An overview of "recent state AFDC benefits and caseload dynamics"

Authors: Barry Bluestone, James B. Sumrall

Chestnut Hill, Mass.: Social Welfare Regional Research Institute, Boston College, February 1977

AN OVERVIEW OF "RECENT STATE AFDC BENEFITS and CASELOAD DYNAMICS"

Barry Bluestone
James B. Sumrall

SWRRI PUBLICATION #25

SOCIAL WELFARE REGIONAL RESEARCH INSTITUTE

Boston College

February 1977

Charles Piper, Kathleen Sestak, Richard Sheehan, Mary Stevenson and Steve Venti were responsible, along with the authors of this paper, for the research that culminated in the results presented here. The work upon which this article is based was performed pursuant to Contract SRS-500-75-0005 with the Social and Rehabilitation Service, Department of Health, Education and Welfare.

AN OVERVIEW OF "RECENT STATE AFDC BENEFITS AND CASELOAD DYNAMICS"*

Barry Bluestone
Director

James B. Sumrall
Senior Research Associate

SOCIAL WELFARE REGIONAL RESEARCH INSTITUTE

Introduction

The Social Welfare Regional Research Institute (SWRRI) was established at Boston College in 1970 to conduct policy research on the relationship between welfare and the economy. The studies of the Institute have been concerned with (1) evolving issues in employment and welfare that concern the development of income maintenance policy (2) programs aimed at moving client populations toward self-support (3) the impact of employment opportunities on the effectiveness of welfare programs (4) the work experience patterns of client populations and (5) the interaction of welfare policies and the employability of recipients.

More recently, under contract to the Social and Rehabilitation Service of H.E.W., SWRRI has been investigating the determinants of AFDC caseload and expenditure trends for the period 1959-1974 in each of five jurisdictions. These include New York City, Upstate New York, Georgia,

---

*Charles Piper, Kathleen Sestak, Richard Sheehan, Mary Stevenson, and Steve Venti were responsible, along with the authors of this paper, for the research that culminated in the results presented here. The work upon which this article is based was performed pursuant to Contract SRS-500-75-0005 with the Social and Rehabilitation Service, Department of Health, Education and Welfare.

North Carolina, and Washington.[1] For each of these we have constructed a multi-equation model which decomposes changes in the size of the caseload into its component parts. Instead of a single caseload equation, separate monthly time series regressions were estimated for:

(1) Applications Received
(2) Processing Rate
(3) Acceptance Rate
(4) Closing Rate
(5) Expenditures/Case

These individual equations were then recombined to yield estimates for the size of the caseload and the value of total expenditures.

The use of such a "components" methodology marks a departure not only from our own previous approach, but also from most prior research.[2] The advantage of the components model is that it allows the researcher a much finer representation of the actual caseload determination process. Consequently AFDC program dynamics can be measured with greater precision than ever before. The empirical results generated from these individual state models turn out to yield new insights about the underlying "causes" of AFDC trends.

---

[1]The state of Michigan was included in the original research plan. However, all of our efforts at generating a useful model for this state were frustrated by inconsistencies and gaps in the historical data series. Therefore, Michigan was not included in this overview of results.

[2]One previous study that utilized this methodology is by Martin Holmer, "The Economic and Political Causes of the 'Welfare Crisis'" (Ph.D. Dissertation, Massachusetts Institute of Technology, 1975).

In the course of this research, we have been able to test the relevance of three theories about caseload dynamics. One is the "alternative income" hypothesis which suggests that a large part of the growth in caseloads is a voluntary response to rising AFDC benefit levels relative to wage opportunities in the labor market. The "employment opportunity" theory, on the other hand, posits the importance of job availability per se as the key to understanding caseload dynamics. Finally, the "institutional" theory suggests that changes in demographic characteristics, political attitudes, and changes in welfare rules and regulations are the dominant causes of rising assistance rolls.

To test these three hypotheses, a voluminous data set was collected for each of the states in the model. Benefit information, including maximum cash allowances, food stamp bonus value, and an imputed actuarial value for in-kind medical services, was gathered to measure the total value of public assistance to the average-sized recipient family. Measures of potential female spendable earnings in relatively low-skill occupations were constructed, these to be combined with the benefit data to form benefit/wage ratios. Testing the employment opportunity hypothesis relied on information about aggregate unemployment rates, as well as employment levels in those "low -training" non-durable manufacturing industries and "high-turnover" retail trade and service sectors where many employed welfare recipients are found. Over fifty different institutional variables were developed, including those which were used to measure demographic trends, political attitudes, and specific AFDC

regulations such as "simplified eligibility," workfare, WIN and $30 and 1/3.

The final analysis of caseload and expenditure dynamics is accomplished through the use of a simulation procedure in which monthly caseload estimates are generated solely from the regression equations, the exogenous data, and the initial (December 1958) values for cases and applications pending. By adjusting the exogenous data and simulating alternative scenarios, we are able to evaluate a variety of economic and policy changes which occured over the sample period. For example, if we increase statutory or scheduled benefit levels by a certain amount and leave all other exogenous data at actual levels, the resulting change in the caseload is an indirect measure of the overall impact of benefit levels on the caseload. We have chosen to term tests using hypothetical data "counterfactuals" and tests based completely on actual data "simulations." Thus the difference between simulated and counterfactual levels of the caseload and total expenditures can be attributed to the variables that take on hypothetical values in the counterfactual.

In Table 1 we have compared the simulated with the actual caseloads and expenditures for the five jurisdictions for fiscal year 1974. The simulations are based on the multi-equation regression models developed for each of these jurisdictions and are created by reconstituting the caseload "identity".[3]

---

[3]See the Appendix to this paper for the construction of the caseload identity.

$$\hat{Caseload}_t = \hat{Caseload}_{t-1} + (\hat{Applications}_t * \hat{Processing\ Rate}_t * \hat{Acceptance\ Rate}_t) - (\hat{Closing\ Rate}_t * (\hat{Caseload}_{t-1} + \hat{Openings}_t))$$

These econometric models simulate the caseload accurately with errors as low as 1.5 and 1.2 percent in Washington and New York City in FY 1974. In the remaining states the error is slightly larger but not unreasonable.[4] The simulation errors in other years are of similar magnitude.

TABLE 1

Simulated vs. Actual Caseload and Expenditures
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Actual	Simulated	Percent Error	Actual	Simulated	Percent Error
N. Carolina	48.680	46.269	-5.0	$ 75,522	$ 72,708	-3.7
Georgia	105.258	109.277	3.8	129,426	134,376	3.8
Upstate N. Y.	92.463	95.211	3.0	366,440	316,022	3.1
Washington	38.833	38.255	-1.5	106,395	105,329	-1.0
New York City	239.475	236.565	-1.2	886,958	879,434	- .8

[4]The higher error in the North Carolina model can be attributed to poor data and the need to rely on a quarterly model.

Total expenditures follow the same pattern in each state and contain errors often even smaller than those found in the caseload estimates. These simulations yield a strong indication of the modeling accuracy provided by the components method.

The simulated values in Table 1 provide the base line against which the counterfactuals can be compared. In Tables 2 through 8, we present counterfactuals which illustrate some of our tests of the three welfare hypotheses mentioned earlier.

The Alternative Income Hypothesis

To test the impact of the alternative income theory, we simulated two counterfactuals. In one we froze the maximum allowable cash benefit at its July 1962 level as though state legislatures had never voted benefit increases. In the second hypothetical, we set cash benefits 10 percent greater than actual for every month in the analysis period (1959-1974). All other factors in the model, including potential earnings levels, food stamp benefits and Medicaid, were allowed to change as they actually did. In the first case we originally expected to find much lower caseloads in accord with the alternative income theory; in the latter we expected modest caseload increases.

Somewhat surprisingly we found that the substantial cash benefit boosts during the 1960's and 1970's had much less to do with the caseload boom than predicted by the alternative income theory. Table 2 indicates that of the five jurisdictions in the analysis, the largest difference in the caseload due to the low cash benefit scenario is found in Upstate

New York. If maximum allowable cash benefits had been kept at $209 instead of rising to $319 as they did, the caseload in Upstate New York would have been 72,371 or 24 percent smaller in FY1974. This is substantial, but obviously still leaves a large portion of the caseload growth unexplained. Even more surprising, holding cash benefits at their lowest levels in Washington ($164) and New York City ($220) resulted in caseload declines of only 8.4 percent and 6.5 percent. The welfare "explosion" in these two areas must be explained almost totally by other factors.

TABLE 2

"Low Cash Benefits (7/62 Level)" vs. Simulated Caseload and Expenditure
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Simulated	Counterfactual	Percent Difference	Simulated	Counterfactual	Percent Difference
Upstate N. Y.	95.211	72.371	-24.0	$ 316,022	$ 194,851	-38.3
Georgia	109.277	90.293	-17.4	134,376	79,656	-40.7
N. Carolina	46.269	38.265	-17.3	72,708	39,672	-45.4
Washington	38.255	35.049	- 8.4	105,329	65,780	-37.6
New York City	236.565	221.091	- 6.5	879,434	577,206	-34.4

Table 3 presents the results for the +10 percent counterfactual. These hypotheticals are somewhat more realistic and can be compared across states whereas the previous example cannot. They provide for an equal proportional change in cash benefits unlike those in Table 2 which vary from state to state depending on how much cash benefits actually

increased. The results are similar, but not identical, to those found in the lowest benefit scenario. In Georgia, the caseload increased by 12.8 percent to 123,267 in response to the 10 percent boost in benefits. Total expenditures rose by a substantial 25.7 percent to almost $169 million on an annual basis. Again changes in benefits made little difference in New York City and Washington.

A major difference between the two benefits scenarios is found in Upstate New York. The first scenario identifies the maximum increase in caseload which can be directly attributed to the growth in benefits, whereas the second scenario illustrates the marginal or incremental change associated with less extreme benefit fluctuations. The caseload responded significantly to holding benefits at the 1962 level, but when we artificially increased allowances by 10 percent, the caseload rose by only 6.2 percent. This suggests that the sizeable sixteen year growth in the caseload was due to substantial boosts in the benefit level

TABLE 3

"Cash Benefits 10 Percent Higher" vs. Simulated Caseload and Expenditure
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Simulated	Counterfactual	Percent Difference	Simulated	Counterfactual	Percent Difference
Georgia	109.277	123.267	12.8	$ 134,376	$ 168,851	25.7
Upstate N. Y.	95.211	101.132	6.2	316,022	353,280	11.8
N. Carolina	46.269	48.156	5.1	72,708	83,514	14.9
New York City	236.565	241.970	3.4	879,434	1,004,826	14.3
Washington	38.255	39.153	2.4	105,329	117,830	11.9

itself and not caused by an inordinate sensitivity to each small increment in the cash amount. In Georgia, on the other hand, where the maximum cash benefit increased by only $33 during the analysis period, the caseload is highly sensitive to each increment.

Further analysis of this information suggests that the sensitivity to benefit levels is related to the relative value of welfare benefits and potential wages in each state. In Georgia, benefits were very low relative to wages during the early part of the analysis period. A family could normally receive in total benefits less than half the value of what could be earned in the low-skilled labor market. Over time the value of benefits (including food stamps and Medicaid) rose faster than wages and consequently more families found themselves on the work-welfare margin. According to our estimated model, this led, to a considerably larger number of applicants and acceptances and fewer terminations. In New York and Washington benefits were always a higher proportion of potential wages. Increases in the benefit ratio apparently affected the voluntary decisions of families very little. This explains why only a tiny fraction of the growth in caseloads and expenditures is attributed to these factors. In North Carolina, the small counterfactual difference in Table 3 can be explained by the fact that actual benefits declined relative to wages during the analysis period. A hypothetical 10 percent boost in 1974 would therefore also have affected few family decisions because benefits were no where near the level required to compensate for lost wages. Only a large change such as that found in the lowest benefit

counterfactual can affect the size of the caseload.

The different benefit histories during the period 1959-1974 can therefore tell us something about the growth in AFDC. But for each of these jurisdictions, other explanatory factors must be at least equally as powerful, if not more so, in explaining caseload and expenditure growth. Changing job opportunities appears to be one of these factors.

The Employment Opportunity Hypothesis

Two tests of the employment opportunity hypothesis are summarized in Tables 4 and 5. In the "recession economy" scenario, the unemployment rate was held at its highest value in the period between July 1962 and December 1974. If either the non-durable manufacturing or retail trade and service employment index declined from its initial July 1962 value, the index was allowed to take on its actual value in subsequent years. However, if either index actually rose over time, it was held constant

TABLE 4

"Recession Economy" vs. Simulated Caseload and Expenditure
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Simulated	Counterfactual	Percent Difference	Simulated	Counterfactual	Percent Difference
Georgia	109.277	129.626	18.6	$ 134,376	$ 170,267	26.7
Upstate N. Y.	95.211	106.441	11.8	316,022	353,265	11.8
New York City	236.565	272.845	15.3	879,434	1,013,546	15.3
Washington	38.255	45.607	19.2	105,329	127,109	20.7
N. Carolina	46.269	59.771	29.2	72,708	139,362	91.7

at its initial value. In the "growth economy" scenario, the conditions were reversed: the unemployment rate was held constant at its lowest value; if an employment index rose it was allowed to assume its actual value; if it fell it was assigned its initial July 1962level.

TABLE 5

"Growth Economy" vs. Simulated Caseload and Expenditure
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Simulated	Counterfactual	Percent Difference	Simulated	Counterfactual	Percent Difference
Georgia	109.277	97.764	-10.5	$ 134,376	$ 120,221	-10.5
New York City	236.565	212.949	-10.0	879,434	789,007	-11.3
Upstate N. Y.	95.211	80.309	-15.7	316,022	261,613	-17.2
Washington	38.255	27.803	-27.3	105,329	75,426	-28.3
N. Carolina	46.269	25.242	-45.5	72,708	37,707	-48.1

In the "recession economy", caseloads and expenditures in all five areas grow substantially, but the rates of growth vary significantly from state to state. The caseload would have been nearly 30 percent greater in North Carolina under these "permanent recession" conditions while only 11.8 percent higher in Upstate New York.[4] These differences reflect an underlying variance in the economies of each region

[4]One should be careful, however, in comparing differences across states in the recession and growth scenarios as they are based on different proportional changes in exogenous variables, i.e., the range in the unemployment rate in Georgia is between 2.6 and 4.9 percent (an 88 percent difference) while in Washington, the unemployment rate varies between 3.1 and 11.9 percent, a 284 percent difference.

and possibly the extent to which AFDC recipients mix work and welfare.[5] North Carolina's caseload has been extremely sensitive to sharp declines in agriculture while Washington's AFDC rolls reflect the state business cycle caused by severe fluctuations in aerospace spending. New York City's AFDC applications are not particularly affected by employment conditions, but careful inspection of the individual equations in this model indicate that the number of closings responds to both aggregate unemployment rates and to employment levels in the non-durable manufacturing sector including the garment industry.

The growth economy scenario reported in Table 5 suggests a similar picture of uneven caseload and expenditure response to changes in economic conditions. Again North Carolina is most sensitive, with the

---

[5]The uneven sensitivity between states that we found in these models is supported by evidence in the biennial AFDC characteristics studies. There we find significant variance between states in the trend of the caseload employed. In North Carolina the proportion jumps substantially between survey years, suggesting a possible strong economic relationship. On the other hand, in Georgia and New York, the percentage remains relatively constant, varying little with changing employment opportunity.

% of AFDC Mothers Employed

	1967	1969	1971	1973
Georgia	26.6	30.2	27.7	30.1
Washington	5.7	N.A.	8.2	N.A.
New York	6.2	7.9	8.6	9.5
N. Carolina	18.5	N.A.	11.0	22.9

counterfactual caseload level almost half the simulated caseload of 46,269. Washington is also sensitive to good economic times with the caseload some 27 percent lower or only 27,803 in FY1974 if full employment conditions had prevailed.

Given the nature of these counterfactuals, the most accurate portrayal can be found by comparing the difference between the recession and growth scenarios as shown in Table 6 below.

TABLE 6

"Recession Economy" vs. "Growth Economy" Caseload and Expenditure
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Recession	Growth	Ratio	Recession	Growth	Ratio
New York City	272.845	212.949	1.28	$ 1,013,546	$ 789,007	1.28
Upstate N. Y.	106.441	80.309	1.33	353,265	261,613	1.35
Georgia	129.626	97.764	1.33	170,267	120,221	1.42
Washington	45.607	27.803	1.64	127,109	75,426	1.69
N. Carolina	59.771	25.242	2.37	46,454	12,569	3.69

Clearly North Carolina and Washington show the greatest response to economic conditions while the caseloads in Georgia, Upstate New York, and New York City indicate approximately the same sensitivity to shifting employment patterns. Expenditures follow a similar pattern, with the "recession-growth" ratios somewhat larger due to the fact that economic conditions affect the average level of benefits per case as well as the

caseload level.[6] All of these counterfactuals suggest that the economic opportunity hypothesis is important and is in fact one of the principle factors explaining caseload and expenditure patterns at least in North Carolina and Washington. Indeed, the availability of jobs significantly affects the size of the caseload in every state we investigated. This strongly implies a powerful link between the overall health of the economy and the size of the welfare burden.

The Institutional Hypothesis

Beyond the economic variables in these models, we tested a rich array of institutional factors. These varied from general measures of political attitudes to specific changes in actual legislation or program policy. Many of these are unique to each state and do not bear comparison. However, there are a few important ones which appear in all states and we present a few of these here.

One key program revision involved the "$30 and 1/3" income disregards. This new policy was originally intended to reduce total welfare expenditures by providing a greater incentive to work. As Table 7 suggests,

---

[6]Note the much larger difference in the "recession growth" ratio of total expenditures compared to the caseload ratio in North Carolina. Under the recession counterfactual for FY1974 the average benefit per case rises steeply to $195/month from a simulated actual of $130. This apparently occurs as many employed AFDC mothers lose their jobs and require maximum cash benefits rather than reduced cash allowances supplemental to earnings. In other state models, the same phenomenon occurs, but it is much less pronounced.

just the opposite occurred. In each state, the caseload, as well as total expenditures, would have been smaller if the "$30 and 1/3" program had never been instituted.

TABLE 7

"No $30 and 1/3" vs. Simulated Caseload and Expenditure
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Simulated	Counterfactual	Percent Difference	Simulated	Counterfactual	Percent Difference
Georgia	109.277	69.747	-36.2	$ 134,376	$ 85,763	-36.2
N. Carolina	46.269	40.133	-13.3	72,708	63,069	-13.3
Upstate N. Y.	95.211	85.709	-10.0	316,022	284,494	-10.0
Washington	38.255	34.487	- 9.8	105,329	102,968	- 2.2
New York City	236.565	220.924	- 6.6	879,434	821,263	- 6.6

As is now well-known, the income disregards provided a strong incentive for the working poor to apply for welfare. At the same time the earnings exemptions substantially reduced the probability that a family would leave the rolls due to income ineligibility. Our models indicate that the relative impact of the disregards is almost perfectly correlated with the proportion of the caseload working in each state. For instance, in Georgia where almost a third of the caseload had working mothers in 1973, the absence of "$30 and 1/3" would have reduced the caseload by over 36 percent to 69,747. In New York City where only 6.9 percent of the mothers were employed, "$30 and 1/3" increased the caseload by only 6.6 percent.

Another policy which we chose to evaluate provides some information about the impact of "liberal" versus "conservative" program administration. In Table 8, we have summarized the counterfactual in which "simplified eligibility" was assumed not to have been initiated. In the absence of simplified eligibility an intake worker could much more effectively follow the letter of the law in interpreting eligibility criteria. After simplified eligibility, the social worker was required to take the client's word at face value if there was no documentary proof to the contrary. Thus, where a state had before been very strict

TABLE 8

"No Simplified Eligibility" vs. Simulated Caseload and Expenditure
Fiscal Year 1974

	Average Monthly Caseload (in 000's)			Total Annual Expenditures (in 000's)		
	Simulated	Counterfactual	Percent Difference	Simulated	Counterfactual	Percent Difference
Georgia	109.277	71.838	-34.3	$ 134,376	$ 88,334	-34.3
Upstate N. Y.	95.211	90.512	- 4.9	316,022	300,435	- 4.9
New York City	236.565	234.930	- 0.7	879,434	873,352	- 0.7
Washington	38.255	38.013	- 0.6	105,329	104,576	- 0.6
N. Carolina	46.269	N.A.	N.A.	72,708	N.A.	N.A.

in ascertaining eligibility, one might expect a fairly large increase in the size of the caseload. In a state which had been fairly flexible in interpreting eligibility we might expect only a small increase.

From our discussions with state welfare personnel, we expected Georgia to exhibit the "conservative" approach to eligibility, while Upstate New York, New York City and Washington appeared more "liberal". The results summarized in Table 8 support this hypothesis. In the absence of simplified eligibility, we estimate that the Georgia caseload would have been 71,838 or 34.3 percent smaller. The impact in Upstate New York was much more modest, reducing the caseload by only 4.9 percent to 95,211. Simplified eligibility had almost no impact in Washington or in New York City. (Data did not permit a test of this policy in North Carolina.)

Other counterfactuals indicated that more liberal political attitudes (as measured by a special voting profile index prepared by the Americans for Democratic Action) were responsible for significant caseload and expenditure growth in North Carolina and New York City. Nowhere did WIN referrals have much of an impact on the caseload. "Forced" work programs also have only a small restrictive effect when they are tried. On the other hand, the key variable in New York City appears to be the acceptance rate. If this rate had remained at its lowest level during the 1959-1974 period, we find the caseload would have been nearly 39 percent or almost 92,000 cases smaller in FY1974. Whereas neither the alternative income nor the employment opportunity hypothesis explained much of the caseload explosion in New York City, such institutional factors as the acceptance rate seem to be the key.

Conclusions and Recommendations for Further Research

As to a general conclusion reached from this research, we suggest the following: All three theories advanced in our work play some role in explaining AFDC benefits and caseload growth. But, one cannot point to any one of the hypotheses as being the principle cause of growth in all states. Benefit factors may be more important in one state, employment factors in another, and institutional factors in still a third. To try to understand the dynamics of the AFDC program without being aware of the basic structural differences between states invites serious errors in analysis and policy prescription.

In Georgia we found the caseload has been particularly sensitive to incremental changes in the benefit structure -- but the fact remains that benefits have been relatively constant in Georgia over the last 16 years, increasing on a per case basis by only one-third. Thus the growth of the AFDC program in Georgia (second only to Michigan on a recipients/total population basis) can be explained only partly by changes in the benefit structure. The income disregards, however, played an important role.

Payments per case more than doubled in Upstate New York while the recipient/total population ratio quadrupled. Yet the impact of a 10 percent increase in benefits, according to our components model, is a modest 6.2 percent increase in the caseload. Changes in the economy of the Upstate region (employment opportunities) have a more significant impact on the caseload, yet they too do not explain the full magnitude

of the growth between 1959 and 1974. Institutional factors also explain only modest changes in the caseload over the period of analysis. Thus in Upstate New York we conclude that caseload growth was truly a product of all three factors.

The results in Washington and North Carolina point much more directly to fluctuating employment opportunity as the explanation of caseload trends. The caseload is not particularly sensitive to changes in the benefit structure, nor for that matter, to "$30 and 1/3". Of the institutional factors evaluated for Washington, the one that has the largest impact is the WIN program -- which is employment oriented. In the "recession economy" scenario, the caseload grows by almost 20 percent, while in the "growth economy" scenario, the caseload falls by more than one-quarter. Thus we conclude that in Washington, one may successfully reduce the AFDC caseload by providing more employment opportunities, but not by manipulating any of the other program parameters. The same can generally be said for North Carolina. In contrast to all of these models, New York City caseloads appear to be a function of institutional variables.

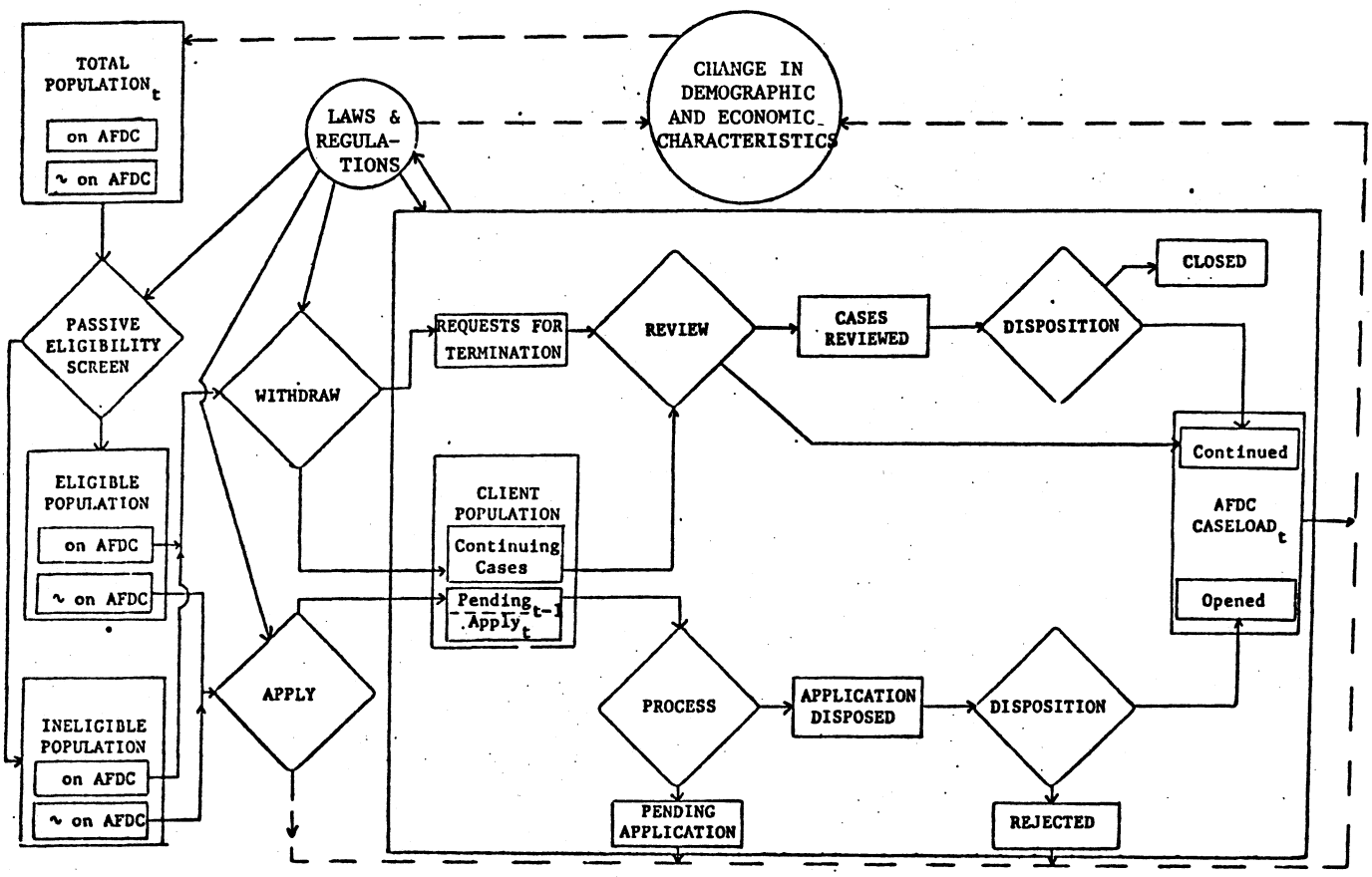
Our analysis, therefore, suggests that a careful state by state evaluation of the AFDC program is necessary. Policy manipulations aimed at reducing the welfare rolls by attacking only one or another of the characteristics of the program may work in some states, but not in others. Increasing benefits might increase program participation in Georgia, but it would do so only marginally in Washington. On the other

hand, providing jobs for which AFDC women could qualify might serve to reduce caseloads in all of the states but will work particularly well in states similar to North Carolina and Washington. If one had a simulation model for each of the 50 states, one could conceivably evaluate some of the common sensitivities to benefits, employment, and institutional factors. This would provide a solid foundation on which to base policy changes. The need for further research in this area is now fairly clearly defined.

Appendix

The AFDC caseload and expenditure dynamics project uses a systems approach to econometric modeling to derive estimates for the determinants of public assistance trends. The underlying micro model traces the path by which each family in the general population moves through the "AFDC system" on route to becoming a continuing non-recipient, a new AFDC case, a newly closed case, or a continuing one. Each family is theoretically passed through a number of filters or screens which determine eligibility, the probability of applying for assistance, the probability of having their application processed in a given month, the probability of being accepted, and the probability of closing if already a welfare recipient. Figure 1 provides a schematic of this process generated from a careful review of the AFDC program in each state. A separate micro model was developed to provide a theoretical basis for how each AFDC family's cash allowance is determined.

FIGURE 1.



This schematic approach can then be translated into a simple set of mathematical identities which describe the AFDC system and how the caseload and total expenditures change over time.

$$(1)\quad C_t \equiv C_{t-1} + O_t - CL_t$$

$$(2)\quad O_t \equiv \alpha\beta A_t$$

$$(3)\quad CL_t \equiv \gamma(C_{t-1} + O_t)$$

$$(4)\quad C_t \equiv C_{t-1} + \alpha\beta A_t - \gamma(C_{t-1} + O_t)$$

$$\equiv (1-\gamma)\ (C_{t-1} + \alpha\beta A_t)$$

where: C = caseload in period t
O = case openings
CL = case closings
A = AFDC applications$_t$ + pending applications$_{t-1}$

and where: α = "Processing Rate" = Applications Processed$_t$/(Applications$_t$ + Pending Applications$_{t-1}$)

β = "Acceptance Rate" = Applications Accepted$_t$/Applications Processed$_t$

γ = "Closing Rate" = Case Closings$_t$/$(C_{t-1} + O_t)$

According to this system, changes in the caseload are identified by four parameters (A, α, β, γ). By estimating the determinants of each one, a complete model of AFDC caseload dynamics is constructed.

One further identity is needed to obtain total cash benefit expenditures.

$$(5)\quad X_t \equiv \Psi_t C_t$$

where: Ψ = Expenditure/Case

A complete "components" model therefore has a minimum set of five equations*, one for A_t and Ψ_t plus one for each of the rates (α, β, γ). In the actual estimation of the model we generated OLS and GLS (rho-corrected) regressions for each of these exogenous variables using monthly time series data for the period January 1959 to December 1974.** Once these regression estimates were generated the caseload identity was reconstructed through a simulation program which iteratively solves equations (4) and (5) based on initial values for C_{t-1} and the number of pending applications in t-1, the regression coefficients in each equation, and data on the exogenous variables. Counterfactuals can then be generated by simply changing the values for the exogenous data set. By comparing actual simulation estimates for C_t and X_t with counterfactual estimates, we generate evidence for the sensitivity of state AFDC programs to such factors as benefit/wage ratios, employment availability, various program regulations, and a set of political characteristics. The variables in the model are based on a broad range of economic and social science theories including neoclassical labor supply hypotheses, segmented labor market theory, and administrative science.

---

*In models with separate AFDC-R and AFDC-UF segments, it is necessary to generate two processing rates (α_1 and α_2) making a total of six equations. If case closings can be disaggregated into voluntary quits and terminations, still another equation could be added (γ_1 and γ_2).

**Because of data limitations the North Carolina model was estimated from quarterly data.