

Interstate Competition and Welfare Policy

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In 1996, the federal government terminated the Aid to Families with Dependent Children (AFDC) program and replaced it with the Temporary Assistance for Needy Families program (TANF). Many powers once held by the federal government are now being used by state governments. Will welfare assistance be redesigned and expanded or will states "race to the bottom?" This issue is investigated by examining state welfare policy choices during the latter years of AFDC (1976-1994). Because each state under AFDC had the authority to set the level of its welfare guarantee for families that had no income, it is possible to estimate the effects of interstate competition on AFDC guarantee levels. By estimating a spatial autocorrelation coefficient while controlling for theoretically relevant variables and state fixed effects, this study finds evidence that states are sensitive to the welfare policies of their competitors.

In 1996, the Congress enacted and President William J. Clinton signed into law legislation that abolished the welfare program, Aid to Families with Dependent Children (AFDC). The new Temporary Assistance for Needy Families (TANF) program that takes AFDC's place contains numerous provisions that change the relationships between the federal and state governments. On the one hand, the regulatory authority of the federal government is exercised with greater precision. In return for receiving TANF funds, states must ensure that recipients find employment within two years or otherwise be excluded from the program. No recipient may receive welfare benefits for more than a total of five years. On the other hand, states are given more discretion than previously to design and administer the program. For example, states have considerable discretion over eligibility requirements and child-care policies.

One of the most important changes involves the cost-sharing arrangements between the states and the federal government. Under AFDC, the federal government matched state grants. If state costs climbed, so did

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federal costs. If state benefits declined in number or size, savings accrued to both the state and federal governments. In many states, the match was divided equally between the two tiers of government. If state incomes were low, the federal share was higher—in the most extreme case, over 80 percent of the total. Under TANF, the federal government provides a lump-sum grant to the state pegged to the cost of AFDC in 1994 and 1995.¹ Any cost-savings accrue solely to the benefit of state governments, and any cost increments are borne entirely by the states.

Because of this shift in financial arrangements, some critics of TANF have predicted that states, under the new law, will “race to the bottom.”² They argue that each state will feel pressured to cut its benefits for fear of having to bear the full cost of transfers given to recipients fleeing low-benefit programs in other states. The fact that each state must pay the full marginal cost of its welfare programs but also may enjoy the full marginal benefit from any savings intensifies the pressure on states to “race to the bottom.”

Yet it is by no means certain that such a race will occur as each state’s own economic and political characteristics help to shape its welfare policies. Moreover, states are required under the law to spend at least 75 percent as much as they did on welfare assistance in 1994 or face financial penalties.³ However, the 75 percent rule does not adjust with inflation and can be fulfilled by a wide range of welfare-related expenditures.

Not enough time has elapsed to permit an empirical investigation of the long-term consequences of TANF. It is possible, however, to examine empirically the extent to which states were sensitive to the policies of their neighbors even in the days of AFDC. Despite the fact that the federal government provided a matching grant and established some of the broad parameters for AFDC, states had considerable discretion over eligibility requirements and, most notably, benefit levels. This article seeks to shed some light on the likelihood of a “race to the bottom” under TANF by estimating the extent to which competitive factors influenced state AFDC policy. In particular, we examine the effect of competitive relationships among the states on their welfare-benefit levels. The period under investigation is between 1976 and 1994.

¹The Urban Institute, *A Comparison of Selected Key Provisions of the Welfare Reform Reconciliation Act of 1996 with Current Law* (Washington, D.C.: The Urban Institute, 1998). States can shift up to 30 percent of their block grant to pay for child care, social services, and child protection.

²Paul E. Peterson, “Devolution’s Price,” *Yale Law and Policy Review/Yale Journal on Regulation: Symposium: Constructing a New Federalism* (Special Issue 1996): 111-121.

³States must spend 80 percent of their 1994 expenditures if they do not meet federal work requirements for TANF recipients.

INTERSTATE COMPETITION

Most studies of state welfare policymaking have focused on factors internal to a state. They have found that wealthier states offer more generous support to the disadvantaged than do less affluent states.⁴ States with conservative political traditions and those governed by conservative political leaders are likely to have more stringent policies.⁵ Welfare benefits are also greater if the transfer goes to groups thought to be relatively deserving.⁶ These studies have illuminated our understanding of state welfare policymaking, but they typically have not considered whether external factors also influence policy. Instead, they implicitly assume that each state is an autonomous political and economic system that acts independently of decisions made outside its boundaries.⁷

Studies of policy diffusion have considered the impact of external factors on state policymaking. Diffusion theory tends to focus on policy innovation, a "program or policy which is new to [the state] adopting it."⁸ Innovations are then said to diffuse across the nation as other states follow the moves of policy leaders. The theory tends to rely on an informational model of policy adoption. Studies have found that larger, wealthier states

⁴Robert D. Brown, "Party Cleavages and Welfare Effort in the American States," *American Political Science Review* 46 (March 1995): 23-33; Thomas Dye, Party and Policy in the States, *Journal of Politics* 89 (November 1984): 1097-1116; Thomas Dye, *Competitive Federalism: Competition Among Governments* (Lexington, MA: D.C. Heath, 1990); Brian Fry and Richard Winters, "The Politics of Redistribution," *American Political Science Review* 64 (June 1970): 508-522; Colleen M. Grogan, "Political-Economic Factors Influencing State Medicaid Policy," *Political Research Quarterly* 79 (September 1994): 589-622; Robert D. Plotnick and Richard F. Winters, "A Politico-Economic Theory of Redistribution," *American Political Science Review* 18 (June 1985): 458-473; Robert D. Plotnick and Richard F. Winters, "Party, Political Liberalism, and Redistribution," *American Politics Quarterly* 18 (October 1990): 430-458; Jack Tweedie, "Resources Rather Than Needs: A State-Centered Model of Welfare Policymaking," *American Journal of Political Science* 38 (August 1994): 651-672.

⁵Brown, "Party Cleavages"; Richard E. Dawson and James A. Robinson, "Inter-party Competition, Economic Variables, and Welfare Policies in the American States," *Journal of Politics* 25 (May 1963): 265-289; Robert S. Erikson, Gerald C. Wright, and John P. McIver, "Political Parties, Public Opinion, and State Policy in the United States," *American Political Science Review* 83 (September 1989): 729-750; James C. Garand, "Partisan Change and Shifting Expenditure Priorities in the American States 1945-1978," *American Politics Quarterly* 13 (October 1985): 355-391; Edward T. Jennings, "Competition, Constituencies, and Welfare Policies in American States," *American Political Science Review* 73 (June 1979): 414-429; V. O. Key, *Southern Politics in the State and Nation* (New York: Knopf, 1949); David Lowery, Thomas Konda, and James Garand, "Spending in the States: A Test of Six Models," *Western Political Quarterly* 37 (March 1984): 48-66; Tweedie, "Resources Rather Than Needs"; Gerald C. Wright, Robert S. Erikson, and John P. McIver, "Measuring State Partisanship and Ideology with Survey Data," *Journal of Politics* 47 (May 1985): 469-489.

⁶Steven G. Craig and Robert P. Inman, "Federal Aid and Public Education: An Empirical Look at the New Fiscal Federalism," *Review of Economics and Statistics* 64 (November 1982): 541-552; Plotnick and Winters, "Party, Political Liberalism, and Redistribution"; Richard Winters, "Party Control and Policy Change," *American Journal of Political Science* 20 (November 1976): 597-636.

⁷See Edward M. Gramlich, "An Econometric Examination of the New Federalism," *Brookings Papers on Economic Activity* 2 (1992): 327-360; Paul E. Peterson and Mark C. Rom, *Welfare Magnets: A New Case for a National Standard* (Washington, D.C.: The Brookings Institution, 1990); Tweedie, "Resources Rather Than Needs," 1994.

⁸Jack L. Walker, Jr., "The Diffusion of Innovations in the American States," *American Political Science Review* 63 (September 1969): 880-899; Robert L. Savage, ed., "Policy Diffusion in a Federal System," *Publius: The Journal of Federalism* 15 (Fall 1985): Special Issue.

tend to innovate and that states innovate when under fiscal stress.⁹ These findings are generally interpreted to imply that states learn from their neighbors what does and does not work. They lend support to Justice Louis Brandeis' characterization of states as "laboratories of democracy."

The competitive model of interstate relationships suggested by the phrase, "race to the bottom," has a sharper edge. It implies that states compete with one another, that states may pay a penalty if they do not attend to the decisions taken by their neighbor, and that more than just information is at work. The competitive model also implies that states, when making decisions, may not be deciding autonomously whether or not to adopt policies enacted elsewhere. On the contrary, the fact that these policies have been adopted elsewhere compels the state's attention. The competitive model also has more general application than diffusion theory. It applies not just to new proposals but to any policies pursued by other states, whether these are marginal changes in existing laws or breathtaking new adventures.

Drawn from the economic theory of the firm, which assumes that profit-seeking, competitive firms compete to meet consumer preferences, the competitive model of state decisionmaking assumes that each state tries to attract firms, labor, and capital.¹⁰ This competition can create a race among the states to promulgate the policies best designed to create the most hospitable business climate. States differ in their strategies for promoting economic development. Some place the greatest emphasis on developing their infrastructure, educating citizens, and offering enhanced cultural and environmental amenities. Others may try to develop economically by cutting taxes, lifting restrictions on business, restraining unions, and facilitating access to a low-cost labor force. Of course, states need not adopt either strategy exclusively; most states probably use some combination of all these techniques. The emphasis often depends upon a state's comparative advantages as well as its political situation. Strategies very likely vary over time, with the more restrictive strategies gaining in popularity during times of economic downturn.

Still, very few states are likely to promote among their competitive strategies the enactment of redistributive policies that transfer wealth from the taxpaying rich to the dependent poor. Some of this reluctance is no doubt due to the relative power of the affluent in state politics. But it is not just a matter of the political struggle internal to the state. In addition, states are likely to be concerned about the "adverse-selection" problem well known to insurance companies, the tendency of insurance programs to recruit

⁹Virginia Gray, "Innovations in the States: A Diffusion Study," *American Political Science Review* 67 (December 1973): 1174-1193; Frances Stokes Berry and William D. Berry, "State Lottery Adoptions as Policy Innovations: An Event History Analysis," *American Political Science Review* 84 (June 1990): 395-416.

¹⁰Peter K. Eisinger, *The Rise of the Entrepreneurial State: State and Local Economic Development Policy in the United States* (Madison, WI: University of Wisconsin Press, 1988); Dye, *Competitive Federalism*, Paul E. Peterson, *City Limits* (Chicago: University of Chicago, 1981); Peterson, *The Price of Federalism* (Washington, D.C.: The Brookings Institution, 1995).

disproportionately from among those most likely to make use of the insurance.¹¹

Similarly, states offering relatively high welfare benefits may disproportionately recruit a welfare-dependent population. Consider, for example, welfare and tax policies in two states. State A offers low taxes and little welfare; State B offers higher welfare benefits but, to cover the cost, imposes higher taxes. Given that individuals know in advance of moving to a state whether they are more likely to pay taxes or seek welfare, they may take state policies into account in making their residential choices. If so, State A will disproportionately recruit taxpayers, State B will recruit welfare recipients. Because most states would rather have taxpayers than welfare recipients, State B will suffer from adverse selection. Unlike the private sector, where adverse selection can lead to bankruptcy, no such dire consequences are likely to occur for states—at least in the intermediate run. Yet the potential for adverse selection can be expected to influence political debate and policy choice.

Aid to Families with Dependent Children

Although the debate over the potential effects of adverse selection on state welfare policy intensified during the time TANF was being enacted, the issue has long been a part of the welfare debate. The AFDC program itself was an intergovernmental program in which federal and state governments shared responsibility for its design, financing, and administration. Although costs were shared, states not only set many of the eligibility criteria; they also exercised full control over the benefit levels guaranteed to families who had no other sources of income. As a result, a state's welfare or AFDC guarantee, that is, the maximum amount that could be given to a family of a particular size, has provided the analyst one of the best measures of a state's AFDC policy because it constituted a specific state policy choice unaffected by federal recipient characteristics.¹²

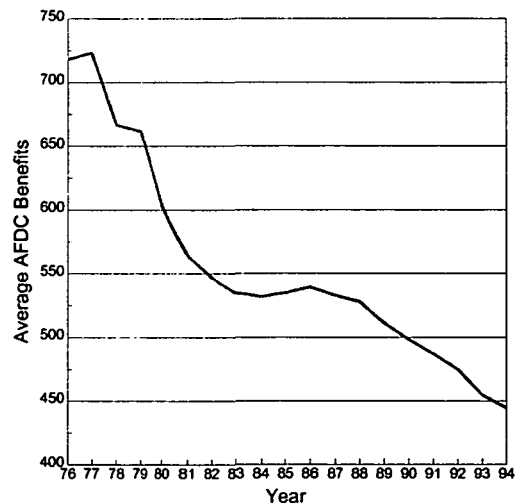
At one time, many states could set a guarantee without worrying much about adverse selection, because they denied benefits to newcomers until they had established residency for a twelve-month period. But in 1969 the U.S. Supreme Court declared such restrictions unconstitutional, creating the potential for adverse selections for states with high AFDC guarantees. Because some state policymakers became concerned about their state becoming a welfare magnet, the possibility arose that a vicious cycle might develop in which states in general might feel it necessary to reduce their benefits.

¹¹Adverse selection is a standard topic in information economics. See, for example, David M. Kreps, *A Course in Microeconomic Theory* (Princeton, NJ: Princeton University Press, 1990).

¹²Plotnick and Winters, "Party, Political Liberalism, and Redistribution."

At about the same time that the U.S. Supreme Court ruled unconstitutional restrictions on the provision of welfare to newcomers, AFDC experienced numerous other changes. The Congress expanded the Medicaid program and instituted a food stamp program, both of which were made available to welfare recipients. The courts required that states follow less restrictive administrative procedures.¹³ The percentage of children living in single-parent families increased, leading to greater numbers of eligible recipients. The welfare stigma was reduced by nationwide campaigns to encourage those eligible to apply.¹⁴ By the mid-1970s, the AFDC program had aged into its mature phase, a time when welfare rolls were climbing but the welfare guarantee stagnated and began to fall (Figure 1).

Figure 1
Average AFDC Benefit Guarantee^a
1976-1994



^aAverage AFDC monthly guarantee for a four-person family with no additional sources of income in 1994 dollars.

¹³Shep Melnick, *Between the Lines* (Washington, D.C.: The Brookings Institution, 1994).

¹⁴Frances Fox Piven and Richard A. Cloward, *Regulating the Poor: The Functions of Public Welfare* (New York: Pantheon, 1971).

The decline in benefit levels evoked the compelling metaphor, “race to the bottom,” which gained a good deal of currency in the popular media as well as in academic and policy circles. Taken literally, it seems to mean that states will rush to be the first to eliminate all their welfare programs so as to force poor people to seek their fortune elsewhere. But serious analysts, even when using the phrase, doubt that such extreme consequences are likely, even under the more permissive TANF legislation.¹⁵ In most cases, the phrase is meant to suggest that many states, when seeing others cut welfare benefits, will feel compelled to move in a similar direction, simply to avoid attracting recipients and repelling taxpayers. Put more simply, states, when setting welfare policies, can be expected to be marching not only to their own drum but also to that of their competitors.

It has been argued that no race to the bottom can be detected empirically because variation in state AFDC policy has not significantly declined over the years. For example, the coefficient of variation was the same in 1994 as it had been in 1976 (in both years, 0.33). Some may conclude from this that there is no evidence that there are external pressures encouraging state welfare policies to converge—toward the bottom or any other point. But this finding is open to other interpretations. Convergence may be one factor shaping welfare policy, but other equally potent factors—economic, political, and demographic characteristics as well as random shocks—may work in an opposite direction. In fact, the stability of the coefficient of variation may indicate that there is a range beyond which state welfare policies are unlikely to diverge. However many states may respond to internal forces, policymaker sensitivity to the decisions made by competing states may constrain states to remain within certain bounds. A test of the “race among the states” hypothesis requires a more exact test than a glance at the value of the coefficient of variation.

It has also been claimed that a race is unlikely, inasmuch as there is only modest evidence of adverse selection under the AFDC program. More generous states are, at most, only moderately magnetic.¹⁶ But modest magnetic effects under the AFDC program may be the most likely outcome if policymakers are sensitive to benefit levels in other states. Actual policy differences may be kept within a range that does not generate substantial welfare-induced migration. Moreover, political leaders may perceive or anticipate a welfare magnet when social scientists are unable to detect one with certainty.

¹⁵ States do not have an unlimited opportunity to race, because they must maintain their expenditures at 75 percent of their 1994 spending levels. However, these expenditures may be used to pay for a broad array of welfare services, some of which may have been paid for previously out of state funds.

¹⁶ Moderate magnetic effects are reported by Edward M. Gramlich and Deborah S. Laren, “Migration and Income Redistribution Responsibilities,” *Journal of Human Resources* 19 (Fall 1983): 489-511; Rebecca M. Blank, “The Impact of State Economic Differentials on Household Welfare and Labor Force Behavior,” *Journal of Public Economics* 28 (October 1985): 25-58; Peterson and Rom, *Welfare Magnets*.

Finally, the "race to the bottom" metaphor has been criticized for implicitly extolling generous welfare programs.¹⁷ Unless one favors an expansive welfare policy, one could just as easily refer to welfare cuts as constituting a race to the "top," not the "bottom." Because we do not intend in this essay to give any ideological loading to the concept, we shall, in the remainder of this essay, refer neither to bottom or top, but simply to the race among the states or, more exactly, to the sensitivity of states to the welfare policies of their competitors.

Previous research has provided some evidence that competitive pressures depress welfare benefits. For example, Peterson and Rom show that, between 1970 and 1985, high-benefit states reduced their maximum benefits by more on average than did the low-benefit states, other factors held constant.¹⁸ In addition, they found that states with higher and more rapidly increasing poverty rates reduced annual welfare benefits more than states with lower and decreasing poverty rates. Other scholars have also reported that states set their AFDC benefits in response to those of their neighbors; for instance, Jack Tweedie reports that, between 1971 and 1987, states with benefit guarantees higher than their neighbors experienced relatively greater reductions in these guarantees.¹⁹

These studies are not without their limitations. For example, Peterson and Rom do not actually estimate the effects of neighboring states on benefit levels. Their study, rather, highlights the differences in policy changes of high-benefit and low-benefit states from 1970 to 1985. Although Tweedie does include a measure of relative benefits in his model, his statistical techniques are vulnerable to certain challenges.²⁰

THE TEMPORAL AND SPATIAL DISTRIBUTION OF WELFARE BENEFITS

The dependent variable in this study is the AFDC guarantee or maximum monthly benefit for a family of four adjusted for differences in cost of living over time.²¹ Figure 1 presents the national mean of the real AFDC monthly guarantee from 1976 to 1994. In 1976, the mean benefit was equal to \$718

¹⁷During the debates over welfare policy in October 1995, Robert Rechter of the Heritage Foundation made this point in a conversation with Mark Rom.

¹⁸They estimate that after 1970, a state with high AFDC benefit levels relative to other states reduced (over a five-year period) their annual benefits for a family of four by over \$1,200 more than states with low benefit levels. Peterson and Rom, *Welfare Magnets*.

¹⁹Tweedie, "Resources Rather Than Needs."

²⁰Anselin has demonstrated that the estimators produced by ordinary least squares (OLS) are logically and statistically inconsistent when used in spatially correlated models. Luc Anselin, *Spatial Econometrics: Methods and Models*, (Dordrecht: Kluwer Academic Publishers, 1988).

²¹Tweedie points out that using the constant dollar measure presumes that policymakers think of benefits in terms of constant dollars. He argues for using nominal figures and then using inflation as an explanatory variable. Tweedie, "Resources Rather Than Needs." We have used constant dollars because we believe that it is reasonable to assume that policymakers are aware of the real value of benefits when they decide to raise or not to raise benefits. If nominal benefits are used as the dependent variable, and the CPI is introduced as an independent variable, r , the indicator of interstate competition, is estimated to be 0.15. This coefficient is statistically significant at the .05 level.

with a standard deviation of \$236. In nineteen years, real benefits fell to a mean of \$445 with a standard deviation of \$148. This decline is consistent with the hypothesis that states act competitively in setting welfare benefits; interstate competition may be leading states to cut real benefits over time. However, this decline might also be due to slow rates of economic growth, increasing conservatism among the electorate, and the possibility that policymakers view Medicaid and Food Stamp benefits (which grew during this period) as substitutes for AFDC.²²

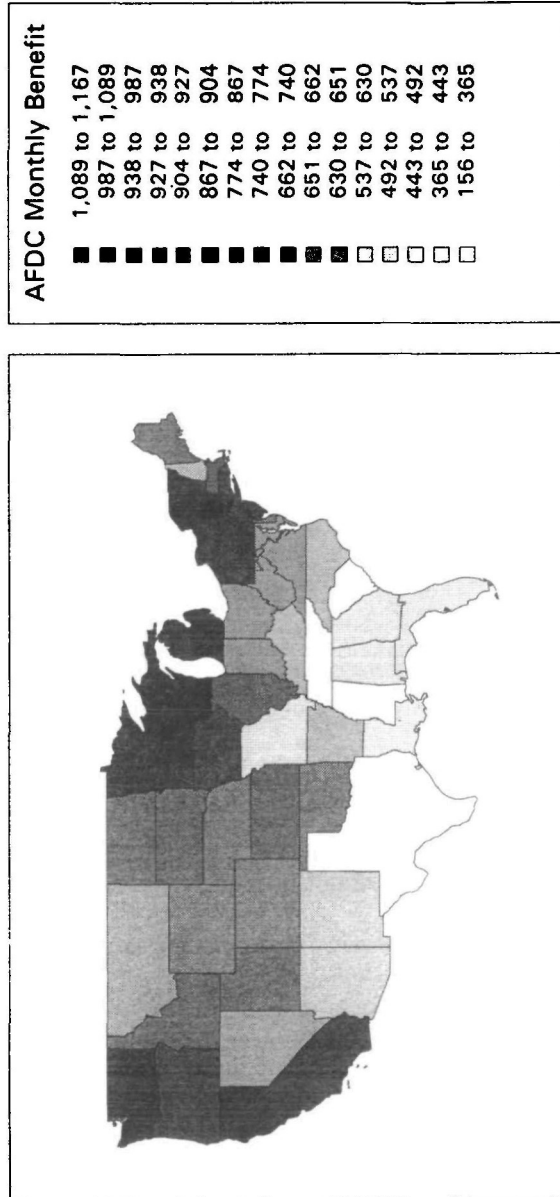
Figure 2 and Figure 3 present maps of AFDC benefits for 1976 and 1994. Each map divides the states into sixteen categories, with three or so states per category. The most generous states are shaded black while the least generous states are almost white. The goal of the maps is to show differences among the states in each year; consequently, the categories are not comparable between 1976 and 1994. Note also that the categories in 1994 reflect the generally lower level of benefits in comparison to 1976.

Note also that the maps in Figure 2 and Figure 3 reveal spatial clustering in AFDC benefit levels. Examining the map for 1976, we observe three separate clusters of high-guarantee states: the West coast states; a group consisting of Wisconsin, Minnesota, Michigan, and Iowa; and a few states in the Mid-Atlantic region. Note also the clusters of low-benefit states in the South and bands of middle-benefit states in the Mountain and Plains regions. The 1994 map does not appear to exhibit significantly different patterns of benefits. Although the guarantee is generally lower in all states in 1994 than in 1976, the clusters of high, low, and average benefit states are remarkably similar.

The existence of these clusters is consistent with the hypothesis that states are sensitive to the benefits of their neighbors. Few states appear to allow their welfare policies to diverge significantly from those of surrounding states. These patterns in the AFDC guarantee, however, may have other explanations than the sensitivity of states to their neighbors' policies. The economic, demographic, and political determinants of welfare benefits may be distributed in the same patterns as the AFDC guarantee. Consequently, we need to establish that the apparent spatial relationships exist controlling for the other major determinants of welfare policy. In the next section, we develop a model of state welfare policymaking to examine more systematically the spatial relationships observed in the maps presented in Figure 2 and Figure 3.

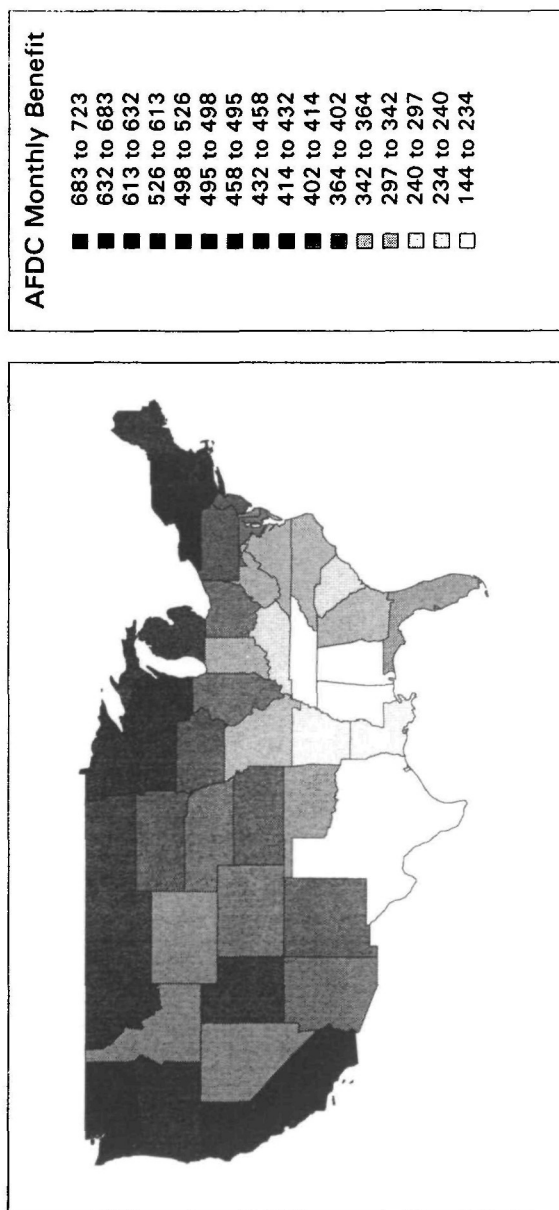
²²Robert Moffitt, "Has State Redistribution Policy Grown More Conservative?" Working Paper 88-5, (Brown University and National Bureau of Economic Research, 1988); Peterson, *The Price of Federalism*.

Figure 2
1976 AFDC Benefits*



*AFDC monthly guarantee for a four-person family with no additional sources of income in 1994 dollars.

Figure 3
1994 AFDC Benefits*



*AFDC monthly guarantee for a four-person family with no additional sources of income in 1994 dollars.

ESTIMATING COMPETITIVE EFFECTS ON WELFARE POLICY

In this section, we construct a model of the determinants of the AFDC guarantee to help learn more precisely whether states respond to the policy decisions of their neighbors. The model is informed by both our discussion above of the potential for strategic state behavior and by earlier research that has identified important economic, demographic, and political factors that influence state redistributive policy choices. Descriptive statistics and sources for all variables used in the analysis are given in Table 1.

Table 1
Description of Variables, 1976-1994

Variable	Description	Mean	Standard deviation
AFDC benefits	AFDC monthly guarantee for a four-person family with no additional sources of income in 1994 dollars	\$556	\$208
Income	Real per capita state personal income	\$18,788	\$3,195
Poverty	State poverty rate (percent)	11.6	3.9
Democratic strength	Strength of Democratic control of state political institutions Let Governor = 100 if governor is a Democrat, 0 otherwise Democratic Strength = (Governor + Percent Democrats in House + Percent Democrats in Senate) / 3	61.0	22.0
Recipient ethnicity	Percentage of AFDC families headed by an African American (percent)	33.3	26.7
Matching rate	Federal matching rate (percent)	60.5	8.6

Main Hypothesis: State Policymakers Respond to the Welfare Policy Choices of Their Competitors.

To test this proposition, we estimate the effect on a state's guarantee of the average welfare guarantee of those states that border it. This estimate is based on the simple but intuitive assumption that state policymakers are more sensitive to events in their immediate vicinity than to events in more distant locations, all other things being equal. This assumption is rooted in powerful sociological and geographical theories, supported by numerous research findings, that demonstrate individual and system responsiveness

to factors in their immediate neighborhood.²³ It also provides a simple, clear criterion for identifying a state's most likely competitors. Alternative ways of estimating competitive effects on state policymaking require more complex assumptions or suffer from endogenous problems. For example, it could be assumed that the guarantees of larger states influence those of smaller ones, but is it really more likely that California's benefit levels have a larger impact on Connecticut's policies than do Massachusetts' policies? And what are we to make of anecdotal claims that Arkansas's welfare benefits affect Illinois's? Alternatively, it could be assumed that a state is particularly sensitive to the policies of those states from which poor people are migrating. But inasmuch as migration could be a function of differences in benefit levels, migration rates are endogenous.

It might also be assumed that, no matter how distant, some states are leaders, others are followers. Welfare policies in Wisconsin, Michigan, Mississippi, and Texas have all received national press coverage. Perhaps decisions in these places are affecting changes elsewhere. Much of the diffusion literature on state policymaking emphasizes that some states tend to be innovators, others laggards. It might very well be the case that certain innovations that tie welfare benefits to recipient behaviors, such as "learnfare," "workfare," and "bridefare," have diffused from innovative states to other parts of the country. However, it is difficult to apply such a model to an analysis of the determinants of welfare guarantees for the simple reason that every state has a welfare guarantee, making it impossible to identify a state that was the first to act. Instead, one would have to rely on news accounts, expert opinions, or subjective assessments to determine the trendsetters.

We do not reject the possibility that alternative specifications of a competitive model might yield even more compelling results than those reported here. But as a first cut at estimating the effects of competition on state policymaking, it seems preferable to begin with the simple but powerful assumption that states are the most sensitive to the policies of their immediate neighbors.

To test the main hypothesis, we shall control for other factors affecting welfare benefits, as identified by previous research. These variables include state per capita income, state poverty levels, partisan control of state institutions, the size of the federal matching grant, the percentage of welfare recipients who are African Americans, and factors particular to specific states, as estimated using a fixed effects model.

²³For an excellent review of a portion of this literature, see Christopher Jencks and Susan E. Mayer, "The Social Consequences of Growing Up in a Poor Neighborhood," *Inner City Poverty in The United States*, eds., Laurence E. Lynn, Jr. and Michael G. H. McCreary (Washington, D.C.: National Academy Press, 1990).

We do not interpret the results for the other independent variables because they are highly correlated and mutually dependent. As a result, the estimates of their coefficients are imprecise. Still, by controlling for these variables, we can provide unbiased and efficient estimates of the impact of interstate competition on welfare benefit levels.

Per Capita Income. Research has shown that states whose residents have higher incomes are more likely to offer higher welfare benefits than their less affluent peers. We measure affluence by the constant-dollar per capita income of state residents.²⁴ Although it is important to control for per capita income in a model estimating competitive effects, one may not use the results reported here as providing an accurate estimate of the specific effects of per capita income. The estimations also include a measure of partisan control, which itself could be a function of a state's per capita income. If so, its inclusion in the model may be masking some of the effects of income. Also, the estimations include poverty rates, which are highly correlated with income and, indeed, are an alternative way of measuring income.

Matching Grant. Under AFDC, the amount of matching funds that a state received from the federal government was in part a function of a state's per capita income. Although all states received from the federal government at least half the amount they paid out to recipients, states with low per capita incomes received a higher percentage, with the lowest-income states receiving more than an 80 percent rebate from the federal government. In other words, welfare assistance was more expensive for higher-income states, reducing the effect of income on benefit levels. Because this "price effect" is partially coincident with the "income effect," it is difficult to estimate them separately.²⁵

²⁴U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System*, "Table CA05 Personal Income by Major Source and Earnings by Industry," (1998) World Wide Web Internet Citation: <http://fisher.lib.virginia.edu/>. In *Welfare Magnets*, Peterson and Rom use tax capacity as a measure of state wealth. Tweedie uses per capita personal income in "Resources Rather Than Needs."

²⁵U.S. Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism* (Washington, D.C.: Advisory Commission on Intergovernmental Relations, various years). Because the federal government has paid for more than 80 percent of the cost of AFDC in the lowest income states and as little as 50 percent in the highest benefit states, one might expect to find these differential "price effects" resulting in varying levels of welfare provision. Prior research seeking to establish a price effect has yielded mixed results. Some studies find a price effect while others do not. For the former, see Robert B. Albritton, "Impacts of Intergovernmental Financial Incentives on State Welfare Policymaking and Interstate Equity," *Publius: The Journal of Federalism* 19 (Spring 1989): 127-141; Plotnick and Winters, "Party, Political Liberalism, and Redistribution." For the latter, see Peterson and Rom, *Welfare Magnets*. Mixed results may stem from the fact that it is difficult to separate price effects from the effects of differences in state economic resources. Given that the federal matching rate is determined by state per capita income levels, the effects of the two variables, both of which are theoretically significant, cannot be distinguished with any precision.

Poverty rates. Previous research has shown that states with higher poverty rates have lower benefit levels. This has been interpreted to mean that states with higher poverty rates are particularly sensitive to the problem of adverse selection and are therefore especially likely to reduce benefits.²⁶ The results reported in our estimations are not inconsistent with such an interpretation. However, our estimates of the effects of poverty rates are not precise. For one thing, the inclusion of the partisan control variable may mask some of the effects of poverty rates. Moreover, we include in our estimations per capita income and the percentage of recipients who are African American, two factors that are highly correlated with a state's poverty rate. Interactions among these variables may be obscuring the separate effects of each.

Partisan Control. Studies of the impact of party control on redistributive policy are not always consistent but, more often than not, they indicate that states in which Republicans are ascendant have lower benefits.²⁷ To control for this effect, we include a variable that reflects both the partisan balance of power in the legislature and partisan control of the gubernatorial chair. We assign a score of 100 for a state if the governor is a Democrat. The house and senate for each state receives a score equal to the percentage of Democrats in that chamber. The average of these scores measures the strength of the Democratic party relative to the Republican party in each state, with a positive sign indicating greater Democratic strength.²⁸ However, a complete analysis of the independent effects of parties and party systems also needs to consider the effects of party competition, divided government, the strength of party organizations, and the state's ideological configuration.

Ethnicity. Previous research has suggested that ethnicity may be an important determinant of welfare policy, though the direction of its effect is not entirely certain. On the one side, some studies have shown that support for welfare is less if the state has a higher percentage of welfare recipients who are African Americans. This finding has been interpreted as evidence that racial stereotyping reduces support for welfare benefits.²⁹

²⁶Unpublished data collected by Craig and Palumbo for the U.S. Department of Labor, Advisory Council on Unemployment Compensation, Washington, D.C. In *Welfare Magnets*, Peterson and Rom include an indicator of poverty; Tweedie does not do so in "Resources Rather Than Needs."

²⁷In *Welfare Magnets*, Peterson and Rom include an index of partisan balance in the state legislature and voter turnout in gubernatorial elections. This variable had a small but statistically significant ($p < .01$) impact on benefits; states with greater interparty competition had higher welfare benefits. Tweedie did not confirm this finding in "Resources Rather Than Needs"; instead, he used a measure of the political ideology of a state's U.S. representatives as a proxy for public opinion. He found that the more liberal the representatives, the greater the growth in benefits. We leave it to future researchers to determine the joint impact of partisanship, political mobilization, and ideology on state welfare policies, but note Brown, "Party Cleavages."

²⁸Unpublished data collected by Daniel P. McMurrer for the U.S. Department of Labor, Advisory Council on Unemployment Compensation, Washington, D.C. Nebraska, which has a nonpartisan legislature, is assigned the average score of its neighbors.

²⁹Gerald Wright, "Racism and Welfare Policy in America," *Social Science Quarterly* 57 (June 1977): 718-730; Handler, *The Poverty of Welfare Reform*; Quadagno, *The Color of Welfare*. In *Welfare Magnets* Peterson and Rom suggest that states having high and rising proportions of AFDC recipients who are African Americans appear to reduce their benefit guarantees more than states with lower levels of minority recipients.

Others have found that support for welfare is higher if a state has more black residents and greater black representation in the legislature, variables likely to be correlated with the percentage of welfare recipients.³⁰ These findings have been interpreted as demonstrating that both black voters and black elites are more supportive of higher welfare benefits and that their preferences on an issue of particular concern to them are given disproportionate weight.

The coefficients for ethnicity included in these estimations should not be interpreted as providing support for these hypotheses. In the estimations reported here, the effects of ethnicity may be masked by the inclusion of the partisan control variable and by the high correlations among ethnicity, income, and poverty rates.

State-Specific Characteristics. The variables included in the model do not account for all the differences between states that may affect benefit levels. If factors not included in the model are correlated with those of neighboring states, then our estimates of competitive effects would be biased. To guard against this possibility, the estimations include for each state a dummy variable that controls for its unique characteristics. In other words, we have employed a state fixed-effects model. By including the variables the literature has identified as the most important and by including a dummy variable for each state's unique characteristics, one can estimate more precisely the impact of interstate competition on a state's welfare benefits.³¹

SPECIFICATION AND ESTIMATION OF WELFARE POLICY

Our model is distinct from much of the literature on the determinants of state policy outputs in that it explicitly recognizes interdependencies among states. The maps presented in Figure 2 and Figure 3 suggest that AFDC benefit levels are clustered geographically. These clusters can be described as exhibiting positive "spatial autocorrelation"; states near each other have similar values of the variable of interest. Our assumption is that this spatial autocorrelation occurs in part because states influence the welfare policy choices of their neighbors.³² The clusters on the map serve as only preliminary evidence of the race among the states because that analysis is only a univariate observation. Thus, we need to model the determinants of AFDC benefits including both intrastate factors as well as possible interstate competition.

³⁰U.S. Department of Health and Human Services, *Characteristics and Financial Circumstances of AFDC Recipients* (Washington, D.C.: U.S. Government Printing Office, various years). Peterson, *The Price of Federalism*, Chapter 4.

³¹U.S. Department of Health and Human Services, *Characteristics of State Plans for Aid to Families with Dependent Children* (Washington, D.C.: U.S. Government Printing Office, various years). However, if some variable not included in the model is changing at similar rates in specific regions of the country, it could account for some of the observed interstate competitive effects.

³²Note that this spatial autocorrelation is precisely what we are interested in estimating and not a problem that we are trying to eliminate from the model.

Models of spatial autocorrelation have numerous forms in practice and unlimited versions in theory. For this study, we use the following mixed regressive-spatial-autoregressive model:

$$\mathbf{y} = \mathbf{X}\beta + \rho\mathbf{W}\mathbf{y} + \mathbf{u}$$

where \mathbf{y} is a vector of values for a dependent variable, \mathbf{X} is a matrix of the intrastate explanatory variables, β and ρ are effect parameters to be estimated, \mathbf{u} is a vector of disturbances with $E(\mathbf{u}) = 0$ and $E(\mathbf{u}\mathbf{u}) = \sigma^2\mathbf{I}$, and \mathbf{W} is an $n \times n$ matrix of spatial weights. This model implies that the values of the dependent variable in some regions affect its value in others. Gary King demonstrates that this model can also be rewritten so that the expected value of the dependent variable is a geometrically distributed spatial lag of the explanatory variables and thus can be substantively interpreted as saying that the expected value of the dependent variable for a particular region is a function of explanatory values in that region and explanatory values in other regions weighted according to the form of \mathbf{W} .³³

The specification of the spatial weighting matrix \mathbf{W} is central to the analysis. \mathbf{W} is called a spatial lag operator and defines the structure of the anticipated relationships among geographical units. The most common form of \mathbf{W} is a matrix that when multiplied by a vector of values for geographical data produces a vector with elements equal to the average value for contiguous regions. The hypothesized spatial relationships among states in setting AFDC benefits may be appropriately represented by this specification, and thus we define \mathbf{W} as an $n \times n$ matrix with a value of zero for states that do not share boundaries and a value of $1/x$ (x equal to the number of contiguous states for a given observation) for states that do have common borders. This model is particularly appropriate for the empirical question raised in our discussion of state welfare policymaking. Based on the theory presented above, we expect that states are sensitive to benefit levels in neighboring states. The spatial lag model with this simple weighting matrix allows precisely this interpretation of the ρ parameter. We can estimate it and to what extent states respond to the average benefit levels of their neighbors controlling for economic, demographic, and political explanatory variables.

OLS estimates of linear normal models with spatially lagged dependent variables are logically and statistically inconsistent. Maximum likelihood estimates of this model are consistent and efficient under typical regularity conditions.³⁴ Consequently, we present below maximum likelihood estimates for a mixed regressive-spatial-autoregressive model.³⁵

³³Gary King, "On Political Methodology," *Political Analysis* 2 (1991): 1-29.

³⁴Anselin, *Spatial Econometrics*, 1988. For these properties to hold, the log likelihood function that is maximized is:

$L_i = \ln(1 - \rho w_i) - 0.5 \ln(2\pi) - 0.5 \ln(\sigma^2) - 0.5(y_i - \rho W y_i - x_i \beta)^2 / 2\sigma^2$, where ρ is the spatial autoregressive coefficient, w_i is the i th eigenvalue of \mathbf{W} , the spatial weighting matrix, σ^2 is the variance of the regression, y_i is i th dependent variable, x_i is i th row of independent variables, and β is the vector of effect parameters.

³⁵All estimates calculated using GAUSS.

The model we estimate is a time-series-crosssectional spatial model with both a temporally and spatially lagged dependent variable. Analysis of pooled time-series-cross-sectional (TSCS) data creates several well-known estimation problems. The errors from ordinary least squares (OLS) estimation of these data sets are likely to suffer from panel heteroskedasticity, contemporaneously correlated errors, and serially correlated errors.³⁶ Recent research suggests using OLS estimates of the coefficients, calculating panel-corrected standard errors (PCSE) which are robust to panel heteroskedasticity and contemporaneously correlated errors, and modeling the serial correlation with a lagged dependent variable.³⁷ However, this approach is not appropriate for our study because the primary parameter of interest is the form and extent of the contemporaneously correlated errors, that is the spatial autocorrelation. Consequently, we model the temporal dependence with a temporally lagged dependent variable and time-period dummy variables, while the spatial dependence is modeled with a spatially lagged dependent variable. We calculate the maximum likelihood estimates of the following spatial-regressive, autoregressive model with fixed effects:³⁸

$$B_{i,t} = \alpha + \beta_0 + \beta_1 * B_{i,t-1} + \beta_2 * I_{i,t} + \beta_3 * P_{i,t} + \beta_4 * D_{i,t} + \beta_5 * M_{i,t} + \beta_6 * R_{i,t} + \beta_7 * T1_{i,t} + \beta_8 * T2_{i,t} + \beta_9 * T3_{i,t} + \rho * W_{i,t} * B + \mu_{i,t}, \text{ where,}$$

- B** = AFDC benefits, real AFDC monthly guarantee for a family of four with no additional sources of income.
- I** = Income, real state per capita income.
- P** = Poverty rate.
- D** = Democratic strength, index of Democratic control of state political institutions.
- M** = Matching grant, the percentage of total costs of AFDC paid for by the federal government.
- R** = Recipient ethnicity, percentage of AFDC households headed by African-Americans.
- T1,2,3** = Time period dummy variables. T1 equals 1 for 1976-1980; T2 equals 1 for 1981-1985; and T3 equals 1 for 1986-1990.
- W** = Spatial weighting matrix.
- α** = Coefficient for the constant.
- $\beta_{0...9}$** = Coefficients for explanatory variables.
- ρ** = Spatial autoregressive coefficient.
- i** = 1, 2, . . . , 48 index for each of the 48 states in the analysis.
- t** = 1, 2, . . . , 19 index for each of the 19 years of the analysis.
- μ** = Disturbance term.

³⁶Nathaniel Beck and Jonathan Katz, "What To Do (and Not To Do) with Time-Series Cross-Section Data," *American Political Science Review* 89 (September 1995): 634-647; Nathaniel Beck and Jonathan Katz, "Nuisance or Substance: Specifying and Estimating Time-Series Cross-Section Models," *Political Analysis* 6 (1996): 1-34.

³⁷Beck and Katz, "What To Do (And Not to Do) with Time-Series Cross-Section Data."

³⁸The fixed effects are dummy variables for each state, except for one state which is omitted due to the inclusion of the constant.

RESULTS

Table 2 presents our estimates. This model allows us to predict state welfare benefits with fair accuracy. The standard error of the regression is \$26, compared with the standard deviation in benefits which is \$208, thus reducing our prediction errors by 88 percent. Analysis of the residuals indicates an absence of spatial clustering or heteroskedasticity related to values of the dependent variable. In interpreting the impact of the various independent variables in the model, it is critical to note that their effects are persistent. The coefficient on the lagged dependent variable is equal to 0.61 and has a relatively small standard error. The real value of state AFDC benefits in any year depends significantly on its previous values.³⁹

Table 2
Effects of Interstate Competition on Welfare Policy
Time-Series Crosssectional Estimates, 1976-1994

Independent variable ^a	Estimate	S.e. ^b	Est./S.e.
Interstate competition ^c	0.274	0.038	7.125
AFDC benefit _{t-1}	0.606	0.039	15.522
Income	0.003	0.002	1.519
Poverty	-1.540	0.824	-1.868
Democratic strength	0.136	0.087	1.572
Matching rate	0.130	0.464	0.281
Recipient ethnicity	0.221	0.321	0.688
1976-1980 Dummy variable	19.142	11.356	1.686
1981-1985 Dummy variable	15.983	7.615	2.099
1986-1990 Dummy variable	8.779	4.205	2.088
Constant	49.296	73.064	0.675
σ	25.679	1.502	17.098
n		912	
Log-Likelihood		3,424.6	

^a State fixed effects are not reported.

^b Heteroskedastic-consistent standard errors were calculated using the Huber-White procedure.

^c Spatial autocorrelation, ρ .

³⁹We do not report the coefficient estimates for the state-level fixed effects.

The key substantive question of this analysis is whether or not states are sensitive to the policy choices of their neighbors in setting the AFDC guarantee. Our findings are unambiguously consistent with this hypothesis. The estimated impact of interstate competition, as measured by the spatial autoregressive coefficient, ρ , is highly significant statistically and substantively. In statistical terms, we can be more confident that the states react to the benefits of their neighbors than to their own poverty rates, partisan characteristics, per capita income, or the ethnic characteristics of their own AFDC rolls. The coefficient (0.27) suggests that the impact of neighboring states is quite large: a \$100 change (less than a standard deviation) in the average of neighboring states guarantee is associated with a \$27 change in a state's AFDC monthly guarantee.

Too often research on the state determinants of public policy seeks to provide comprehensive statements of the effects of many factors. General models are constructed, and the findings are interpreted as providing information on the effects of each specific variable included in the model. This strategy has been used in efforts to ascertain whether political or non-political variables are more powerful determinants of state policy. As interest in the effects of competition on state policy increases, one may anticipate new studies that seek to determine within a single model whether internal or external factors are more important. As attractive as this strategy may seem in principle, in practice it may introduce considerable confusion. When factors are intercorrelated, the interpretation of the influence of each must be undertaken only after consideration of estimations that both include and exclude correlated variables.

In our view, more precision can be achieved by constructing models that control for other variables in such a way as to permit exact estimation of the impact of a specific factor of theoretical interest. Such a strategy is particularly appropriate in a situation, such as this one, where a factor of considerable theoretical and practical interest, interstate competition, has not been systematically included in previous explanatory models. Because of our primary interest in the effects of interstate competition, we do not interpret the coefficients of the control variables included in the estimations. These control variables are included in the model in order to take into account factors other research has shown to be likely determinants of welfare policy.

But even though the coefficients for control variables may be imprecise, the equation provides a good estimate of the effects of interstate competition, because we have controlled for the likely internal factors that may affect a state's welfare either explicitly or by inclusion of state-specific dummy variables.

CONCLUSION

The competitive race among the states for scarce economic resources seems to influence their welfare policy choices. Between 1976 and 1994, the welfare guarantee offered to families under the AFDC program by individual states was sensitive to the guarantee offered by their neighbors. For every \$100 change in the average benefit guarantee of contiguous states, a state adjusted its benefit level by approximately \$27. These competitive factors were observed even after taking into account the economic, political, and demographic factors within a state that other research has shown influences welfare policy.

It is too soon to know whether the patterns observed during the mature years of the AFDC program will shape policy choices under TANF. Yet there is no reason to expect state competitive factors to be less important under the fiscal and regulatory regime put in place by the new law. On the contrary, the potential for competitive pressures is greater. Under TANF, states must bear the full marginal costs of their welfare expenditure; in turn, they gain the full marginal benefits of any savings they secure.

This does not mean that states will necessarily race to the bottom in any literal sense of the word, nor does it mean that all states will have identical welfare policies. Factors internal to a state can still be expected to influence its welfare policy, offsetting the impact of interstate competition. Sensitivity to the policies of other states is one, but only one, factor determining welfare policy.

