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Since the quantitative study of public policy as a dependent variable first began, a dominant issue has been the relative importance of socioeconomic and political variables for determining policy outcomes. Dawson and Robinson, in their pivotal article, concluded that socioeconomic conditions were more important than the political variable of interparty competition in shaping welfare policies.[1] Their findings, along with the earlier theoretical contributions of Key and Lockard,[2] sparked a series of investigations on public policy determinants, each of which attempted to make comparative judgments about the impact of socioeconomic and political variables.[3]

More recent work indicates that the question continues to be salient. Fry and Winters state that a major aim of their study is "to examine the relative importance of political and socioeconomic variables"[4] for explaining the redistributive policies of the American states. They decide that political variables are more important than socioeconomic ones.[5] Booms and Halldorson, revising Fry and Winters, also address the topic, concluding that their reformulation "raised considerably the relative explanatory power of the socioeconomic variables."[6] While doubting that any definitive answer to this question is possible, Uslaner and Weber nevertheless assert, in their investigation of the politics of redistribution, that "there is a great deal to be said"[7] for explanations which emphasize political over socioeconomic factors. Finally, a current piece by Tompkins on state welfare expenditures contends that the central issue in the literature on policy outcomes is still the relative importance of socioeconomic and political variables.[8]

In these various studies, different statistical techniques have been employed to assess the relative importance of the independent variables: simple bivariate correlation (rarely in isolation), partial correlation, and multiple regression. Regardless of the particular analytic technique stressed, the strategy has generally been to compare the magnitudes of the coefficients of the socioeconomic and political variables in their relation with the policy variable, on this basis making a judgment about which are more important.

The aim of this brief paper is to demonstrate that research efforts to date have failed to

*I would like especially to thank Donald J. McCrone and Lawrence B. Mohr for their contributions to the development of this paper.

[1]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.

[2]V. O. Key, Jr., *Southern Politics* (New York: Vintage Books, 1949), p. 307; Duane Lockard, *New England State Politics* (Princeton, New Jersey: Princeton University Press, 1959), pp. 320–340.

[3]Charles F. Cnudde and Donald J. McCrone, "Party Competition and Welfare Policies in the American States," *American Political Science Review*, 63 (September, 1969), 858–866; Thomas R. Dye, *Politics, Economics, and the Public: Policy Outcomes in the American States* (Chicago: Rand McNally, 1966); Richard I. Hofferbert, "The Relation Between Public Policy and Some Structural and Environmental Variables in the American States," *American Political Science Review*, 60 (March, 1966), 73–82; Ira Sharkansky and Richard I. Hofferbert, "Dimensions of State Politics, Economics, and Public Policy," *American Political Science Review*, 63 (September, 1969), 867–879.

[4]Brian R. Fry and Richard F. Winters, "The Politics of Redistribution," *American Political Science Review*, 64 (June, 1970), 508–522.

[5]Fry and Winters, p. 521.

[6]Bernard H. Booms and James R. Halldorson, "The Politics of Redistribution: A Reformulation," *American Political Science Review*, 67 (September, 1973), 924–933.

[7]Eric M. Uslaner and Ronald E. Weber, "The 'Politics' of Redistribution: Toward a Model of the Policy-making Process in the American States," *American Politics Quarterly*, 3 (April, 1975), 130–170.

[8]Gary L. Tompkins, "A Causal Model of State Welfare Expenditures," *Journal of Politics*, 37 (August, 1975), 392–416.

assess accurately the relative importance of socioeconomic and political variables for public policy, in large part because they have relied on statistical techniques inadequate to the task. As Duncan, and Linn and Werts, have shown, zero-order correlation, partial correlation, and multiple regression would provide unbiased estimates of importance only for very peculiar causal structures.[9] When the researcher's implicit or explicit theory does not correspond to this very restricted set of models, as will generally be the case, then an assessment of relative importance based on parameter estimates in a formally constructed causal model must be undertaken.

It is suggested here that comparison of "effects coefficients," derived from path analysis, is the preferred method of assessing the relative importance of different independent variables for explaining a given dependent variable.[10] To support this contention, the limitations of simple correlation, partial correlation, and multiple regression coefficients are first discussed. Then, the advantages of the effects coefficient are presented. Finally, the effects coefficients for a current model of welfare policy are calculated, and the results compared to estimates from the aforementioned correlation and regression approaches. In evaluating these effects coefficients, which are actually congruent with the policy model posited, socioeconomic variables emerge as clearly more important than political variables, contrary to interpretations based on the more traditional statistical techniques.

Comparing Correlation Coefficients to Evaluate Relative Importance

The shortcomings of comparing simple correlation coefficients in order to assess the relative importance of socioeconomic and political variables for public policy are perhaps obvious. Indeed, when simple correlations are reported in the literature on the subject, they almost never serve as the sole basis of evaluation. Dawson and Robinson first look at bivariate correlations, finding substantial relationships between interparty competition and socioeconomic conditions, between interparty competition and welfare policy, and between socioeconomic conditions and welfare policy.[11] But they then go on to examine these bivariate relationships while controlling for the third variable. (This was done by dividing the control variable into three categories, i.e., upper, middle, lower, and looking at the adjusted correlations within each category.) They conclude that socioeconomic conditions are more important than interparty competition for welfare policy in the American states. The primary analytic technique of Hofferbert, however, is bivariate correlation.[12] He finds that the degree of malapportionment of state legislative districts and the extent of divided control of state governments, respectively, have inconsequential relationships with "welfare orientation," whereas socioeconomic conditions do not (r=.70). Thus, he contends that socioeconomic factors appear to have more impact on state policies than political structure variables.

It is useful to elaborate a specific example in order to make the limitations of correlational comparison explicit. Suppose, like Dawson and Robinson, one is interested in the relative effects of socioeconomic conditions (X_1) and interparty competition (Y_2) on welfare policy (Y_3). Then the zero-order correlations, r_{13} and r_{23}, are compared and, because r_{13} is of greater magnitude, it is decided that socioeconomic conditions are more important for welfare policy than interparty competition. Assuming there are no other problems (e.g., measurement error) this judgment will be accurate only if the actual interrelationship among interparty competition, socioeconomic conditions, and welfare policy corresponds to the causal model diagrammed in Figure 1. That is, interparty competition and socioeconomic conditions must be *completely* independent. This certainly does not seem likely, especially given the substantial correlations Dawson and Robinson report between the two variables.[13] Further, it has been argued repeatedly that socioeconomic factors influence political variables, in which case an evaluation based on a comparison of r_{13} and r_{23} would tend to underrate the total impact of socioeconomic forces on policy.[14] A further

[9]Otis D. Duncan, "Partials, Partitions, and Paths," in *Sociological Methodology 1970*, ed. E. Borgatta and G. Bohrnstedt (San Francisco: Jossey-Bass, 1970), pp. 38–47; R. L. Linn and C. E. Wirts, "Assumptions in Making Causal Inferences from Part Correlations, Partial Correlations, and Partial Regression Coefficients," *Psychological Bulletin*, 72 (November, 1969), 307–310.

[10]Michael S. Lewis-Beck and Lawrence B. Mohr, "Evaluating Effects of Independent Variables," *Political Methodology*, 3 (February, 1976), 27–47.

[11]Dawson and Robinson.

[12]Hofferbert.

[13]Dawson and Robinson.

[14]Cnudde and McCrone, p. 860; Dye, *Politics, Economics, and the Public*, p. 285; Lockard, *New England State Politics*, pp. 336–337.

contention is that the apparent relationship between interparty competition and welfare outcomes is largely spurious, a product of the effect of socioeconomic variables on both.[15] If this is so, then r_{23} would of course exaggerate the effect of interparty competition.

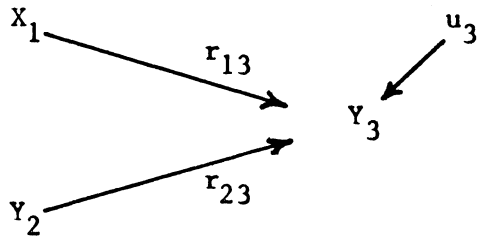

Figure 1. Causal System Referenced by Zero-Order Correlation Coefficients

While the limitations of comparing simple bivariate correlations in order to arrive at the relative importance of variables are clear, it may not be so apparent that the same criticisms apply to the comparisons sometimes made among multiple correlation coefficients. For instance, Fry and Winters in support of their hypothesis that political variables are more important for redistributive policies than socioeconomic variables, report that in separate regression analyses the political variables were found to explain 38 per cent of the variance but that socioeconomic variables explained only 17 per cent.[16] (Recall that percentage of variance explained is simply the square of the multiple correlation coefficient.) Unless the socioeconomic variables are completely unrelated to the political variables in the manner diagrammed in Figure 1, then this comparison of two squared multiple correlations still provides a distorted picture of their relative importance for redistributive policies.

Comparing Partial Correlation Coefficients to Evaluate Relative Importance

Nearly all of the authors whose work is reviewed here heavily emphasize comparison of partial correlation coefficients, with the noteworthy exception of Cnudde and McCrone, who appreciate some of the inadequacies of the technique.[17] As noted above, Dawson and Robinson compute correlations between interparty competition and welfare policy, controlling for socioeconomic conditions, and between socioeconomic conditions and welfare policy, controlling for interparty competition.[18] Looking at the resultant coefficients, they conclude that socioeconomic conditions are more important for welfare policy than interparty competition is. Thomas Dye finds that the partial correlations between political system variables and policy outcomes, controlling for economic development, are consistently much lower than the partial correlations between economic development and policy outcomes controlling for the political system.[19] Therefore, he infers that political system variables are generally considerably less important than economic development variables in shaping policy outcomes. A slightly different conclusion is offered by Sharkansky and Hofferbert, who assert, "the coefficients of partial correlation reveal that this policy factor [Welfare-Education] is associated most clearly with high scores on Competition-Turnout and Affluence, with neither being significantly more important than the other."[20]

The popularity of the partial correlation technique is unfortunate, for it is a highly inappropriate device for determining the relative importance of different independent variables. Partial correlation yields a correlation of residuals. As Linn and Werts, and Duncan, have shown, the causal structure to which this correlation corresponds is that diagrammed in Figure 2.[21] Suppose, as before, that X_1 = socioeconomic conditions, Y_2 = interparty competition, and Y_3 = welfare policy. In evaluating the impact of Y_2 on Y_3, all that the partial correlation $r_{23.1}$ may tell us is whether Y_2 is spuriously related to Y_3 (e.g., $r_{23.1}$ is zero or not statistically significant), and in this sense an unimportant influence on it. Also, if one is interested, $r_{23.1}$ of course provides information about the impact of one error term or residual on another, e.g., u_2 on u_3.

If politics are in fact unimportant for policy as Dye and others have suggested, and only appear to have an effect because socioeconomic conditions are a prior common influence, then

[15] Dawson and Robinson; Dye, *Politics, Economics, and the Public.*

[16] Fry and Winters, p. 519.

[17] Cnudde and McCrone.

[18] Dawson and Robinson.

[19] Dye, *Politics, Economics, and the Public,* pp. 293–295.

[20] Sharkansky and Hofferbert, p. 877.

[21] Linn and Werts, p. 308; Duncan, 1970, pp. 39–40.

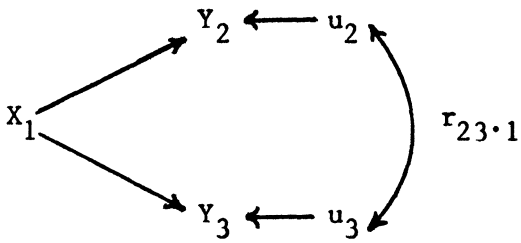

Figure 2. Three-Variable Causal System Referenced by the Partial Correlation Coefficient, $r_{23.1}$

partial correlation will indicate this spuriousness.[22] Assuming that Figure 2 reflects a true state of the world, it makes no sense to compare $r_{23.1}$ to $r_{13.2}$. This is because the causal structure congruent with $r_{13.2}$ (see Figure 3) is *different from, in fact directly contradicts,* the model of reality affirmed in Figure 2. As can be seen by comparing the two figures, it is impossible to maintain that both models are valid at the same time, e.g., Figure 2 for $r_{23.1}$ indicates that X_1 affects Y_2 but Y_2 does not affect X_1, while Figure 3 asserts exactly the opposite. Obviously the model that corresponds with reality is the only valid one. When Figure 2 is declared to be correct, then an examination of $r_{13.2}$, which implies Figure 3, is irrelevant and misleading. If, after due deliberation, it cannot be determined which model is properly specified, or neither appears to mirror the real world accurately, then the partial correlation technique can tell us nothing whatsoever about the relative effect of X_1 and Y_2 on Y_3. In this case, it will be necessary to turn to statistical techniques that accord with the true structure of relations among the variables.

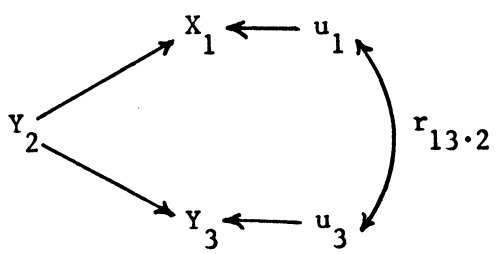

Figure 3. Three-Variable Causal System Referenced by the Partial Correlation Coefficient, $r_{13.2}$

[22]If the partial correlation is calculated and found to be zero or not significant statistically, then the conclusion of spuriousness is legitimate, granting this causal structure. However, if the partial correlation is found to be statistically significant, then it is not necessarily proper to infer, as is frequently done, that the independent variable in question, e.g., political structure, *does* have an impact on policy. This caution is understandable when it is recalled that the partial correlation is merely a correlation among residuals, e.g., r_{u2u3}. Thus, even if this correlation is significant, it may simply reflect some third variable other than socioeconomic conditions, e.g., geographic region, which is operating to produce spuriousness between political structure and public policy.

The narrow applicability of the partial correlation approach is in no way avoided if multiple-partial correlation coefficients are compared, as Dye, and Fry and Winters, have done.[23] Fry and Winters provide an especially clear example of the use of this technique for evaluating relative importance:[24]

> The most interesting and significant finding in this study, however, concerns the relative importance of political and socioeconomic variables in determining redistributive fiscal policies in the states. . . . For the 48 states the multiple-partial for political variables controlled for the socioeconomic variables is .46 while the multiple-partial for the socioeconomic variables controlled for the political variables is only .27.

The difficulties with the simple partial correlation approach still hold in the multiple-partial case. That is, when two multiple-partial correlation coefficients are compared, as Fry and Winters do, two different and contradictory causal systems are being referenced simultaneously. However, the situation is, if anything, even more problematic than with Figures 2 and 3, for the greater number of variables involved makes the implied rival models still more complex.

Comparing Multiple Regression Coefficients to Evaluate Relative Importance

An approach to relative importance that is in some ways more satisfactory, but has been less frequently used, is comparison of multiple regression coefficients. Cnudde and McCrone employ regression analysis, although they look only at the unstandardized coefficients.[25] The difficulty with unstandardized coefficients is that, because the independent variables have different measurement scales, making judgments about relative effect is troublesome. Therefore, attention will focus on standardized partial regression coefficients, or beta

[23]Dye, *Politics, Economics, and the Public,* pp. 295–297; Fry and Winters.

[24]Fry and Winters, p. 521.

[25]Cnudde and McCrone.

weights.[26] Booms and Halldorson explicitly argue that beta weights provide a "method for comparing the relative importance of variables in 'explaining' the dependent variable."[27]

In following this strategy, the most straightforward method is simply to place the variables of interest in a regression equation, calculate the standardized partial regression coefficients, and compare their magnitudes. Continuing the previous example of evaluating effects of socioeconomic conditions (X_1) and interparty competition (Y_2) on welfare policy (Y_3), the equation would look like this:

$$Y_3 = \beta_{31.2}X_1 + \beta_{32.1}Y_2 + u.$$

To determine the relative importance of X_1 and Y_2 for Y_3, the sizes of $\beta_{31.2}$ and $\beta_{32.1}$ would be compared. This approach is possible if the causal relations underlying the variables correspond to the diagram in Figure 4. In this system, both X_1 and Y_2 have a direct impact on Y_3 and they are related to each other, but the nature of this latter relationship is unspecified.

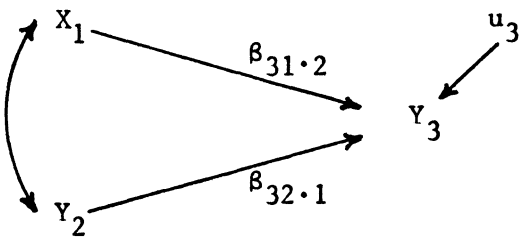

Figure 4. Three-Variable Causal System Referenced by Partial Regression Coefficients

The potential difficulty for interpretation, as Figure 4 makes clear, is that the beta weights only assess *direct* effects of independent variables. Suppose, however, that socioeconomic conditions affect the political variable of interparty competition, as has often been suggested.[28] Then, X_1, in addition to its direct effect on Y_3, has an indirect effect on Y_3 through its impact on Y_2. A comparison of $\beta_{31.2}$ and $\beta_{32.1}$ would necessarily neglect this indirect influence, thereby undervaluing the overall importance of socioeconomic conditions in shaping welfare policy. The omission of indirect effects is especially distorting when multicollinearity is large (as indeed would be expected between socioeconomic conditions and interparty competition), for then much of the influence in the system cannot be uniquely assigned to any one variable.[29]

Comparing Effects Coefficients to Evaluate Relative Importance

In the foregoing, I attempted to demonstrate that zero-order correlation, partial correlation, and multiple regression generally produce misleading judgments about the relative importance of socioeconomic and political variables for public policy. Now, I should like to illustrate how path analytic techniques can generate coefficients which provide an accurate evaluation of the effects of different independent variables. These coefficients, known as "effects coefficients," can be derived for any causal system, including the special ones covered by coefficients from simple correlation, partial correlation, or multiple regression. (Path analysis is not an untried technique in the study of public policy outcomes. Uslaner and Weber, and Tompkins, provide recent instances of its use.[30] However, an effects coefficient, which can be calculated from a path model, has *not* been used in any form to evaluate the relative impact of independent variables. Uslaner and Weber, for example, propose a six-equation recursive model of redistribution policy;[31] but they determine relative influence simply by comparing beta weights in a single equation, which amounts to no more than the multiple regression approach discussed above, with all its attendant shortcomings.)

The utility of effects coefficients is most easily shown by exploring a concrete example. Since it is beyond the scope of this essay to develop a model of public policy outcomes, the following presentation will confine itself to a plausible model already popular in the litera-

[26]H. M. Blalock, Jr., "Causal Inferences, Closed Populations, and Measures of Association," *American Political Science Review*, 61 (March, 1967), 130–136; J. W. Tukey, "Causation, Regression, and Path Analysis," in *Statistics and Mathematics in Biology*, ed. O. Kempthorne, T. S. Bancroft, J. W. Gowen, and J. L. Lush (Ames, Iowa: Iowa State College Press, 1954), pp. 35–66; M. E. Turner and C. D. Stevens, "The Regression Analysis of Causal Paths," *Biometrics*, 15 (June, 1959), 236–258; Sewell Wright, "Path Coefficients and Path Regression: Alternative or Complementary Concepts?" *Biometrics*, 16 (June, 1960), 189–202.

[27]Booms and Halldorson, p. 932.

[28]Dye, *Politics, Economics, and the Public*, p. 285; Lockard, *New England State Politics*, pp. 336–337; Cnudde and McCrone, p. 860.

[29]Duncan, 1970, p. 40.

[30]Uslaner and Weber; Tompkins.

[31]Uslaner and Weber, pp. 138, 156.

ture. This model, diagrammed in Figure 5, is most fully and explicitly treated by Cnudde and McCrone.[32] They state that welfare policy (Y_3) is caused directly by socioeconomic conditions (X_1) and interparty competition (Y_2), and that interparty competition (Y_2) is also influenced by socioeconomic conditions (X_1).

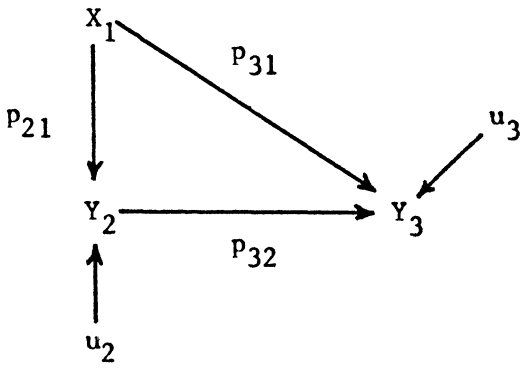

Figure 5. A Three-Variable Recursive System

As I have indicated previously, given this causal structure, the zero-order correlations r_{13} and r_{23} cannot be meaningfully compared because X_1 and Y_2 are not independent and, more specifically, because r_{23} is partly spurious. Further, partial correlations $r_{13.2}$ and $r_{23.1}$ are of no use, for they involve comparison of two different and contradictory causal systems, neither of which corresponds to Figure 5. Finally, an examination of the beta weights, $\beta_{31.2}$ and $\beta_{32.1}$ is inadequate because the indirect effect of X_1 is not taken into account. A straightforward extension of path analytic techniques, however, allows the relative impact of X_1 and Y_2 to be correctly evaluated.

Figure 5 represents a simple three-variable recursive model; for a set of structural equations to be recursive, it must meet two assumptions: (1) uncorrelated error terms; and (2) no causal feedback.[33] The model is expressed in the following system of simultaneous linear equations (the variables are assumed to be in standard form):

$$Y_2 = p_{21}X_1 + u_2$$

$$Y_3 = p_{31}X_1 + p_{32}Y_2 + u_3.$$

[32]Cnudde and McCrone.

[33]Ronald J. Wonnacott and Thomas H. Wonnacott, *Econometrics* (New York: Wiley, 1970), pp. 193–195.

Because it is a recursive system, ordinary least squares (ordinary multiple regression) applied to each equation yields the most efficient estimates of the parameters p_{21}, p_{31} and p_{32}.[34] Assuming that the paths in Figure 5 are so estimated, it remains to provide a summary measure of the influence of each of the independent variables, X_1 and Y_2, on Y_3. The effects coefficient is proposed here as such a measure.

The theory and mathematics underlying the effects coefficient are developed at length elsewhere.[35] Therefore, this paper restricts itself to a brief review of its computation and interpretation. In any causal system, all effects of an independent variable are either direct (DE) or indirect (IE). The effects coefficient is simply the sum of the two. It is written E_{ki},

[34]Arthur S. Goldberger, "On Boudon's Method of Linear Causal Analysis," *American Sociological Review*, 35 (February, 1970), 97–101; Kenneth C. Land, "Identification, Parameter Estimation, and Hypothesis Testing in Recursive Sociological Models," in *Structural Equation Models in the Social Sciences*, ed. A. S. Goldberger and O. D. Duncan (New York: Seminar Press, 1973), pp. 19–49.

[35]See Lewis-Beck and Mohr, 1976, for a complete explication of the effects coefficient. Basically, the effects coefficient is an extension of earlier attempts to assess "total effects" in a causal system (for earlier treatments, see Duane G. Alwin and Robert M. Hauser, "The Decomposition of Effects in Path Analysis," *American Sociological Review*, 40 (February, 1975), 37–47; Otis D. Duncan, "Path Analysis: Sociological Examples," in *Causal Models in the Social Sciences*, ed. H. M. Blalock (Chicago: Aldine, 1971), pp. 137–138; John M. Finney, "Indirect Effects in Path Analysis," *Sociological Methods and Research*, 2 (November, 1972), 175–186; Kenneth C. Land, "Principles of Path Analysis," in *Sociological Methodology 1969*, ed. E. F. Bongatta (San Francisco: Jossey-Bass, 1969), pp. 16–17; Michael S. Lewis-Beck, "Determining the Importance of an Independent Variable: A Path Analytic Solution," *Social Science Research*, 3 (June, 1974), 95–107). However, the effects coefficient is more satisfactory than prior efforts for a number of reasons. First, it has generalized applicability. That is, it may be used to assess the impact of *any* independent variable in the system, endogenous as well as exogenous (on this distinction, see Wonnacott and Wonnacott, pp. 155–156). And, it is applicable to *any* linear additive causal structure, whether it be recursive or nonrecursive, just-identified or overidentified (on these differences, see Wonnacott and Wonnacott, pp. 193–195, 172–189). (Of course, for nonrecursive systems, estimation techniques such as two-stage least squares must be used, rather than ordinary least squares; see J. Johnston, *Econometric Methods* (New York: McGraw-Hill, 1972), pp. 380–384). Further, the effects coefficient is based on a more precise and comprehensive breakdown of relationships in the causal system, dividing the possible relations between two variables into direct effect (DE), indirect effect (IE), spurious relation (S) and unanalyzed relation (U).

"the effects of variable i on variable k." E_{ki} may be interpreted as referring to the change in k per unit change in i. For the simple system in Figure 5, the effects coefficients are easily found: $E_{31} = p_{31} + p_{32}p_{21}$ and $E_{32} = p_{32}$. A comparison of E_{31} and E_{32} permits a more accurate evaluation of the relative importance of X_1 and Y_2 for Y_3 than does comparison of coefficients from the other statistical techniques considered. The effects coefficients, derived from path analysis, are superior to other coefficients for this purpose because they are free of spuriousness and incorporate indirect effects known to be operating in the system.

A final, practical note on the utility of the effects coefficient is perhaps in order. The die-hard empiricist might argue that computation of effects coefficients is needless effort, for even though it may actually be more congruent with the causal system, the coefficients will not yield an interpretation of relative importance substantively different from one of the other statistical techniques. By actually calculating E_{ki} for Figure 5, however, and by comparing them to other coefficients, one sees how this argument does not hold. Correlations reported by Sharkansky and Hofferbert in their study of public policy in the American states serve as a convenient and relevant data-base for deriving the necessary estimates.[36] In Table 1 are presented their correlations among the socioeconomic variable, Affluence (X_1), the political variable, Competition-Turnout (Y_2), and the policy variable, Welfare-Education (Y_3).

Table 1. Coefficients of Simple Correlation Between Affluence (X_1), Competition-Turnout (Y_2), and Welfare-Education (Y_3)

	X_1	Y_2	Y_3
X_1			
Y_2	.66		
Y_3	.69	.68	

Sharkansky and Hofferbert compare partial correlations, concluding that neither Competition-Turnout nor Affluence is "significantly more important than the other."[37] The partial correlations from the data of Table 1 are, respectively, $r_{31.2} = .44$, and $r_{32.1} = .41$. Likewise, an evaluation of the simple correlations (see Table 1) or the beta weights from multiple regression ($\beta_{31.2} = .43$, and $\beta_{32.1} = .41$) suggests that socioeconomic and political factors are of about equal importance for welfare policy.

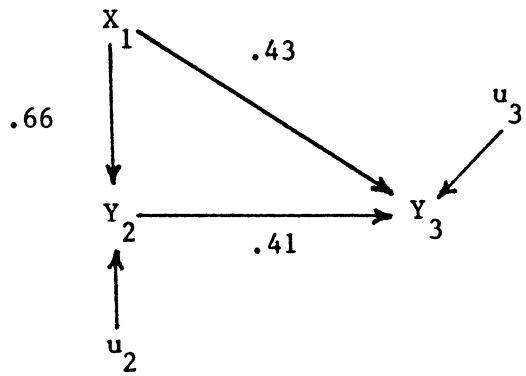

Figure 6. A Recursive Model of Welfare Policy

The recursive model of welfare policy depicted in Figure 5 appears in Figure 6 with its paths estimated from the correlation matrix. Computing the E_{ki} in the manner outlined above, $E_{31} = p_{31} + p_{21}p_{32} = .43 + .27 = .70$, and $E_{32} = p_{32} = .41$. Evaluating the two effects coefficients, one observes that political factors, while influencing welfare policy, do not seem nearly so important as socioeconomic conditions. Thus, if Figure 6 is correctly specified, i.e., depicts the structure of relationships in the real world, then the interpretations based on coefficients from simple correlation, partial correlation, or multiple regression are simply wrong. Because these coefficients, unlike E_{ki}, do not correspond to the model, they lead to erroneous empirical judgments of the relative importance of socioeconomic and political variables for welfare policy.[38]

[36] Sharkansky and Hofferbert, pp. 876–877.

[37] Sharkansky and Hofferbert, p. 877.

[38] When totally different causal structures underlie the statistics employed for evaluation, comparable results cannot reasonably be expected. In an analysis of two distinct data sets, not only were the distances between the effects of variables altered considerably depending on whether simple correlation, partial correlation, standardized partial regression, or effects coefficients were used, but there was also an occasional discrepancy in sign, and the rank ordering of the variables in terms of their effects was changed in a great many instances (Michael S. Lewis-Beck and Lawrence B. Mohr, "Evaluating Effects of Independent Variables: A Path Analytic Approach," Institute of Public Policy Studies (Ann Arbor: The University of Michigan, Discussion Paper #59).

Conclusion

The competing conclusions on the relative importance of socioeconomic and political variables for public policy that have been appearing since Dawson and Robinson's catalytic article are generally distorted, because of the inadequacy of the zero-order correlation, partial correlation, or multiple regression techniques on which they are based. The coefficients from any of these statistical techniques, respectively, do not provide satisfactory comparisons of effect because they correspond to unrealistic and, in the case of partial correlation coefficients, contradictory models of public policy. To assess accurately the relative importance of these independent variables, it is first necessary to specify correctly the underlying causal structure and estimate its parameters. Then, the path coefficients must be analyzed to determine the effects of the socioeconomic and political variables. An examination of the effects coefficients, derived from this path analysis, is offered as the preferred method for assessing and comparing the effects of these variables. When the effects coefficients for a common model of welfare policy are estimated in a data-based example, socioeconomic variables are found to be considerably more important than political variables. This conclusion differs substantially from interpretations founded on an application of the other statistical techniques reviewed here.