume that a Progressive Era policy and a postwar policy were similar, even if they diffused among the states in similar sequence, because the historical periods are (unless demonstrated otherwise) too disparate.

Admittedly, any time limit will be somewhat arbitrary. But looking at the rate of major change in national politics and the rates of change in state population characteristics, I would suggest that 25 to 30 years may constitute a kind of "political generation." Within such a time period, political changes, wherever they occur, may be assumed to be relatively minor. Beyond the 30-year point, however, substantial changes may have occurred in some or all states. Thus I would argue that adoptions coming more than 30 years after the initial adoption do not provide usable evidence about the intrinsic qualities of the policy in question. Unfortunately, this limitation proves to be serious, because the diffusion period for many policy innovations is longer than 30 years. Only five of the 12 policies Professor Gray examined meet this test (see Table 1), and only one of the three policies I discuss in this paper diffused in less than 30 years.

Two strategies remain feasible. We can restrict our attention to the first 30 years of each policy, asking which states are most often in the vanguard on a number of policy innovations. Thus Jack Walker ranks the states on innovativeness across a set of 88 policies.[11] The reliability of this procedure can be increased if we are content simply to describe *the* innovators for a variety of policies, asking which states were most often the initial adopters for a group of policy innovations. But this approach may not reveal much about state politics (and hence not much about the policies under study), especially if the same few states are always first.

A second feasible strategy concentrates on policies which diffused rapidly in response to federal government initiatives. Granted that an externally stimulated innovation is different from an innovation begun among the states themselves,[12] still the emulation of a federal program is an innovative step which may often encounter strong political opposition within the states. States which adopt such policies first can legitimately claim some status as innovators.

Which Policy is Which?

Even though we may be unable to reason directly from the order of adoption to policy similarity, because diffusion periods are too long, we can still learn something about diffusion (and about policies) by comparing states' treatment of programs commonly regarded as similar. Virginia Gray examines several programs in each of three broad areas; in particular, she presents data on fair employment practices, nondiscrimination in public accommodation, and fair housing laws under the general heading of civil rights policy. The rank orders of adoption of these three programs correlate highly, but they do not correlate with the adoption ranks for the other two policy areas, nor do the rank orders of program adoption correlate *within* the other two areas (education and welfare).[13]

To interpret these correlations we must assume that specific laws "belong" in the groups to which they have been assigned. The fair employment practice legislation is particularly interesting because, prima facie, this policy could be seen as both a civil rights measure and a pro-labor action. Viewed as a labor policy, fair employment practice has affinities with "right to work" laws and possibly with job training programs, but probably not with laws encouraging labor unions or any other form of labor market restriction. Viewed as a civil rights policy, fair employment practice has clear logical similarities to open housing and other sorts of social desegregation laws, but not necessarily to voting rights and other political rights guarantees.

I would like to argue that, under the proper conditions, the correlation of the rank orders of state adoptions of any two policies can be

[11] Walker, "Diffusion of Innovations," p. 882.

[12] Gray, "Innovation in the States," pp. 1180–1181.

[13] *Ibid.*, p. 1185.

taken as a rough measure of the similarity of the *content* of the two policies. The assumption underlying this approach is that the rank ordering of state adoptions of a policy reflects the results of a series of experiments in which the proponents of the policy attempt to gain support for it in each state political system, each state having its own combination of formal structures and informal political processes. The more similar two policies are, the more similar should be a given state's response to them.

Diffusion of the two policies must begin at roughly the same time, so that interaction effects and changing state political patterns do not confound the comparison. A simple measure of the potential overlap of diffusion periods can be generated as follows: note the later of the initial adoption years for the two policies being compared; for the *previous* year count all those states which have not yet adopted either policy. Divide this number by N (the total number of states) -1 to provide a measure ranging from 0 to 1. A value of .50 might provide an arbitrary, rather lenient standard below which comparability should not be assumed.

Fortunately, the requirement of a short total diffusion period may be relaxed when comparing policies, since any changes in state politics will affect adoptions in similar fashion if the policies are themselves similar. So the logic of the comparison is this: if the two policies being compared are in fact similar and simultaneously available for diffusion, they should diffuse among the states in roughly similar order whether interaction effects are present or not. If the policies are dissimilar but available for diffusion at the same time, they should show different diffusion patterns because of state politics and possibly also because of interaction effects. If the policies are not simultaneously available for diffusion, the test cannot be interpreted, even if the rank orders of adoptions are similar.

Reducing the complexities of policies and state politics to a single metric may seem to be moving in reverse, but the approach can help to identify empirical clusters of policies and to test intuitive feelings about types of policies. Why should one want to do this? After all, the clusters so produced may very well not coincide neatly with traditional nominal policy categories. The reason, put simply, is that the *evidence* of diffusion can be used to generate clusters of policies similar in their diffusion patterns among the states, and then by examining these clusters, we can improve our understanding of the *process* of diffusion. The common elements among the policies in these clusters will presumably also be important in explaining the observed diffusion pattern. In this connection, the time constraint is introduced not so much as a control in the statistical sense (though it is this), but as a condition necessary for proper interpretation of the diffusion similarity test.

Table 2 presents data testing the speculative identification of fair employment practices legislation as a labor policy. The figures reported are Spearman's rank correlation rho, corrected for ties. Below each correlation is the measure of potential overlap of diffusion periods just described.

It is clear from the table, first, that the diffusion period for fair employment practices legislation overlaps almost completely with the diffusion periods for civil rights laws. But the overlap between fair employment practices and the supposed labor policies in the table is slight: of the three labor policies represented, only anti-injunction legislation shares even half its potential diffusion period with fair employment practices. Moreover, these two policies are probably dissimilar in their effects. Anti-injunction laws ("little Wagner Acts") are pro-union, while fair employment practices are if anything anti-union, though unions support such laws.

If fair employment practice is tentatively identified as a civil rights policy, then the three civil rights policies can be seen to share one diffusion period and the three labor policies apparently to share a different period. State labor laws are the product of the Progressive and New Deal eras, while civil rights laws have emerged only since World War II. And the civil rights policies, including fair employment practice, make a more convincing cluster (average correlation .72) than the labor policies (average correlation .45).

The cross-correlations are generally unreliable because of dissimilar diffusion periods, but the average of those meeting the minimum comparability criterion is as high (.45) as the labor policy correlations.[14] In other words, the supposed labor policies could just as convincingly be called civil rights policies on the basis of this evidence. Indeed, if the diffusion period were similar, it would be tempting to place workmen's compensation in the civil

[14]It might be thought that overlap of diffusion periods was in itself a cause of higher rank-order correlations. For these data the relationship is weak, however – for the 15 entries in Table 2, the product-moment correlation is only +.14.

Table 2. Correlations of Adoption Rank Orderings and the Overlap of Diffusion Periods (Spearman's rho corrected for ties; diffusion overlap index in parenthesis)

	Fair Employment	Public Accommodations	Fair Housing	Minimum Wage	Anti-Injunction	Workmen's Compensation
Fair employment practices	1.00 (1.00)	.77 (.94)	.73 (.96)	.44 (.43)	.43 (.53)	.60 (.02)
Desegregation of public accommodations		1.00 (1.00)	.65 (.94)	.37 (.43)	.57 (.53)	.60 (.02)
Fair housing			1.00 (1.00)	.35 (.55)	.44 (.60)	.60 (.04)
Minimum wage				1.00 (1.00)	.48 (1.00)	.49 (.77)
Anti-injunction labor laws					1.00 (1.00)	.39 (.70)
Workmen's compensation						1.00 (1.00)

Sources: Public accommodations and fair housing – data supplied by Virginia Gray. Fair employment, minimum wage, anti-injunction, workmen's compensation – U.S. Department of Labor, *Growth of Labor Law in the United States* (Washington: Government Printing Office, 1967).

rights group because its diffusion pattern is more like those of the civil rights policies than those of the other labor policies. Minimum wage and anti-injunction laws do not appear to have a home in either category.

Rough Roads to Innovation

I want to conclude with a general caveat about the study of policy innovations, and a specific explanation for the waywardness of minimum wage policies among the states. Figure 1 shows two curves, one the monotonic trend of the states[15] that have ever adopted a minimum wage law, the other a reversing trend line of states currently having such a law in effect.[16] Several processes account for the discrepancy between the two curves. Some states adopted a minimum wage law and subsequently repealed it or allowed it to lapse. Some states adopted a minimum wage law which was later struck down by a federal or state court or declared unconstitutional by the state Attorney General. Some states readopted a minimum wage law when judicial tempers changed, but others decided to do without such legislation. And in the middle of this sequence (1938) the federal Fair Labor Standards Act was passed, drawing off some of the political pressure for minimum wage legislation at the state level. Table 3 summarizes this complex pattern.

Should we now speak of the "extinction" of innovations, or the "rescission" of innovations by outside forces? It seems that some kinds of disinnovation may be as contagious as the initial pattern of adoption was. Figure 2 shows a clear tendency for innovations and disinnovations to cluster, in the years prior to the New Deal. It also shows the impact at the state level of the national political changes reflected in the New Deal, an impact which *preceded* the adoption of federal minimum wage legisla-

[15]Including Alaska, Hawaii, the District of Columbia, and Puerto Rico.

[16]Data are drawn from U.S. Department of Labor, *Growth of Labor Law in the United States* (Washington: Government Printing Office, 1967), pp. 93–97.

Table 3. Disinnovation in State Minimum Wage Legislation, 1912–1967

Law repealed		4 states
Law declared unconstitutional		10 states
	By federal court	5 states
	By state court	4 states
	By state Attorney General's opinion	1 state
Law allowed to lapse or to become technically inoperative		3 states
Total disinnovations		17 states

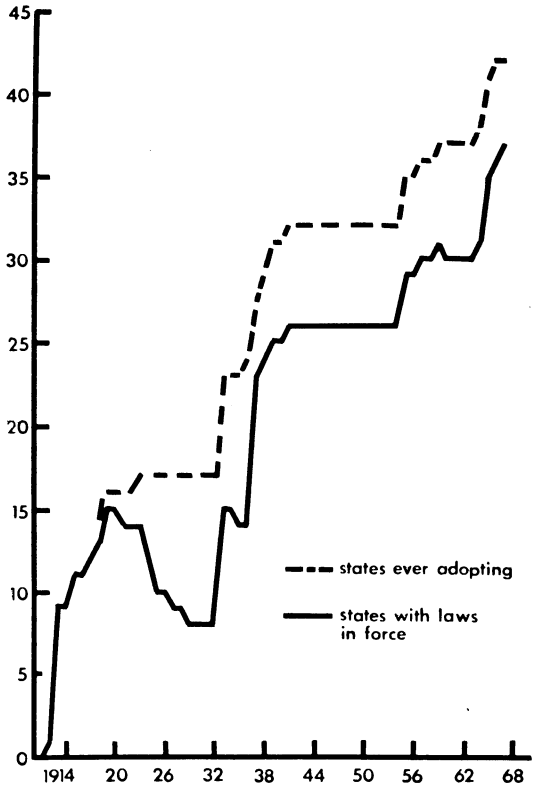

Figure 1.
State Minimum Wage Legislation

tion.[17] A total of 17 states gained effective minimum wage legislation between 1933 and 1937 – 10 by new adoptions, 3 by re-enactment of laws previously declared unconstitutional, and 4 by judicial opinions reinstating laws previously declared unconstitutional.

It might be said that the loosening of economic conservatism during the New Deal allowed the states to complete a first wave of diffusion of minimum wage laws. Another wave of adoptions began in 1955. Figure 2 also reveals a third wave of innovation, beginning in 1939 and directly patterned after the federal legislation passed in 1938. In this third wave, which would not appear at all in a simple tabulation of new minimum wage adoptions, states with minimum wage laws already on the books moved to upgrade them,[18] typically by extending coverage to men, by adding supplemental pay for overtime, or by replacing a wage board or daily minimum rate with an hourly statutory minimum wage. In each of these three areas, the federal Fair Labor Standards Act was the innovator and the states followed the federal lead. When states began again to adopt minimum wage legislation, after 1955, they emulated the new national model.[19]

Conclusions

The diffusion of policy innovations among the states is a complicated phenomenon for which several models provide partial explanations. Interactive effects can be found for a selected set of policy measures, but it is not possible to say in advance what policies are members of this set. For other policies each state is apparently on its own, though the ease or difficulty of adopting a particular policy may be altered during the policy's diffusion period by changes in state or national politics.

Some states are consistently among the leaders on a variety of policies, while others lag behind in nearly every area. Yet diffusion patterns may record the spread of necessity rather than the emulation of virtue: leaders

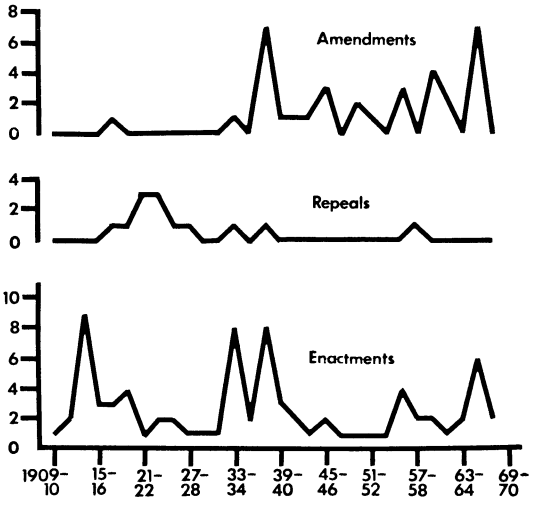

Figure 2. Components of Minimum Wage Diffusion

[17]See Rose, "National and Local Forces in State Politics" for a general discussion of the openness of states to national political influences. Cameron, Cameron, and Hofferbert, "Non-Incrementalism in Public Policy," p. 10, also support Rose's nationalization hypothesis. Menzel, "Scientific and Technological Dimensions of Innovation," p. 23, presents examples of informal federal pressure on states.

[18]Menzel generally emphasizes the possibility of innovation by nonlegislative means. Cameron, Cameron, and Hofferbert, p. 55, also argue for the importance of innovation within areas of long-established state action.

[19]U.S. Department of Labor, *Growth of Labor Law*, pp. 93–97.

may lead because they are also the first to suffer the undesirable side effects of urban and industrial growth which create demands for state policy responses.

A third model, that of state response to federal initiatives, is also prominent in some policy areas. The federal model, however, contains a mechanism qualitatively different from those of the interactive and independent decision models – i.e., the provision of positive incentives for states choosing to adopt the federal policy. Nevertheless, states may still want to review the experiences of other states before taking the plunge themselves, depending on the strength of the incentives put forward by federal agencies, and perhaps on the level of residual state resistance to federal innovations.

With all these qualifications, is it still useful to study the diffusion of innovations among the states? I think it is, for several reasons. Innovations are important in themselves, and we should know where they come from. It would also be useful to delve into the mysteries of state politics to learn more about the mechanisms of emulation.

While it might be possible to find similarities in emulation processes across a wide range of policy areas, I would prefer to look at selected individual policy areas or clusters. We do not yet know enough about policy content, I think, to risk the confusions of lumping together large numbers of policies, especially if in doing so we would be mixing representatives of several distinct diffusion models. As I have tried to show in this research note, comparison of diffusion patterns may provide a way of generating policy clusters empirically, according to their political similarity. It is arguable whether this kind of similarity is the most appropriate for the study of innovations, but I think the proposition is worth testing.