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Interpreting the Environment—Policy Linkage: The Case of Welfare Spending in South Carolina *

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Probably the most pervasive finding in the literature on policy analysis is the strong association between environmental variables and public policy. The most common interpretation of the environment-policy linkage, based upon a positive association between economic variables such as income, industrialization, and urbanization and levels of expenditures, posits a direct relationship, treats the economic variables as indices of a resource base, and attributes higher levels of spending to the simple fact that wealthier governmental jurisdictions have more to spend, and do so.¹ A second interpretation, based upon negative relationships between economic variables and welfare spending in deviant case analysis, takes the economic environment as an indicator of need and explains higher levels of spending by higher levels of need in low income jurisdictions. A final interpretation of the environment-policy linkage, more in vogue in the welfare literature than in the more general field of policy analysis, argues that the prime environmental force operating upon welfare spending, at least in recent years, has been in demand. It is contended that increasing demands on the welfare system have accounted for the recent dramatic surge in welfare expenditures which has occurred in the face of declining need and has been only coincidental with a period of generally relaxed revenue constraints.²

The objective of this study is to make a comparative analysis of these various hypotheses in regard to welfare expenditures in South Carolina for the period 1964/65 through 1973/74. In doing so we suffer under no

* We wish to express our gratitude to Mr. Horace Jackson of the South Carolina Department of Social Services and the students in our budgetary course for their assistance in conducting this study.

¹ See Ira Sharkansky, "Economic Theories of Public Policy: Resource-Policy and Need-Policy Linkages Between Income and Welfare Benefits," *Midwest Journal of Political Science*, XV, 4 (Nov. 1971), pp. 722-26 for a discussion of the resource base-policy and need-policy linkages.

² Frances Piven and Richard Cloward, *Regulating the Poor: The Functions of Public Welfare* (New York: Random House, Inc., 1971), pp. 183-98.

illusion that patterns of relationships in South Carolina are thoroughly "representative" of those in other states, nor do we presume that the period under investigation is typical. Rather, our intent is to examine in some detail the experience of a specific state (case) in order to test hypotheses generated from more general analyses, and to do so for a period in which welfare policies were undergoing some substantial change.

WELFARE EXPENDITURE PATTERNS IN SOUTH CAROLINA

As has been the case in the United States as a whole, welfare spending has increased rapidly in South Carolina over the course of the last decade. State welfare spending in South Carolina in constant dollars is shown in Table I.

Total state welfare expenditures have increased at an average annual rate of 16% and have multiplied by 3½ times over the ten years. Single-year changes have ranged from a decrease of 4.5% between 1964/65 and 1965/66 to an increase of 56.4% between 1968/69 and 1969/70. Since 1969/70, expenditures have increased at an average annual rate in excess of 25%.

There has been considerable disparity in the rates of change among the various categories of welfare expenditures. In four of the categories—Old Age Assistance, Aid to the Blind, Aid to the Permanently and Totally Disabled, and General Assistance—expenditures, in constant dollars, were actually lower in 1973/74 than they were in 1964/65.³ Almost all of the increase in spending has occurred in the categories of Administration and Program Services, Aid to Families with Dependent Children, and Medical Assistance, a program in which state funding started in 1969/70. Over the ten year period, Administration and Program Services expenditures have increased by 498% and expenditures for Aid to Families with Dependent Children by 471%. In the five years of the program's existence, expenditures for Medical Assistance have increased by 115%.

These differential patterns of change are reflected in the changing composition of welfare spending in South Carolina. In 1964/65, Old Age Assistance, Aid to the Blind, Aid to the Permanently and Totally Disabled, and General Assistance accounted for nearly 60% of welfare spending while the combination of Administration and Program Services and Aid to Families with Dependent Children amounted to less than

³ One reason for this change is that the categories Old Age Assistance, Aid to the Blind, and Aid to the Permanently and Totally Disabled were covered under the Supplemental Security Income Program of the federal government on January 1, 1974. However, in two of those categories—Old Age Assistance and Aid to the Blind—expenditures were lower prior to the transfer than they had been in 1964/65.

TABLE I
*State Social Services Expenditures in South Carolina
 in Constant Dollars¹: 1964/65 to 1973/74*
 (thousands)

Year	Total State Welfare Expenditures	Adm. & Prog. Ser. Expens.	Old Age Asst. Exp.	Aid to Blind	Aid to Dep. Child. Exp.	Aid to Dis- abled Exp.	Gen. Asst. Exp.	Med. Asst. Exp.	Other Exp.
1964/65	\$ 8,868	\$ 1,910	\$3,065	\$337	\$ 989	\$1,253	\$427	\$	\$ 887
1965/66	8,468	1,866	2,879	337	872	1,273	363	. . . .	879
1966/67	8,933	2,351	2,938	357	805	1,380	334	. . . .	767
1967/68	9,611	2,488	2,124	299	1,000	1,202	333	. . . .	2,165
1968/69	10,670	3,223	1,908	284	1,291	1,171	407	. . . .	2,387
1969/70	16,686	3,672	2,126	323	1,949	1,388	380	4,777	2,071
1970/71	17,451	5,372	1,891	319	2,641	1,422	155	4,065	1,586
1971/72	20,565	5,487	1,743	303	3,239	1,490	59	6,836	1,408
1972/73	24,504	7,235	1,877	329	4,496	1,833	133	7,172	1,427
1973/74	31,243	11,424	1,016 ²	195 ²	5,642	1,059 ²	158	10,300	1,450

¹ (1967/68 = 100). Expenditures from State General Fund.

² Category covered under Supplemental Security Income Program on January 1, 1974.

Sources: The State Budget and Control Board, *The South Carolina State Budget*, various years.

one-third of spending. The Medical Assistance program, of course, had not yet been adopted. By 1973/74, the latter categories accounted for nearly 90% of welfare spending and the share devoted to the former categories had dropped to less than 10%.

These figures represent a substantial change in welfare policy—at least insofar as expenditures reflect policy—in terms of both the size and the composition of the welfare program.

RESOURCE BASE—POLICY LINKAGE

Turning first to the resource base hypothesis, it is possible that welfare spending in South Carolina has increased simply because there was more to spend. South Carolina, like other Southern states, achieved a substantial rate of economic growth during the 1960's which served to significantly augment the resource base from which state expenditures are financed.

In order to examine the resource base hypothesis, it is first necessary to establish some plausible basis for assuming a direct relationship between the resource base and welfare spending. There are a number of possibilities; however, we shall pursue only one which is consistent both with much of the previous research on the budgetary process and with certain structural features of that process in South Carolina.

If one assumes that revenues will represent a constant percentage of personal income (i.e., that legislators are reluctant to raise tax rates and/or add new taxes), that state expenditures will equal state revenues (i.e., that the balanced budget rule or its equivalent is in force), and that welfare expenditures will be a constant percentage of total state expenditures (i.e., that the "budget share" rule is in effect), the increase in welfare spending in South Carolina could be directly attributed to an increase in the resource base as measured, in this case, by personal income.⁴ Similarly in this model, one would expect each category of welfare expenditures to be a constant percentage of total welfare spending and following from our previous assumptions, a constant percentage of the resource base.

The close relationship between personal income and revenue has been amply documented⁵ and the assumed equality between revenues and expenditures would appear to be appropriate in South Carolina since the House of Representatives operates under a rule which prohibits

⁴ The assumption of proportional increases between resource base and expenditures has been made for want of any compelling theoretical justification for doing otherwise in the absence of intervening processes which could affect that relationship.

⁵ See, e.g., Thomas R. Dye, *Politics, Economics, and the Public: Policy Outcomes in the American States* (Chicago: Rand McNally and Co., 1966), pp. 178-209.

that chamber from making appropriation recommendations in excess of projected revenues.⁶ Only the constant budget share assumption rests upon shaky empirical foundations.⁷ However, we make the assumption despite the adverse empirical evidence in order to complete the set of linkages required to establish a logical and direct connection between changes in the resource base and changes in welfare expenditures.

Some portions of this model appear to be applicable in South Carolina. Table II lists personal income, state general fund revenues, total state expenditures from the general fund, welfare expenditures from the general fund, and the relationships described above.

Revenues have displayed a somewhat variable relationship with personal income ranging from 5.8% of personal income in 1964/65 to 7.5% in 1973/74. The overall pattern is one of slightly increasing percentages. However, the correlation between personal income and state general fund revenue is .99 ($p < .05$)⁸ and the variability that does exist is probably due to the progression of income tax rates, or, more generally, the revenue elasticity of the tax base, since there were neither new taxes introduced nor major changes in tax rates in South Carolina in the ten year period under examination.⁹ The evidence thus supports the first of the posited relationships.

The evidence regarding the hypothesized equality between revenues and expenditures is also supportive. Expenditures have ranged from 90.8% of revenues in 1965/66 to 105.3% of revenues in 1967/68. The variation in the percentages reflects a combination of vagaries in revenue estimates and year-to-year changes in carry-over appropriation authority. The latter factor probably accounts for the sequencing of underspending and overspending indicated in the table. Over the entire period, expenditures have averaged 98.8% of revenues and the correlation between revenues and expenditures is 1.00 ($p < .05$).

The point at which the hypothesized linkages begin to break down is in the relationship between total state general fund expenditures and welfare expenditures from the general fund. Welfare expenditures as a percentage of total state expenditures declined between 1964/65 and

⁶ Sylvia Orange (ed.), *1974 Legislative Manual*, p. 196.

⁷ See, e.g., Otto Davis, M. A. Dempster, and Aaron Wildavsky, "A Theory of the Budgetary Process," *American Political Science Review*, LX, 3 (Sept. 1966), pp. 529-47.

⁸ The coefficients of correlation reported in this paper should be interpreted with caution since we have only a limited number of data points ($N = 10$). We use them only as a rough measure of covariation.

⁹ The sales tax rate was increased from 3% to 4% as of June 1, 1969 and the corporation income tax rate was changed from 5% to 6% as of December 31, 1969. There have also been some minor modifications in the withholding provisions of the personal income tax which impact cash flow rather than aggregate receipts.

TABLE II

Personal Income, State Revenues, State Expenditures, and Social Services Expenditures in South Carolina in Constant Dollars¹: 1964/65 to 1973/74

<i>Year</i>	<i>Personal Income (millions)</i>	<i>State Rev.² (thou.)</i>	<i>Rev. as % of Personal Income</i>	<i>State Exp.³ (thou.)</i>	<i>Exp. as % of Rev.</i>	<i>Welfare Exp.³ (thou.)</i>	<i>Welfare Exp. as % of State Exp.</i>
1964/65	\$4,604	\$264,896	5.8%	\$253,006	95.5%	\$ 8,868	3.5%
1965/66	5,005	307,593	6.2%	279,196	90.8%	8,468	3.0%
1966/67	5,480	333,112	6.1%	327,786	98.4%	8,933	2.7%
1967/68	5,766	336,400	5.8%	354,250	105.3%	9,611	2.7%
1968/69	6,143	366,155	6.0%	373,641	102.0%	10,670	2.9%
1969/70	6,416	415,887	6.5%	430,802	103.6%	16,686	3.9%
1970/71	6,613	433,827	6.6%	425,098	98.0%	17,451	4.1%
1971/72	6,852	479,375	7.0%	451,810	94.2%	20,565	4.6%
1972/73	7,397	532,482	7.2%	518,848	97.4%	24,504	4.7%
1973/74	7,818	588,430	7.5%	595,252	101.2%	31,243	5.2%

¹ 1967/68 = 100.

² State General Fund Revenues.

³ State Expenditures from the General Fund.

Sources: Personal Income—The South Carolina Budget and Control Board, Division of Research and Statistical Services, *1974 South Carolina Statistical Abstract*, p. 17. Revenue and Expenditure Data—The South Carolina State Budget and Control Board, *The South Carolina State Budget*.

1966/67, remained constant for one year only, and increased steadily for the remainder of the period. The result of these trends is that the budget share for welfare expenditures increased by roughly 50% over the ten-year time span and nearly doubled between its low point in 1967/68 and its high point in 1973/74.

The slippage in the relationship between welfare expenditures and total state expenditures attenuates, to some extent, the relationship between welfare spending and the resource base. Though the correlation between personal income and welfare expenditures is high ($.97 p < .05$), the relationship has experienced some substantial change. In 1964/65, welfare spending represented .19% of state personal income. By 1966/67, this percentage had dropped to .16%. Between 1966/67 and 1973/74, the percentage more than doubled, reaching .40% in 1973/74. Though the absolute size of the change would appear to be rather slight, its impact on welfare spending is considerable. This impact can be estimated by calculating what welfare spending would have been had it been maintained at the percentage of personal income it represented at the beginning of the period. This calculation yields an anticipated level of welfare spending of roughly \$15 million whereas actual expenditures in 1973/74 were in excess of \$31 million. Stated another way, the relaxation of the resource constraint accounts for little more than one-fourth of the increase in welfare spending in South Carolina in the period under consideration.

The variable texture of the relationship between welfare spending and personal income can be further illustrated by extending the analysis over a longer period of time. In the period between 1959/60 and 1973/74, there were two years in which welfare spending declined while both personal income and total state expenditures increased. In addition, prior to 1967/68, personal income rose at an average annual rate of 6.2%. Total state expenditures from the General Fund increased at an average annual rate of 8.6%. However, welfare spending increased at an average annual rate of only 0.7%. This picture changed dramatically after 1967/68. In this period, personal income increased at an average annual rate of 10.4% and total state expenditures increased at an average annual rate of 14.1% while welfare spending increased at an average annual rate of 24.0%.

The posited relationships also break down in regard to the individual categories of welfare spending. The breakdown is apparent, to some extent, in correlational analysis and more decidedly in comparisons of percentage changes (see Table III). The correlations between personal income and expenditures are positive and strong with the exceptions of expenditures for Old Age Assistance and General Assistance where

TABLE III

*Relationships Between Personal Income and
Welfare Expenditures By Category:
1964/65 to 1973/74*

<i>Category</i>	<i>Correlation with Personal Income</i>	<i>Percentage Change</i>
Total Welfare Exps. ....	.97 ^x	+261.6%
Admin. & Prog. Ser. ....	.94 ^x	+498.1%
Old Age Assistance ¹	-.29	-33.7%
Aid to the Blind ¹ ....	.86 ^x	+16.0%
Aid to Dependent Child. ....	.96 ^x	+470.5%
Aid to Disabled ¹ ....	.94 ^x	+69.0%
General Assistance	-.69 ^x	-63.0%
Total Categorical Assist. ....	.91 ^x	+70.3%
Medical Assistance ² ....	.95 ^x	+115.6%
Personal Income:		
1964/65 to 1973/74 ....	...	+69.8%
1969/70 to 1973/74 ....	...	+21.9%

^x Indicates statistically significant at .05 level of significance.

¹ The expenditures for the first six months of 1973/74 are doubled to allow for the transfer of this program to the Supplemental Security Income Program on January 1, 1974.

² From 1969/70 to 1973/74.

the correlations are negative and, in the case of General Assistance, statistically significant. In regard to percentage changes, only the increases in expenditures for Aid to Permanently and Totally Disabled and Total Categorical Assistance closely approximate the increase in personal income. Expenditures for Administration and Program Services, Aid to Families with Dependent Children, and Medical Assistance have all increased at a pace significantly in excess of that for personal income. Aid to the Blind expenditures have increased more slowly than personal income. Old Age Assistance and General Assistance expenditures declined while personal income was increasing.

In sum, there are at least three reasons for questioning the validity of the resource base-policy hypothesis as the sole explanation for the observed changes in welfare spending. First, the change in the resource base fails to account fully for the magnitude of the growth in welfare spending in South Carolina over the last ten years. Second, for at least a portion of the period under examination there was an inverse relationship between changes in the resource base and changes in welfare spending. Finally, changes in the resource base fail to account for the reordering of program emphases among the several categories of welfare spending. Consequently, it appears that the resource base-policy hypo-

thesis provides, at best, only a partial explanation for changes in the size and composition of welfare spending in South Carolina in the last decade.

NEED—POLICY LINKAGE

A second possible interpretation of the environment-policy linkage is that the observed changes in welfare expenditures have been the result of shifting patterns of needs in the population.

Before embarking upon an empirical analysis of this potential linkage, two caveats must be tendered. First, the analysis assumes a distinction between need and eligibility. The "need" measures employed in this analysis relate generally to the economic status of relevant segments of the population. Eligibility standards, on the other hand, can (and often do) vary independently of changes in need. We shall interpret changes in eligibility criteria as evidence of changes in demand rather than need, based on the premise that a person's "need" does not change if he is declared eligible for welfare either by court or administrative action.¹⁰ On the other hand, by such declaration that person does become a potential claimant on the welfare system and, consequently, a possible source of additional demand on that system. Second, the available measures of need are, for the most part, rather weak and should be interpreted with due caution.

Two aggregate measures of need—unemployment and number of families living in poverty¹¹—are used to test the need-policy hypothesis in regard to general categories of expenditures: total welfare expenditures, Administration and Program Services expenditures, and total categorical assistance payments. For the more specific categories we sought, with only limited success, more specific measures of need. For Old Age Assistance, the number of families with heads over age sixty-four living in poverty is taken as the measure of need.¹² For Aid to Families with Dependent Children, the chosen measure of need is

¹⁰ This distinction should not be interpreted as implying that the "non-needy" are now receiving assistance. That may, or may not, be the case. It is more likely that some persons in need were not previously being served by the welfare system because of eligibility restriction.

¹¹ The data for number of families and individuals living in poverty and the aged living in poverty is not available on a yearly basis. Given this limitation, it has been necessary to make linear extrapolations based on 1960 and 1970 Census data. For families and individuals living in poverty, the 1960 figure was based on families and individuals with annual incomes less than \$3,000. For 1970, the figure is based on the official definition of poverty. See U.S. Dept. of Commerce, Bureau of the Census, *Characteristics of the Population*, Vol. I, Part 42 (Washington: U.S. Gov't Printing Office, 1963 and 1973), Table 65, p. 111 and Table 58, p. 156.

¹² *Ibid.*, Table 139, p. 370 and Table 209, p. 909.

single-parent families living in poverty.¹³ Since data concerning the number of blind or disabled persons living in poverty are not available, we are forced to use the number of families and individuals living in poverty as the need measure for Aid to the Blind and Aid to the Permanently and Totally Disabled under the assumption that the proportion of persons living in poverty who are blind or disabled has remained relatively constant over the period under examination. The same measure of need will be used for Medical Assistance and General Assistance expenditures.

The correlations and percentage changes for the measures of need and expenditures are shown in Table IV. The data show scant support for a need-policy linkage. In only two categories—General Assistance and Aid to Families with Dependent Children—is there some supportive evidence. In every other category, there is either no correlation, or a negative correlation, between measures of need and expenditures, and the percentage changes are either in the opposite direction or disproportionately larger in the expenditure category than in the measure of need.

In the case of General Assistance, there is a strong positive correlation ($.70, p < .05$) between the number of families living in poverty and expenditures. In addition, the percentage change in general assistance expenditures roughly approximates the percentage change in families living in poverty. In the case of Aid to Families with Dependent Children, the correlation between single-parent families living in poverty and expenditures is high ($.91, p < .05$). However, the number of single-parent families living in poverty has increased by only 17.4% while expenditures for Aid to Families with Dependent Children have increased by 470.5%.

Even making a generous allowance for measurement error and the absence of more direct measures of need, there is little reason to believe that changes in need have accounted for the changing patterns of welfare spending in South Carolina with the possible exceptions of spending for Aid to Families with Dependent Children and General Assistance.

DEMAND-POLICY LINKAGE

A third possible explanation for the changes in the size and composition of welfare spending in South Carolina is that the changes have been the result of differentially distributed clientele demands on the welfare system.

¹³ Estimates taken from South Carolina Department of Social Services, *FY 1974 Program Activity Report*, Graph 1.1.1.

TABLE IV
*Relationships Between Measures of
 Need and State Welfare Expenditures
 By Category: 1964/65 to 1973/74*

	<i>Unemp.</i>	<i>Correlations Families in Poverty</i>	<i>Aged in Poverty</i>	<i>Sing. Par. Fami- lies in Pov.</i>	<i>Percentage Changes</i>
Total Welfare Exps. ....	.18	-.93 ^x	....	....	+261.6%
Admin. & Prog. Ser. ....	.10	-.89 ^x	....	....	+498.1%
Old Age Assist. ¹ ....		....	-.39	....	-33.7%
Aid to Blind ¹		-.79 ^x	....	....	+16.0%
Aid to Dep. Child. ....		....	....	.91 ^x	+470.5%
Aid to Disabled ¹		-.88 ^x	....	....	+69.0%
Gen. Assist. ....		.70 ^x	....	....	-63.0%
Total Cat. Assist. ....	.10	-.85 ^x	....	....	+70.3%
Med. Assist. ²		-.98 ^x	....	....	+115.6%
Percentage Changes:					
1964/65 to 1973/74	-13.7%	-48.4%	+1.1%	+17.4%	
1969/70 to 1973/74		-29.4%	....	....

^x Indicates statistically significant at .05 level of significance.

¹ The expenditures for the first six months of 1973/74 are doubled for this category to allow for the transfer of this program to the Supplemental Security Income Program on January 1, 1974.

² From 1969/70 to 1973/74.

As a first cut in the examination of the demand-policy linkage, the relationships between system utilization, as represented by caseloads, and expenditures are shown in Table V.

On the whole, the data support the existence of a demand-policy linkage. The correlations between caseloads and expenditures are generally positive and strong. The exceptions are the relationships between Aid to the Blind and Old Age Assistance caseloads and expenditures in each of those categories. For Aid to the Blind, the correlation is positive, but fails to achieve statistical significance. For Old Age Assistance, the relationship is both positive and statistically significant. However, the strength of the relationship is moderate, reflecting the fact that while caseloads have fallen steadily over the ten-year period, expenditures have followed a more erratic pattern of increases and decreases.

A comparison of percentage changes produces more equivocal results. For the categories Old Age Assistance, Aid to the Permanently and Totally Disabled, and General Assistance, the percentage changes in caseloads generally parallel percentage changes in expenditures. For Aid to the Blind and Aid to Families with Dependent Children, the percentage changes in expenditures substantially exceed the percentage changes in caseloads. The result is that the percentage change in expenditures for all categorical assistance programs exceeds the percentage change in total caseload. Similarly, the percentage increases in expenditures for both Medical Assistance and Administration and Program Services are considerably larger than the increase in the total caseload with the result that total state social services expenditures have increased at a substantially faster pace than have caseloads.¹⁴

The evidence thus suggests general correspondence between system utilization and expenditures. However, it is also clear that other forces have been in effect. Two obvious questions arise. First, since we know that, at least in some cases, expenditures have increased faster than caseloads, how much of the increase in expenditures can be attributed to the increase in caseloads? Second, to what extent has the increase in caseloads been the result of clientele demands on the welfare system? We shall examine these questions by isolating the determinants of expenditures and caseloads, and analyzing the relative impact of these determinants.

The determinants of expenditure levels in each category are the size of the caseload and payments per case. A rough estimate of the influence

¹⁴ We have taken total categorical assistance caseloads as proximate measures of demand for Administration and Program Services and Medical Assistance since, in most instances, eligibility for the former is required as a condition of eligibility for the latter.

TABLE V
*Relationships Between Measures of Demand and State Welfare
 Expenditures By Category: 1964/65 to 1973/74*

	Total Cases	Old Age Assist. Cases	Correlations			Gen. Assist. Cases	Percentage Changes
			Aid to Blind Cases	Aid to Dept. Child Cases	Aid to Dis- abled Cases		
Total Welfare Exps. ....	.97 ^x	....	....	....	....	....	+261.6%
Admin. & Prog. Ser. ....	.96 ^x	....	....	....	....	....	+498.1%
Old Age Assist. ¹ ....	....	.59 ^x	....	....	....	....	-33.7%
Aid to Blind ¹ ....	....	....	.34	....	....	....	+16.0%
Aid to Dep. Children ....	....	....	....	.99 ^x	....	....	+470.5%
Aid to Disabled ¹ ....	....	....	....	....	.98 ^x	....	+69.0%
Gen. Assistance ....	....	....	....	....	....	.998 ^x	-63.0%
Total Cat. Assist. ....	.98 ^x	....	....	....	....	....	+70.3%
Med. Assist. ² ....	.96 ^x	....	....	....	....	....	....
Percentage Changes:							+115.6%
1964/65 to 1973/74	+54.3%	-31.2%	+3.6%	+375.1%	+60.9%	-51.0%	
1969/70 to 1973/74	+55.3%	....	....	....	....	....

^x Indicates statistically significant at .05 level of significance.

¹ The expenditures for the first six months of 1973/74 are doubled for this category to allow for the transfer of this program to the Supplemental Security Income Program on January 1, 1974.

² From 1969/70 to 1973/74.

of these determinants can be made by multiplying caseloads at the end of the period by payments per case at the beginning of the period, and *vice versa*, and allowing for an interaction factor.¹⁵ Analogous computations for the number of cases approved (where the determinants are the number of applications and approval rates) and the number of cases terminated (where the determinants are the size of the caseload and the termination rate) yields similar estimates regarding the size of the caseload.

We shall assume that changes in categories in which changes in the size of the caseload have been the primary determinant of changes in expenditure levels and number of terminations and changes in the number of applications have been the primary determinant of changes in the number of cases approved are the results of clientele demands on the welfare system. Conversely, changes due to payment levels, approval rates, and termination rates will be interpreted as the probable result of forces other than clientele demand.

Table VI lists the results of the computations outlined above, and, in general, they tend to support a demand-policy linkage. In all of the categorical assistance programs with the exception of Aid to the Blind, changes in caseloads have far overshadowed changes in payment levels in determining levels of expenditures. However, in both the Medical Assistance and Administration and Program Services categories, changes in payments per case have been more influential, and in the instance of Administration and Program Services, decidedly so. In regard to number of approvals, the number of applications has been more important than approval rates for total categorical assistance, Old Age Assistance, Aid to the Disabled, and General Assistance, and about equally important for Aid to Families with Dependent Children. In the Aid to the Blind category, the slight decline in cases approved (less than 9%) has been due entirely to changes in the approval rate. The number of terminations has been more a function of changes in the size of the caseload than changes in the termination rate in every category except Aid to the Blind.

¹⁵ The calculation formulae are:

$$\text{Change in Expenditures due to Changes in Payments/Case} = \left(\frac{C_2}{C_1} \right) (C_1 \times P_2 - E_1)$$

$$\text{Change in Expenditures due to Changes in Caseload} = (C_2 \times P_1 - E_1)$$

Where:

C_1 = No. of cases at beginning of period

C_2 = No. of cases at end of period

P_1 = Payments/Case at beginning of period

P_2 = Payments/Case at end of period

E_1 = Expenditures at beginning of period

TABLE VI
*Determinants of Expenditures, Approvals, and Terminations:
 1964/65 to 1973/74*

	Expenditures		Approvals ¹		Terminations ¹	
	Caseload	Payments/Case	Applications	Approval Rates	Caseload	Termination Rates
Total Welfare Exps.	78.5%	21.5%	86.0%	14.0%	84.0%	16.0%
Admin. & Prog. Ser.	10.9%	29.1%	86.0%	14.0%	84.0%	16.0%
Old Age Assist. ²	92.5%	7.5%	100.0%	0.0%	100.0%	0.0%
Aid to Blind ²	22.6%	77.4%	0.0%	100.0%	20.0%	80.0%
Aid to Dep. Children	79.8%	20.2%	48.0%	52.0%	100.0%	0.0%
Aid to Disabled ²	88.4%	11.6%	100.0%	0.0%	84.0%	16.0%
Gen. Assist.	81.0%	19.0%	100.0%	0.0%	100.0%	0.0%
Total Cat. Assist.	77.1%	22.9%	86.0%	14.0%	84.0%	16.0%
Med. Assist. ³	47.9%	52.1%	86.0%	14.0%	84.0%	16.0%

¹ "100.0%" entries are made for categories in which there are countervailing trends (e.g., applications increase while approval rates decline). Consequently, if the number of cases approved increases, the number of applications increases, but the approval rate declines, we have listed the increase in applications as accounting fully for the net increase in cases approved.

² Caseloads for these categories are the average monthly caseload for the first six months of 1973/74.

³ From 1969/70 to 1973/74.

Sources: Caseloads—The South Carolina State Budget and Control Board, *The South Carolina State Budget*, various years.

Applications, Approvals and Terminations—South Carolina Department of Social Services, *Public Welfare Statistics*, various years.

The results of the preceding analysis are summarized in Table VII as they relate to the demand-policy linkage. The criteria imposed for the existence of a demand-policy linkage are:

- (1) There is either no correlation or a negative correlation between resource base (personal income) and expenditures;
- (2) There is either no correlation, or a negative correlation between measures of need and expenditures;
- (3) There is a positive correlation between system utilization (as expressed by caseloads) and expenditures;
- (4) Caseloads are more important than payments per case in determining expenditure levels;
- (5) The number of applications is more important than the approval rate in determining the number of cases approved;
- (6) The size of the caseload is more important than the termination rate in determining the number of cases terminated.

A "yes" entered in the table indicates a finding consistent with the demand-policy linkage. A "no" indicates a finding inconsistent with that linkage.

The results shown in the table are mixed. For total social services expenditures there is support for both a resource base-policy linkage (indicated by the positive correlation between resource base and expenditures and the dominance of payments per case in determining expenditure levels) and a demand-policy linkage (indicated by the positive correlation between caseload and expenditures and the dominance of applications and size of the caseload in determining approvals and terminations, respectively).

The aggregate result regarding the resource base-policy linkage is due largely to trends in two categories—Administration and Program Services and Medical Assistance. In both categories, increases in payments per case have been more important than increases in caseloads in accounting for increases in expenditures. Though this is possible evidence of a resource base-policy linkage, it would appear that other forces have been in effect in these categories.

For Administration and Program Services, the total increase in expenditures has been just under \$10 million. Projecting expenditures on the basis of a consultant relationship with personal income accounts for less than 14% of that increase. Similarly, for Medical Assistance, the increase in personal income accounts for only 20% of the increase in expenditures in this category.

TABLE VII
*Demand-Policy Linkage Criteria*¹

	<i>No or Neg. Cor. Betw. Res. Base & Exps.</i>	<i>No or Neg. Cor. Betw. Need & Exps.</i>	<i>Caseload & Exps. Pos. Cor. Between</i>	<i>Caseload > Payments</i>	<i>Application > Approv. Rate</i>	<i>Caseload > Term. Rate</i>
Total Welfare Exps.	No	Yes	Yes	No	Yes	Yes
Admin. & Prog. Ser.	No	Yes	Yes	No	Yes	Yes
Old Age Assist.	Yes	Yes	Yes	Yes	Yes	Yes
Aid to Blind	No	Yes	No	No	No	No
Aid to Dep. Children	No	No	Yes	Yes	No	Yes
Aid to Disabled	No	Yes	Yes	Yes	Yes	Yes
Gen. Assist.	Yes	No	Yes	Yes	Yes	Yes
Total Cat. Assist.	No	Yes	Yes	Yes	Yes	Yes
Med. Assist.	No	Yes	Yes	No	Yes	Yes

¹ A "Yes" indicates a finding consistent with the demand-policy linkage. A "No" indicates a finding inconsistent with that linkage.

Inclusion of the demand effect accounts for an additional portion of the increase in expenditures for Administration and Program Services and Medical Assistance, but the combination of resource base and demand influences still fails to account for the magnitude of the increases in these categories. The demand factor accounts for less than 11% of the increase in expenditures for Administration and Program Services and 50% of the increase for Medical Assistance. Assuming that resource base and demand have operated linearly and independently in influencing expenditures, 75% of the increase in spending for Administration and Program Services and 33% of the increase for Medical Assistance is left unexplained after allowing for the effect of changes in resource base and demand. Since there is also a negative correlation between need and expenditures in both of these categories, it would appear that increases in expenditures for Administration and Program Services and Medical Assistance do not fit neatly into any of the suggested explanations for policy change.

A major factor in both categories has been the federal influence. The state's share of funding for new federal programs in the Administration and Program Services category amounted to roughly four million dollars in 1973/74, accounting for more than 46% of the increase in expenditures in this category. In addition, favorable matching ratios have apparently had a stimulative effect on spending in both categories. Though the influence of the federal government may be interpreted as another form of "external demand" on the state welfare system, it is probably more reasonable to interpret the availability of federal dollars as an "opportunity" to which the state readily responded.)

The evidence regarding the demand-policy linkage is much stronger for the categorical assistance programs. For total categorical assistance expenditures, there is a strong positive correlation between caseloads and expenditures, more than three-fourths of the increase in expenditures can be attributed to the increase in caseloads, applications rather than approval rates have accounted for most of the increase in cases approved, and the size of the caseload rather than changes in the termination rate have been the primary determinant of changes in the number of cases terminated.

These overall findings mask some variability among the categories. For the categories Old Age Assistance, Aid to the Disabled, and General Assistance, the evidence is consistent with a demand-policy linkage. The exceptions lie in the Aid to the Blind and Aid to Families with Dependent Children categories. For Aid to the Blind, the results are con-

sistently contrary to the relationships hypothesized for the demand-policy linkage. For Aid to Families with Dependent Children, the only exception to the hypothesized relationships is that approval rates have been more important than number of applications in accounting for the increase in cases approved. This result can probably be attributed, at least in part, to the effect of court rulings during the period under examination which, on the whole, served to liberalize eligibility criteria for the Aid to Families with Dependent Children category and could be interpreted as another form of external "demand" on the welfare system.

RELATIONSHIPS AMONG THE LINKAGES

Though most of the results reported above are consistent with the demand-policy linkage the issue is clouded by the fact that there is also evidence consistent with the other proposed linkages. Only in the case of Old Age Assistance is there either no relationship or a negative relationship with measures of both resource base and need while the rest of the evidence supports a demand-policy linkage. For total welfare expenditures, total categorical assistance, Administration and Program Services, Medical Assistance, Aid to the Blind, and Aid to the Permanently and Totally Disabled, there is also evidence in support of the resource base-policy linkage, but not for the need-policy linkage. For General Assistance, there is support for the need-policy linkage, but not for the resource base-policy linkage. For Aid to Families with Dependent Children, there is evidence supporting all three linkages.

In order to determine somewhat more precisely the relationships among the various linkages we have computed the simple and partial regression coefficients shown in Table VIII.¹⁶ For categories in which the question is between the resource base-policy and demand-policy linkage we shall assume that the relationship between resource-base and demand is unilateral—i.e., the resource base, represented by personal income, can affect demand, but that demand cannot affect the resource base. Similarly, for the categories in which the question is between the need-policy and demand-policy linkages, we shall assume that need can affect demand, but not *vice versa*. In addition, we shall assume that the relationship between both resource base and need, on the one hand, and demand, on the other, may be coincidental rather than causal. The

¹⁶ For a justification of the use of unstandardized regression coefficients see Charles F. Cnudde and Donald J. McCrone, "Party Competition and Welfare Policies in the American States", *American Political Science Review*, LXIII, 3 (Sept. 1969), pp. 858-66.

TABLE VIII
Relationships Among Resource Base, Need, and Demand Linkages

Exp. Cat.	Cor.	Regression Coefficients			F	Type of Relationship
		Simple	F	Partial		
Total Welfare Exps.						
Res. Base97 ^x	5.52 ^x	123.2	2.91 ^x	29.1	Combination of Resource Base and Demand
Need .....	.18/- .93 ^x				
Demand .....	.97 ^x	1.16 ^x	121.5	0.61 ^x	28.7
Admin. & Prog. Ser.						
Res. Base94 ^x	1.99 ^x	60.1	0.84	4.3	Combination of Resource Base and Demand
Need .....	.10/- .89 ^x				
Demand .....	.96 ^x	0.43 ^x	95.7	0.27 ^x	10.2
Old Age Assistance						
Res. Base	-.29	Demand
Need	-.39	....	....	....	....
Demand .....	.59 ^x	....	....	....	....
Aid to the Blind						
Res. Base86 ^x	Resource Base
Need	-.79 ^x	....	....	....	....
Demand .....	.34	....	....	....	....
Aid to Dep. Children						
RB/Demand96 ^x	1.11 ^x	83.8	0.02	0.0	Demand or Developmental Sequence with Resource Base and Demand
Demand/RB .....	.99 ^x	0.23 ^x	394.4	0.23 ^x	23.7
RB/Need .....	....	....	....	2.65 ^x	19.5
Need/RB .....	.91 ^x	0.81 ^x	39.6	-1.19 ^x	6.8
Need/Demand .....	....	....	....	-0.08	0.4
Demand/Need .....	....	....	....	0.25 ^x	55.5

Demand for AFDC						
RB/Need	.96 ^x	4.82 ^x	104.3	8.77 ^x	9.1	Spurious Relationship Between Need and Demand
Need/RB	.93 ^x	3.57 ^x	54.0	-3.05	1.9	
Aid to Disabled						
Res. Base	.94 ^x	0.26 ^x	55.8	-0.02	0.1	Demand or Develop- mental Sequence with Res. Base & Demand
Need	-.88 ^x					
Demand	.98 ^x	0.29 ^x	222.5	0.31 ^x	18.7	
General Assistance						
Res. Base	-.69 ^x		7.8	-0.0004 ^x	12.7	Demand or Develop- mental Sequence with Need & Demand
Need	.70 ^x	0.003 ^x				
Demand	.998 ^x	0.46 ^x	1685.8	0.48 ^x	2108.5	
Total Cat. Assist. Progs.						
Res. Base	.91 ^x	1.31 ^x	39.6	0.22	1.0	Demand or Develop- mental Sequence with Res. Base & Demand
Need	.10/-.85 ^x					
Demand	.98 ^x	0.30 ^x	197.3	0.25 ^x	27.3	
Medical Assist.						
Res. Base	.95 ^x	2.34	74.5	1.16 ^x	6.9	Combination of Res. Base and Demand
Need	-.92 ^x					
Demand	.96 ^x	0.50	86.5	0.28 ^x	8.9	

^x Indicates statistically significant at .05 level of significance.

test to be used is the change in the regression coefficients after reciprocal controls have been instituted.¹⁷ We shall interpret the results as follows:

- (1) If the partial regression coefficient for the resource-base expenditure (need-expenditure) linkage is reduced to statistical insignificance after controlling for demand, but the regression coefficient for the demand-expenditure linkage is not similarly reduced after controlling for resource base (need), we shall assume that the resource base-expenditure (need expenditure) linkage is spurious or that demand mediates the relationship between resource base (need) and expenditures.
- (2) If the partial regression coefficient for the demand-expenditure linkage is reduced to statistical insignificance after controlling for resource base (need), but the regression coefficient for the resource base expenditure (need-expenditure) linkage controlling for demand is not similarly reduced, we shall assume that the demand-expenditure is spurious.
- (3) If neither regression coefficient is reduced after controls, or if both are reduced, we shall assume that the resource base-expenditure (need-expenditure) and demand-expenditure linkages are both operative.

For total welfare expenditures, the need-policy linkage can be eliminated since neither measure of need describes the hypothesized relationship with expenditures. On the other hand, both resource base and demand are positively correlated with total welfare expenditures and the regression coefficient for both resource base and demand remain statistically significant after controls. Consequently, we conclude that resource base and demand have had a combined effect on total welfare

¹⁷ We have incorporated two departures from Cnudde and McCrone's suggested analytical procedure. First, we shall use the F-test to assess the statistical significance of the regression coefficients after controls are instituted. We are cognizant of Cnudde and McCrone's objection to this test (that it controls for variance). However, the procedure proposed by the authors—establishing the confidence interval and judging a reduction significant if the controlled regression coefficient falls below the lower level—and poses a greater problem. Since the width of the confidence interval is a function of the standard error of the estimate, the lower the explanatory power of the model, the wider will be the confidence interval, meaning that the model constitutes a conservative test of spurious relationships and developmental sequences. Second, in contrast to Cnudde and McCrone, we consider the possibility that some of the relationships (specified in the text) can be coincidental rather than causal. Unfortunately, the statistical results do not distinguish between these possibilities since both predict the same changes in the regression coefficients. Consequently, we are only able to suggest that the results are compatible with both "spurious" and "developmental" interpretations.

expenditures. A similar conclusion is indicated for Administration and Program Services expenditures and Medical Assistance.¹⁸

For Old Age Assistance, only demand bears a statistically significant relationship with expenditures. For Aid to the Blind only resource base bears a statistically significant relationship with expenditures.

For Aid to the Disabled and total categorical assistance payments both resource base and demand indicators show a statistically significant correlation with expenditures. In these cases, the partial regression coefficient between resource base and expenditures controlled for demand is reduced to a statistically insignificant level. However, the reverse control procedure does not similarly reduce the relationship between demand and expenditures. Consequently, we conclude that either the relationship between resource base and expenditures is spurious or that the impact of resource base on expenditures is mediated by demand in a developmental sequence.

The simple coefficients of correlation for General Assistance indicate possible need-policy and demand-policy linkages. Since the regression coefficient for the relationship between need and expenditures is reduced to statistical insignificance after controlling for demand while the regression coefficient for the relationship between demand and expenditures increases after controlling for need, we conclude that either the relationship between need and expenditures is spurious or that a developmental sequence exists going from need, through demand, to expenditures.

The Aid to Families with Dependent Children category poses the thorniest analytical problem since measures of resource base, need, and demand all bear a statistically significant relationship to expenditures for Aid to Families with Dependent Children.

Looking first at a relationship between the need and demand linkages, the regression coefficient for the relationship between need and expenditures controlling for demand is not statistically significant. On the other hand, the regression coefficient for the relationship between demand and expenditures increases after controlling for need. This suggests that the relationship between need and expenditures is either spurious or that a developmental sequence exists among need, demand and expenditures.

¹⁸ The regression coefficient for the relationship between resource base and Administration and Program Services expenditures controlling for demand actually drops to a statistically insignificant level. However, since the F-ratio is very close to a statistically significant level and since we wish to be conservative in our interpretation regarding the impact of demand on expenditures, we have interpreted the relationship as a combination of resource base and demand.

The choice between "spurious" and "developmental" interpretations of the need-policy linkage can be made on the basis of the relationships between resource base, need, and demand if we assume that resource base affects demand but demand cannot affect resource base. The regression coefficient for the relationship between resource base and demand increases after controlling for need while reversing the controls reduces the relationship between need and demand to statistical insignificance. This combination of results regarding the need-demand and need-expenditure linkages suggests that the need-policy linkage is spurious for Aid to Families with Dependent Children.

In regard to the resource base and demand linkages, the regression coefficient for the relationship between demand and expenditures is not reduced after controlling for resource base while the relationship between resource base and expenditures is reduced to a statistically insignificant level after controlling for demand. These patterns suggest that the relationship between resource base and expenditures is either spurious or that a developmental sequence exists among resource base, demand, and expenditures.

In summary, the data shown in Table VIII indicate that only in the category General Assistance is there evidence of a need-policy linkage, and, even there, the relationship could be spurious. For Aid to the Blind, only the resource base-policy linkage has statistical support. In all of the remaining categories, demand, either alone, or in conjunction with the resource base, bears a direct relationship with changes in welfare expenditures.

CONCLUSION

This analysis has examined the impact of resource base, need, and demand on welfare expenditures in South Carolina. Our results indicate a differentially distributed impact for the several categories of expenditures. There is little evidence that a need-policy linkage has been in effect for any category with the possible exception of General Assistance where a developmental sequence among need, demand, and expenditures may have existed. For each of the other categories, resource base, demand, or some combination of the two has played a role in changes in welfare expenditures with demand usually in a dominant position. In only one instance, Aid to the Blind, do the data suggest that demand has not been a force in effecting policy change.

In regard to the magnitude of change, the combination of resource base and demand appears to account for most of the change which has taken place in the categorical assistance programs. However, neither resource base, demand, or the combination of the two fully accounts

for the magnitude of the increase in expenditures for Administration and Program Services and Medical Assistance. In these cases, another external factor, opportunities and/or pressures emanating from the federal government seems to have played a major role in stimulating expenditures beyond a level commensurate with increases in resources and demand within the state.

The analysis has both procedural and substantive implications. Procedurally, the study points to the importance of disaggregation. Cross-state and cross-country analyses have demonstrated the relationship between resource base and expenditures. However, the present study suggests that the relationship may conceal as much as it reveals. More specifically, our investigation of the environment-policy linkage in a single state suggests that demand has played at least an equally important role in policy change, a point easily overlooked in aggregate analyses focusing on the relationship between economic variables and expenditures. Disaggregation would also appear to be of importance in defining the type of expenditure to be examined. Different environmental forces are likely to be in operation for different categories of expenditures and, as has been demonstrated in this analysis, even within those categories.

However, the benefits of this research strategy are achieved at the cost of generalizability. The extent to which these results would be obtained in other states and/or for other program areas can only be determined through further analysis. We suspect that demand plays an important role in welfare budgeting in states other than South Carolina due to the routinized nature of budgeting in this program area. For the same reason, we suspect that the demand-policy linkage may be more important in welfare budgeting than it is in other budgetary categories.

Substantively, the persistence of the demand-policy linkage in this analysis despite the stringent set of criteria imposed for its existence, at least raises the possibility that political factors may have influenced welfare policy changes in the last decade. This point requires more direct examination, but the demand-policy linkage would appear to be more fertile ground for political analysis than either the resource base-policy or need-policy linkages which are more readily interpretable as mechanical responses to external, "nonpolitical" stimuli.