Reducing Food Stamp and Welfare Caseloads in the South: Are Rural Areas Less Likely to Succeed Than Urban Centers?

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Abstract

In this paper, tests are made for the effect that the spatial distribution of welfare and Food Stamp caseloads may have on caseload change in the South. Spatial effects are captured by contrasting caseload trends overtime in metropolitan (urban) counties and nonmetropolitan (rural) counties within two southern states, Mississippi and South Carolina. Tests for a location effect on caseload change are made using an empirical model that controls for trends in the vitality of the local (county) economy, trends in the opportunity cost to the welfare recipient of not entering the workforce, and changes in the welfare policy regime in each state. Findings from these tests indicate that reducing both welfare and Food Stamp participation rates will be more difficult in rural counties than in urban counties in these southern states.

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In this paper, tests are made for the effect that the spatial distribution of welfare and Food Stamp caseloads may have on caseload change in the South. Spatial effects are captured by contrasting caseload trends over time in metropolitan (urban) counties and nonmetropolitan (rural) counties within two southern states, Mississippi and South Carolina.[1] A rural-urban difference in rates of program participation might be expected if barriers to moving off public assistance are more difficult to overcome in rural counties than in urban counties.[2] Moreover, there may be a link between the decline in welfare (AFDC/TANF) caseloads and the recent declines in Food Stamp Program (FSP) participation. Zedlewski and Brauner (1999) compare FSP exit rates using the 1997 National Survey of America's Families and conclude that welfare leavers (starting in 1995) leave the FSP at higher rates than families that had not been on welfare.

Tests for a location effect on caseload change are made using an empirical model that controls for trends in the vitality of the local (county) economy, trends in the opportunity cost to the welfare recipient of not entering the workforce, and changes in the welfare policy regime in each state. Findings from these tests indicate that reducing both welfare and Food Stamp participation rates will be more difficult in rural counties than in urban counties in these southern states.

Why Metropolitan-Nonmetropolitan Caseload Analysis?

Urban and rural areas have very different kinds of economies. Rural areas tend to have a larger share than urban areas of jobs in "routine" manufacturing further down the product life cycle. Many rural areas are dominated by farming or extractive industries. Urban economies are almost always more diverse and offer jobs in a wider range of trade and service sectors than rural economies. And welfare caseloads appear to be affected on the demand side of the low-wage labor market by both the vitality of the economy and the kinds of economic sectors that are growing.[3] In terms of work support services, rural areas often lack formal childcare providers and tend to rely on informal family ties for childcare. Public transit for daily commuting to a job is much more likely to be available in urban than in rural counties. Accordingly, reducing caseloads in rural counties may be a more difficult task than in urban counties, given the strength of the local economy and the policy regime in effect.[4]

Determinants of Caseload Decline

The Council of Economic Advisors (1999), Figlio and Ziliak (1999), Wallace and Blank (1999), Bartik and Eberts (1999), and Moffitt (1999) each find that stronger state economies have the expected effect of reducing participation in welfare programs. Bartik and Eberts (1999) find that use of the unemployment rate alone as an indicator of the robustness of the local (state) economy failed to explain recent dramatic declines in caseloads or late 1980s increases in caseloads despite low unemployment rates. They conclude that other features of the local labor market—employment growth rates and some industry mix variables—also need to be included in the measurement of the robustness of the local economy. They resolve the riddle of rising caseloads in the late 1980s in the face of lower unemployment rates by noting the decrease in demand for low skill labor during the same period. The rapid decline in caseloads in the late 1990s is most likely explained by new TANF policy since indicators of local labor demand fail to explain the decline. Rector and Youssef (1999) provide support for this view for the January 1997 to June 1998 period. Specifically, Rector and Youssef assert that an increase in the severity of penalties for noncompliance with TANF regulations across states has been a major force in reducing welfare caseloads in the late 1990s. Recent Council of Economic Advisors (1999) results are also supportive of an important policy impact from TANF.[5]

Income Support Programs

Ellwood (2000) makes several observations about how means-tested benefits in the welfare system (AFDC/TANF and Food Stamps) and income support programs for working, low-wage households, especially the Earned Income Tax Credit (EITC), have changed since the early 1990s to provide powerful incentives to leave welfare. First, the real value of welfare benefits in the median state is now about half the 1970 level. Second, the EITC benefits expanded dramatically in the early 1990s. Third, there is expanded support for childcare and Medicaid coverage for children of a single parent working full time at the minimum wage. In one comparison, a single parent working full time at the minimum wage in 1986 would gain total real “disposable” income of $2,005—about a 24% gain over AFDC—and lose all Medicaid coverage by leaving AFDC. By 1997, the same parent would gain real disposable income of $7,129 by leaving TANF for a full time minimum wage job. This gain roughly doubles the disposable income of the working parent in 1997 in the median state. Chernick and McGuire (1999, pp. 278-280) also argue that the EITC has substantially increased the benefits of moving from no work to at least part-time work.[6]

The percentage gain in real disposable income when a welfare recipient moves from welfare to work is likely to be even larger in most southern states given their low levels of TANF benefits compared to the rest of the nation. As the minimum wage is increased and cash assistance from a state’s TANF program declines in real terms, there will be further increases in the cost to the welfare recipient of staying on welfare. This “pull” effect is apparent before consideration of how “push” incentives from new sanction rules for noncompliance with TANF rules or time limits might affect the household decision to leave welfare. This is also before any consideration of caseload impacts from the demand side of the labor market for low-wage households—the strength of the local economy—or the variation in availability of work support services (public transit, child care, and job training) across localities.

Econometric Model

The econometric specification shown in equation (1) is a modified form of one Council of Economic Advisors (1999) model, and is used to test for region effects on caseload change.[7] Discussion of the merits of the Council of Economic Advisors model in Wallace and Blank (1999) and Figlio and Ziliak (1999) is used to address estimation issues.

(1) $\text{Ln } R_{ct} = B_0 + + \ln \text{EITC } B_{eic} + \ln \text{WagetoBen}_{ct} B_{wb} +$

$\text{TANF}_{ct} B_{tanf} + \text{Unemployment}_{ct} B_u + \text{TANF*Unemployment}_{ct} B_{tu}$

$+ \text{EGROW } B_{eg} + \text{TANF* EGROW } B_{teg} + \text{Region } B_{reg} + \gamma_c + \gamma_t + \varepsilon_{ct}$

Dependent variable: Caseload participation rates:

$\text{Ln } R_{st}$ = log of the ratio of caseloads to the labor force in county c for month t.[8]

"Opportunity Cost" regressors.

Ln EITC (*LOGEITC*) = log of the average of the maximum earned income tax credit for taxpayers with one child and with more than one child for each year 1990 to 1999.

Ln WagetoBen (*LMINBENN*) = log of the ratio of the value of state minimum wage as a monthly amount(30 hours of work per week for 4.33 weeks) to the maximum monthly benefit for a family of three on AFDC/TANF.

TANF and the Economy regressors

TANF (*FIP*) = dummy variable =1 for year and month TANF was in effect for a county; else its 0.

Unemployment (*UN24*) = county unemployment rate (lagged two years to ameliorate endogeneity with current labor force).

TANF*Unemployment (*FIPUN24*) = interaction effect between unemployment rate lagged two years and TANF.

EGROW = employment growth rate in the county (most recent quarter, *GROWQ1* and four quarter lag, *GROWQ4*.

TANF* EGROW = interaction effect between lagged employment growth rates and TANF: *FIPTOGQ1* and *FIPTOGQ4*;

Region Effects:

Region = groups of alternative dummy variables representing location effects within each state. Metropolitan counties are the reference counties for

Groups 1 to 3:

Group 1 *NONMET* = dummy variable for all nonmetropolitan counties.

Group 2 *ADJ* = dummy variable for nonmetro counties adjacent to metro counties.

NONADJ = dummy variable for nonmetro counties not adjacent to metro.

Group 3 *FRM* = dummy variable for farm dependent rural counties; Farming contributed a weighted annual average of 20 percent or more labor and proprietor income from 1987 to 1989.[9]

MFG = dummy variable for manufacturing dependent rural counties; Manufacturing contributed a weighted annual average of 30 percent or more labor and proprietor income from 1987 to 1989.

GOV = dummy variable for government dependent rural counties; Government activities contributed a weighted annual average of 25 percent or more labor and proprietor income from 1987 to1989.

OTH = dummy variable for rural counties not dependent on farming, manufacturing or government. These counties were either Services-dependent - Service activities contributed a weighted annual average of 50 percent or more labor and proprietor income from 1987 to 1989, or nonspecialized - Counties not classified as a specialized economic type from 1987 to 1989. No counties in SC or MS were mining dependent.

Group 4 BEA Component Economic Areas

These regions have an urban core and rural hinterland that are connected by substantial within region commuting: In SC: *CEA600…CEA2655*.

γ_c = county effects (modeled as an error components term).

γ_t = month effects (modeled as an error components term).

Note that the regressor names in italics are displayed in the results presented in Tables 1 through 4. The models estimated for South Carolina and Mississippi differ from the Council of Economic Advisors model in variables, data used and in estimation strategy as follows.

Variables in the SCMS model— The Council of Economic Advisors and SCMS variables and data differ in several ways. First, counties and months are used as the panel (rather than states and years). Since it is the strength of the local county economy (rather than the state average) that would seem most relevant to welfare clients searching for labor market opportunities, use of county data seems proper. The Council of Economic Advisors study uses the number of caseloads in a state divided by state population on an annual basis. However, the SCMS data are across counties and months so there is no population estimate available to use as a denominator in the rate calculation. Accordingly, the county labor force by month is used as a proxy for the size of the local population and the dependent variable is the log of caseloads/labor force. While this is a practical necessity given that county population data by month are not available, county working age population and labor force are likely to be highly correlated.[10]

Second, the SCMS model uses both unemployment rates and employment growth rates as suggested in Bartik and Eberts (1999) to capture the vitality of the county economy in offering work to welfare clients. Interaction effects of the unemployment rate and the employment growth rates with TANF are used to see if the policy effects from TANF are influenced by the economic conditions facing welfare recipients.[11]

Third, opportunity costs of not working are proxied both by the ratio of the minimum wage to welfare benefits and by changes in the EITC. Fourth, there are several tests, using the “region” variables, for the effects of a rural location on welfare and Food Stamp participation rates. With metropolitan counties as the reference group, region effects are reflected across several alternative dimensions within each state. Regional group one is the set of all nonmetropolitan counties. Group two is the set of nonmetropolitan counties divided into those that are adjacent to a metro county and those that are not. Welfare participants in counties more distant from urban job centers may have less access to work opportunities than welfare participants in counties near urban counties.

Group three divides the nonmetro counties into one of four Economic Research Service (ERS, 1995) economic base groups: farm, manufacturing, government or other (services and non specialized). Positive parameters on these dummy variables indicate that counties in these classes are less likely to reduce welfare participation rates than are urban counties, given the same vitality of the local economy, opportunity cost of not working, and policy regime. This is a way to control for “industry mix” effects on welfare participation that Bartik and Eberts (1999) found to be useful in explaining changes in welfare caseloads.

Group four is a set of multi-county regions defined as "functional economic areas" by the Bureau of Economic Analysis (BEA) (Johnson, 1995). These regions have an urban core and rural hinterland that are connected by substantial commuting within the region. This is a control for the influence of different urban "job centers" on caseloads in proximate rural counties. Including BEA dummies controls for the type of urban center—government dominated urban areas like Columbia, South Carolina, and Jackson, Mississippi or manufacturing dominated regions like the Greenville-Spartanburg metro center along the I-85 growth corridor from Charlotte to Atlanta or resort-tourism-service oriented urban areas like Charleston, SC and the Mississippi Gulf Coast.

Estimation Issues— First, the Council of Economic Advisors model uses a county specific time trend variable to control for "unobserved factors, such as family structure and other policies that may be correlated with the observed variables" (Council of Economic Advisors, 1999, p. 12). A time trend is not used in the SCMS models for two reasons. First, the location effects in the models should reflect the cross-sectional county social and demographic characteristics that may be omitted. Second, these county characteristics are unlikely to change rapidly over the time period of this analysis. Under these circumstances, including a time trend (whether quadratic or linear) will add little control for omitted local characteristics and could reduce the information content in the remaining regressors.

A second change from the Council of Economic Advisors model revolves around the choice of using a fixed effects (like the Council of Economic Advisors model) or a random effects approach to the panel data regressions. This is partly a matter of testing for the appropriate model (Greene, 2000, p. 576-577). The Hausman test for orthogonality between the random effects and the regressors is used to limit regressors to those that are consistent with the theoretical expectations from the caseload literature and that do not violate the assumption that the individual effects are not correlated with the regressors in the model. As noted below, the Hausman test was sensitive to the regressors included (most notably in the Mississippi welfare panel data) but generally supported the use of the random effects model for the panel data.

Finally, the discussion in Wallace and Blank (1999) and Figlio and Ziliak (1999) concerning the merits of the Council of Economic Advisors model identified several econometric issues that were taken into account when estimating the SCMS model. First, the use of first differences as opposed to levels is addressed in the Parks (1967) model as the time series data are transformed using a first order autoregressive parameter estimated for each county. In Fuller-Battese (1974), data are transformed using constants derived from the estimators for each of the variance components. Assuming the error terms are hetereoscedastic and contemporaneously correlated, Parks employs a GLS procedure to adjust for each potential problem.

In sum, the estimation strategy for the SCMS model is first to use the Hausman test for the random effects assumption that the error term effects are uncorrelated with the other variables in the model. Second, estimate both the Fuller-Battese (1974) and Parks (1967) GLS models where possible to gauge the sensitivity of results to alternative assumptions about the error term.[12]

Food Stamps Model

The Food Stamps model is similar to equation (1) for two reasons. First, across most states there has been a strong correlation between Food Stamp and AFDC/TANF caseload changes. Second, important changes in Food Stamps policy also became effective in 1997 (Zedlewski & Brauner, 1999). Following a suggestion in Wallace and Blank (1999) AFDC/TANF caseloads per capita is used as a regressor in explaining Food Stamp caseloads in one model, recognizing that this raises endogeneity problems.

Data

South Carolina caseloads by county and month are from Reports PC100R03, PC100R17, MR410, and MR420, Division of Information Services, S.C. Department of Social Services. Mississippi AFDC/TANF and Food Stamp administrative data are from the Division of Economic Assistance, Mississippi Department of Human Services. Data for the county employment, labor force and unemployment rates by month are from the Employment Security Commissions of South Carolina and Mississippi. County identifiers are from the Beale code, U.S. Department of Agriculture. Earned income tax credit and minimum wage data are from Council of Economic Advisors. County type codes are from Economic Research Service, USDA.

Results for South Carolina

The parameter estimates from equation (1) for South Carolina are presented in Table 1 for AFDC/TANF and in Table 2 for Food Stamps. With welfare caseloads per capita as the dependent variable, the Fuller-Battese results are in listed in columns 1 to 3 of Table 1 and the Parks specification results are listed in column 4. In Table 2, columns 1-3, Food Stamp results are presented under the Fuller-Battese error components model; the Parks model results are shown in columns 4 to 6 of Table 2.

AFDC/TANF caseloads in South Carolina

The effect on AFDC/TANF caseload change for the three groups of regressors reported in Table 1 indicate the following. First, the two “opportunity cost” regressors, increases in the minimum wage relative to AFDC/TANF benefits and a higher EITC, both reduce welfare participation. These results are strong across all models in Table 1.

Next, the “TANF and the Economy” regressors reveal a welfare policy effect on welfare caseloads only in conjunction with a stronger local economy. The TANF dummy variable is not significantly different from zero[13] indicating, by themselves, that the incentives to leave welfare in TANF vis a vis AFDC had little effect on the rate of welfare participation. This finding could indicate that the two-year limit sanction was not binding over the periods studied and/or the TANF effect is effective only if a robust local economy offers more jobs to former welfare clients. This possibility is explored with an interaction variable between the TANF variable and the lagged county unemployment rate and interaction variables on the two employment growth rate variables. Findings reported in Table 2 mostly support this hypothesis. The interaction term between the lagged unemployment rate and the TANF policy dummy is significant. Lower unemployment rates reduce caseloads and the effect of lower unemployment rates on caseloads is about twice as strong after TANF than before. Employment growth rate effects are more mixed. The first quarter lag on employment growth rates is negative, as expected, and the TANF interaction with employment growth is negative—though only highly significant in the Parks model.

However, the four-quarter lag in employment growth is positive. This suggests migration to fast growing counties by low-wage households seeking jobs but drawing welfare benefits for a period. During the post-TANF period, however, the four quarter lagged employment growth turns negative or about neutral (the Parks case). It appears that a stronger local economy is needed to make TANF work.

Is there a rural disadvantage in reducing welfare caseloads?— The “ region” variables indicate a strong metropolitan advantage in reducing the rate of welfare participation, other things equal. Welfare caseload participation rates are higher in nonmetro counties than metro counties, after controlling for local economic vitality, TANF policy effects, and the rising opportunity cost of staying on welfare. Results in column 2 of Table 1 suggest a slightly higher disadvantage in the more remote rural counties nonadjacent to a metro county. Given that most

South Carolina rural counties are manufacturing or service/mixed economies, they differ little from the nonmetro average effect. The one government based rural county does not differ from metro counties, while the single farm based rural county effect is only about a third that of the nonmetro average.

The BEA region effects are also important. The reference region is the I-85 growth corridor in the northwest corner of South Carolina. It is dominated by a diverse manufacturing sector with BMW, Hitachi, and Michelin providing a high profile for international investors and a rapidly expanding service sector serving a growing population. Other regions, with the possible exception of BEA 1520—the Charlotte spillover region, are likely to have higher rates of welfare participation than the "upstate." The Midlands and Low country regions include many of the persistent poverty counties in South Carolina and are part of the "black-belt" running across the Southeast. It appears these regions, the victim of historically high rates of poverty, are in for the most difficult time in reducing welfare caseloads. The rural hinterlands in these regions will be especially hard pressed to reduce reliance on welfare and will be most likely to see rapid run-ups in caseloads with the next recession.

Food Stamp Participation in South Carolina

The results in Table 2 offer a set of explanations for FSP participation in South Carolina that differs a bit from the welfare results. This is perhaps not surprising given the small change in FSP caseloads compared to the dramatic reductions in AFDC/TANF over the period. Looking first at the total Food Stamp caseload participation rate in columns 1 to 4, the minimum wage and EITC variables are consistently negatively associated with FSP caseloads. This means that increasing the minimum wage and the EITC benefits tends to substitute for FSP participation. However, when the dependent variable is the "residual" caseload (those not on welfare but receiving Food Stamps) as reported in Columns 5 and 6, the signs reverse. When the minimum wage and EITC increase more people are leaving welfare (as shown in the welfare model and suggested by results in columns 1 to 4 in Table 2). However, these “pull” effects on AFDC/TANF caseloads are into low-wage jobs requiring added support from the FSP. Note that adding welfare cases as a regressor in column 6 supports the view that reducing welfare cases will reduce FSP caseloads, if the endogeneity between FSP and AFDC/TANF is not considered serious.

Focusing on the “residual” Food Stamp cases in columns 5 and 6, TANF, by itself, has a negative but insignificant impact on FSP caseloads and seems to have only a weak effect during quarters where employment is growing. Faster employment growth lagged four quarters seems to add more FSP caseloads. Again, this suggests that there is in-migration to fast employment growth counties with added demand for Food Stamps at least for a time. Employment growth in the most recent quarter reduces FSP caseloads. It may be that not enough time has passed between this quarterly signal of job growth in a county and subsequent in-migration of Food Stamp participants.

Is there a rural disadvantage in reducing Food Stamp caseloads?— Except for the case of the lone government dependent county in South Carolina, all rural counties, regardless of location or economic base fare worse than metropolitan counties in reducing the rate of FSP participation. Results are consistent across each of the models in columns 1 through 6. Mirroring the welfare caseload results, counties in the BEA regions outside the I-85 manufacturing belt have more dependence on the Food Stamp program to supplement incomes of the working poor.

Results for Mississippi

The parameter estimates for the SCMS model for Mississippi are presented in Tables 3 and 4. Model estimation problems, particularly with the Hausman test for random effects, led to some differences in the explanatory variables included in the AFDC/TANF and Food Stamp models. In general, the Food Stamp models more directly reinforced results of the studies referenced earlier in this paper than the AFDC/TANF models.

AFDC/TANF Caseloads in Mississippi

It was hypothesized that higher wage opportunities, the ratio of real minimum wages to real welfare benefits, would lower welfare caseloads. Representing an opportunity cost, increases in the earned income tax credit (LOGEITC) were expected to decrease cases. In all models, both the minimum wage to benefits and the EITC variables were highly significant and had the expected negative coefficients indicating that higher wage opportunities would tend to decrease caseloads. Not unlike the South Carolina results, the TANF coefficient was not significant in any of the welfare caseload models specified. This suggests that TANF programs have had little effect on caseload numbers after accounting for economic and regional effects. However, only a short time has passed since the implementation of the PRWORA reforms in 1996, which could explain this result.

To measure the effects of the economy on caseloads, the SCMS included lagged county unemployment rates, employment growth rates, and interaction variables between the TANF variable and each of these. In models not presented because of failure to meet Hausman test requirements, unemployment lagged 12 months and a TANF-unemployment interaction effect were included in the Mississippi modeling effort. Coefficients on both the lagged unemployment and the interaction term were highly significant and positive as expected, indicating that a robust economy would be expected to lower caseloads. Similar to the South Carolina finding, the effect on caseloads was almost twice as strong in the post-TANF time period. The models presented in Table 3 report findings for one- and four-quarter lagged employment growth and TANF interactions for each without inclusion of the unemployment variables. As measured by job growth, the local economy's contributions to welfare caseload declines were as expected. Coefficients on both the one- and four-quarter lagged variables were negative and significant at the one percent level. However, the strength of employment growth lagged four quarters was only about one-tenth that of the immediate quarter lag. The TANF interaction with the four-quarter lag had no significant impact on caseloads, while the one-quarter-lag interaction was significant at the one percent level.

The opportunity cost and economic/TANF factors were consistent across all three models. Attention is now directed at determining whether location has been a factor in caseload change. The first model, Column one of Table 3, examines caseload differences between metropolitan and nonmetropolitan counties. Using metro counties as the base, the first model shows that nonmetropolitan counties have significantly higher case per worker rates than metro areas. This finding is plausible in that it is likely that employment opportunities in rural areas are more limited than in urban centers. Furthermore, the lack of public transportation (essentially nonexistent in rural Mississippi) and child-care create additional difficulties (Beeler et al., 1999). The second model, Column 2, further differentiates nonmetropolitan counties into those that, while still nonmetro, are adjacent to counties designated as metro. The second grouping includes nonmetro counties that are not adjacent to a metro area. Results show this distinction makes little difference in Mississippi as they are essentially the same in terms of magnitude and both are statistically significant.

A third spatial configuration of Mississippi counties used the Economic Research Service typology codes. Using metropolitan counties as the base, the estimated coefficient for the farm-oriented county fixed effect was positive and significant at the 1 percent level indicating that farm-oriented economies have higher numbers of welfare recipients per worker relative to metro areas counties. The strong positive effect for farm-oriented economies was considerable stronger than the overall average nonmetropolitan effect determined in Column 1. Seasonal effects on caseloads were examined to see if seasonal agricultural employment was a factor, but no significant relationship was found (these results are not presented). The manufacturing- and government-based economies do not differ from metro counties, while the service/mixed economies are significantly higher than the metro. Service/mixed economies likely have a lower salary base, leading to a higher demand for TANF/AFDC services.

All models included fixed region effects based on Component Economic Areas developed by the BEA. Using the Jackson-based metro region and surrounding area as a reference, three regions (CEA 9526, 9527 & 9528) differed significantly from the base. CEA 9626 is a corridor of development activity paralleling an interstate highway from Jackson to Meridian had a significantly lower of cases in two of the three models. CEA 9527, which represents a region whose economy has undergone rapid growth in light industry, particularly upholstered furniture manufacturing, had a significantly lower incidence of cases in all three models. The other region differing significantly from the metro base was the hard-core poverty region of the Mississippi Delta (CEA 9528). This CEA is a region heavily dependent upon production agriculture and one that has been plagued by limited employment opportunities and the full range of socioeconomic problems accompanying persistent poverty counties across the Black Belt region of the South.

Several general conclusions can be inferred from the Mississippi AFDC/TANF modeling efforts. One is that a strong economy, represented here by variables measuring earnings opportunity costs and employment growth has contributed significantly to the caseload declines observed over the 1991-1999 period. Secondly, implementation of TANF program changes has not significantly impacted caseload changes holding other things constant. Over time and as economic conditions change, the PRWORA program initiatives may have a more significant impact. This argument is supported by Wallace and Blank (Danzinger, 1999, p. 55), who point out that program changes had substantial effects in those states implementing early waivers.

Finally, this research shows that spatial issues are an important factor in determining caseload changes. Specifically, the results show that the ratio of caseloads per worker is significantly higher in nonmetropolitan areas, and the effects are most pronounced in agriculture-based areas.

Food Stamp Caseloads in Mississippi

The basic models specified for the welfare caseloads were also used for the Food Stamp analysis (Table 4). Unemployment lagged 12 months and TANF-lagged unemployment interaction variables were included in these models without Hausman specification problems. Similar to the welfare caseload results, the coefficients on the opportunity cost variables were all highly significant and had the expected signs. Coefficients for the Food Stamp models were considerably smaller in magnitude indicating smaller impacts on caseloads. This is not surprising due to the scaling of Food Stamp benefits according to income and other eligibility requirements. The TANF implementation fixed effects variable is highly significant and negative in all the Food Stamp models indicating that programmatic changes have contributed to declining Food Stamp participation. This finding, while not necessarily anticipated, is not surprising for two reasons. First, addressing Food Stamp and TANF interrelationships, Zedlewski and Brauner (1999) found that about one-third of families leaving Food Stamps were ineligible on the basis of their current income, meaning that almost two-thirds were leaving for some other reason. They found that former welfare recipients left the Food Stamp program more often than their nonwelfare counterparts regardless of income level. Roughly 84 percent of those receiving TANF in Mississippi also received Food Stamps over the time period evaluated. Given the witnessed declines in TANF cases in Mississippi since 1991, this finding is not unexpected and suggests a strong relationship between TANF and Food Stamp participation.

The impacts of employment growth lagged one- and four-quarters on Food Stamps paralleled those findings for welfare caseloads. Again, the fourth-quarter lag was not significant.

Unemployment lagged twelve months and the lagged unemployment-TANF interaction terms were both highly significant and both had positive signs indicating that lower unemployment rates reduce Food Stamp caseloads. While highly significant, the post-TANF program unemployment effect is considerably weaker in the post-TANF era.

Turning to the regional effects, we find the nonmetropolitan variable positive and highly significant as it was in the welfare caseload models. Further disaggregation of nonmetro counties into those adjacent to metro counties and those not adjacent, we find both variables to be highly significant and with positive coefficients. As hypothesized, the most rural of the counties (nonadjacent nonmetro counties) had a higher per worker rate of Food Stamp participation. As with the welfare caseload models, the farm-based county fixed effect was highly significant and positive. Unlike the welfare results, manufacturing- and government-based economies were significant at one- and five-percent levels, respectively. An explanation of why these county types would have higher rates of Food Stamp participation per worker relative to the urban base may be that many manufacturing and government jobs are relatively low paying jobs that do not remove workers from Food Stamp eligibility—the working poor. The service/mixed economies were also highly significant and positive. The CEA region effects were similar to the welfare results with the exception that the persistent poverty region of the Mississippi Delta was no longer significant and the Jackson-Meridian corridor CEA had a significantly lower participation rate than the urban base.

Considering "residual" Food Stamp cases had little effect on model results. The signs, coefficients, and significance levels were generally consistent with previous results. Models including welfare cases as an explanatory variable failed the Hausman test for random effects. Results from the Food Stamp models generally re-enforce the welfare caseload findings with the exception of the influence exerted by implementation of the TANF program. The results from these models using monthly county level data show strong, significant regional- and or economic-based impacts on caseload changes. Effects of this nature are typically only given anecdotal attention in aggregate state and national models.

Summary

Evidence presented here suggests, for these two southern states, that rural areas will have more difficulty than urban areas in reducing rates of both welfare and Food Stamp program participation, all else the same. In Mississippi, rural counties with a strong orientation toward farming and those in the Delta region are likely to face the most difficulty in reducing both welfare and Food Stamp caseloads. In South Carolina, it is the set of rural counties that run between Columbia and the coast that are least likely to reduce dependence on welfare and Food Stamps.

At this juncture, why the rural disadvantage exists is an open question. It may mean that improved rural transit to link rural residents to urban employment growth areas is needed to reduce rural caseloads. Childcare, job training and other assistance to rural welfare clients may have to be more widely available. Since rural clients tend to be dispersed geographically, rural efforts to reduce barriers to leaving welfare are likely to be more expensive on a case-by-case basis than in urban centers. One important qualifier to the evidence presented in this paper suggesting a “rural disadvantage” is worth emphasizing. South Carolina and Mississippi have few, if any, metropolitan areas with urban core counties that have a concentration of poverty and TANF dependence that are associated with larger MSAs in the rest of the country. Given the evidence in Smith and Woodbury (1999) that urban core cities do worse than suburbs or nonurban areas in providing jobs for low-wage labor, a test for caseload change between rural and the urban core would be useful but best undertaken in states that have larger MSAs.

Finally, most of the employment growth in both Mississippi and South Carolina has been concentrated in urban counties and rural counties along the Atlantic and Gulf coasts. The most remote rural counties have not benefited as much from state economic growth suggesting that both economic development programs and 'barrier" programs to provide transit, childcare, and job training are needed to reduce the rate of welfare participation in rural Mississippi and South Carolina. As caseloads rise in the next recession, under the TANF rules, states “will have three choices: cut people off even though jobs may not be available, relax the time limits, or provide some form of subsidized work for those that cannot get private employment” Ellwood (2000, p. 193). States like South Carolina and Mississippi, with pockets of rural poverty, may be under substantial fiscal stress when they are faced with rising needs to support low-income households during a time when state revenues are not growing and the TANF block grant is fixed.

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Table 1. Estimates of the Determinants of Welfare Caseloads, S.C. 1990-99[a]

	Col. 1 AFDC/TANF Cases Per Capita[b]	Col. 2 AFDC/TANF Cases Per Capita[b]	Col. 3 AFDC/TANF Cases Per Capita[b]	Col. 4 AFDC/TANF Cases Per Capita[c]
INTERCEP	2.661578**	2.661669**	2.696624**	-0.671528*
OPPORTUNITY COSTS				
LMINBENN	-5.178915**	-5.178902**	-5.17858**	-1.72757**
LOGEITC	-0.228017**	-0.228008**	-0.227899**	-0.256023**
TANF AND THE ECONOMY				
FIP	0.11127	0.111262	0.111128	0.035326
GROWQ1	-0.070471	-0.070496	-0.070643	-0.292455**
FIPTOGQ1	-0.008977	-0.00904	-0.008914	-0.185615**
GROWQ4	0.259447**	0.259466**	0.260028**	0.292965**
FIPTOGQ4	-0.541515**	-0.541536**	-0.541578**	-0.281381**
UN24	0.013227**	0.013224**	0.013189**	0.000852*
FIPUN24	0.013627**	0.013628**	0.013631**	0.001873**
REGION				
1.) NONMET	0.535838**			
2.) ADJ		0.522681**		
NONADJ		0.612926**		
3.) FRM			0.189368	0.157981**
MFG			0.553066**	0.586108**
GOV			-0.071546	0.023594
OTH			0.603354*	0.694116**
4.) CEA600	0.93723**	0.908879**	0.890947**	1.010818**
CEA7520	0.50268*	0.455518	0.640828*	0.518818**
CEA1440	0.66715**	0.670284**	0.614214**	0.600522**
CEA1760	0.358921*	0.369002*	0.349919*	0.393641**
CEA1520	0.311396	0.301845	0.258221	0.329775**
CEA8140	1.205332**	1.211763**	1.135632**	1.121345**
CEA5330	0.40657	0.415198	0.359185	0.321086**
CEA2655	0.898001**	0.907724**	0.849163**	0.900576**
HAUSMAN TEST FOR RANDOM EFFECTS				
M VALUE	8.7413	8.3842	5.8144	
P VALUE	0.1887	0.2113	0.4443	
R^2	0.266	0.2658	0.2668	0.8791
DFE	3891	3890	3888	3888

[a] Dependent variable is ln(caseloads/labor force). Regressions on monthly data, 1990-April, 1999, for 46 SC counties from 1990-99. ** indicates significance at the 1 percent level; * indicates significance at the 5 percent level.

[b] Uses the Fuller-Batesse Random Effects Model.

[c] Uses the Parks Model.

Table 2. Estimates of the Determinants of Food Stamp Caseloads, S.C. 1990-99[a]

	Col. 1 Food Stamp Cases Per Capita[b]	Col. 2 Food Stamp Cases Per Capita[b]	Col. 3 Food Stamp Cases Per Capita[b]	Col. 4 Food Stamp Cases Per Capita[c]	Col. 5 Food Stamp Only Cases Per Capita[c,d]	Col. 6 Food Stamp Only Cases Per Capita[c,d]
INTERCEP	-2.133298**	-2.133277**	-2.104282**	-3.002872**	-4.100261**	-2.521645**
LMINBENN	-0.66398**	-0.663981**	-0.663965**	-0.104877	0.306935*	0.441009**
LOGEITC	-0.045818**	-0.045818**	-0.045819**	-0.008299	0.033442*	0.036133**
<u>TANF AND THE ECONOMY</u>						
FIP	0.054638	0.054639	0.054635	0.009184	-0.008612	-0.012626
GROWQ1	-0.192276**	-0.192267**	-0.192202**	-0.345243**	-0.338989**	-0.249362**
FIPTOGQ1	-0.318152**	-0.318163**	-0.318103**	-0.046564*	-0.09468**	-0.032183
GROWQ4	0.460677**	0.460681**	0.460752**	0.17192**	0.132781**	0.066106**
FIPTOGQ4	-0.37022**	-0.370218**	-0.370196**	-0.062382**	-0.00767	0.026633
<u>REGION</u>						
1.) NONMET	0.625299**					
2.) NONADJ		0.634631**				
ADJ		0.623705**				
3.) FRM			0.382318	0.375776**	0.428226**	0.31554**
MFG			0.671457**	0.658944**	0.663538**	0.44152**
GOV			-0.105358	-0.250004	-0.09772	-0.145592**
OTH			0.64834**	0.646939**	0.609899**	0.413871**
4.) CEA600	0.785501**	0.782068**	0.728777**	0.702003**	0.599361**	0.409368**
CEA7520	0.301379	0.295669	0.492835	0.495393**	0.442657**	0.381343**
CEA1440	0.544255**	0.544634**	0.509466*	0.506592**	0.459046**	0.344233**
CEA1760	0.304437*	0.305658*	0.271634	0.296164**	0.273762**	0.189506**
CEA1520	0.295395	0.294238	0.220208	0.251472**	0.262337**	0.186117**
CEA8140	1.094464**	1.095242**	1.053914**	1.046666**	1.051214**	0.722167**
CEA5330	0.586068**	0.587111**	0.526266*	0.537693**	0.558951**	0.478994**
CEA2655	0.723044**	0.72422**	0.659396**	0.650373**	0.573731**	0.436954**
<u>WELFARE CASES PER CAPITA</u>						0.311656**
HAUSMAN TEST FOR RANDOM EFFECTS:						
M VALUE	1.3877	1.3869	1.3818			
P VALUE	0.8463	0.8465	0.8474			
R^2	0.0634	0.063	0.0675	0.8392	0.8232	0.9677
DFE	3893	3892	3890	3890	3890	3889

[a] Dependent variable is ln (caseloads/labor force). All regressions based on monthly data for all 46 SC counties from 1990-98. ** indicates significance at the 1 percent level; * indicates significance at the 5 percent level.
[b] Uses the Fuller Battese Random Effect Model. [c] Uses the Parks Random Effects Approach.
[d] Includes only Food Stamp households not receiving welfare.

Table 3. Estimates of the Determinants of Welfare Caseloads, Mississippi, 1991-1999[a]

	Column 1 AFDC/TANF Cases Per Capita[b]	Column 2 AFDC/TANF Cases Per Capita[b]	Column 3 AFDC/TANF Cases Per Capita[b]
INTERCEPT	11.52152**	11.49971**	11.55003**
OPPORTUNITY COSTS			
LMINBENN	-5.83729**	-5.83729**	-5.83727**
LOGEITC	-0.57395**	-0.57395**	-0.57395**
TANF & ECONOMY			
FIP	0.093313	0.093314	0.093311
GROWQ1	-0.18267**	-0.18267**	-0.18267**
FIPTOGQ1	-0.11305**	-0.11306**	-0.11298**
GROWQ4	-0.02237**	-0.02237**	-0.02237**
FIPTOGQ4	0.013146	0.013138	0.013207
REGION			
1.) NONMET	0.881913**		
2.) ADJ		0.798408**	
NONADJ		1.043577**	
3.) FRM			1.148128**
MFG			0.53739
GOV			0.648323
OTH			0.999494**
4.) CEA760	0.774508	0.634666	0.628397
CEA920	-0.1148	0.05958	-0.19036
CEA4920	-0.31025	-0.32317	-0.28328
CEA5560	-0.16391	-0.05858	-0.31002
CEA9524	-0.35029	-0.46561	-0.42994
CEA9526	-0.67525*	-0.8151*	-0.47387
CEA9527	-0.79078**	-0.91837**	-0.52655*
CEA9528	0.641886**	0.502043*	0.406594
HAUSMAN/RANDOM EFFECTS			
M VALUE	8.90	8.78	8.97
P VALUE	0.0635	0.0667	0.0619
R^2	0.1901	0.1903	0.1912
DFE	6379	6378	6376

[a] Dependent variable is ln(caseloads/labor force). All regressions on monthly data for all 82 Mississippi counties from 1991-1999. ** indicates significance at the 1 percent level; * indicates significance at the 5 percent level.

[b] Uses the Fuller Battese Random Effects Model.

Table 4. Estimates of the Determinants of Food Stamp Caseloads, Mississippi, 1991-1999[a]

	Column 1 Food Stamp Cases Per Capita[b]	Column 2 Food Stamp Cases Per Capita[b]	Column 3 Food Stamp Cases Per Capita[b]	Column 4 Food Stamp Only Cases Per Capita[b]
INTERCEPT	4.478524**	4.472835**	4.49996**	2.826725**
OPPNTY COSTS				
LMINBENN	-1.92837**	-1.92831**	-1.92845**	-1.21843**
LOGEITC	-0.40655**	-.40657**	-0.40667**	-0.38949**
TANF/ ECONOMY				
FIP	-0.22146**	-0.22147**	-0.22151**	-0.26576**
GROWQ1	-0.18976**	-0.18976**	-0.18976**	-0.19031**
FIPTOGQ1	-0.08484**	-0.08485**	-0.08477**	-0.08353**
GROWQ4	-0.02758**	-0.02758**	-0.02758**	-0.02932**
FIPTOGQ4	0.017404	0.017398	0.017474	0.018289
UN12	0.017664**	0.017623**	0.017591**	0.016053**
FIPUN12	0.00612**	0.00612**	0.006129**	0.007041**
REGION				
1.) NONMET	0.814132**			
2.) ADJ		0.791581**		
NONADJ		0.857857**		
3.) FRM			1.053383**	1.082658**
MFG			0.594101**	0.64474**
GOV			0.573767*	0.590749**
OTH			0.889838**	0.893423**
4.) CEA760	0.495711	0.457926	0.40009	0.37486
CEA920	-0.03641	-0.02148	-0.08676	-0.05962
CEA4920	-0.23365	-0.23714	-0.22362	-0.19474
CEA 5560	-0.12879	-0.1033	-0.22459	-0.21894
CEA 9524	-0.17819	-0.20937	-0.22912	-0.1836
CEA 9526	-0.4592*	-0.49702*	-0.31434	-0.27248
CEA9527	-0.5175**	-0.552**	-0.34609*	-0.31235*
CEA9528	0.280647	0.242861	-0.086891	0.020302
HAUSMAN TEST FOR RANDOM EFFECTS				
M VALUE	3.61	3.59	3.36	3.34
P VALUE	0.1643	0.1659	0.1860	0.1881
R^2	0.2348	0.2348	0.2362	0.2199
DFE	6377	6376	6374	6374

[a] Dependent variable is ln(caseloads/labor force). All regressions on monthly data for all 82 Mississippi counties from 1991-1999. ** indicates significance at the 1 percent level; * indicates significance at the 5 percent level.

[b] Uses the Fuller Battese Random Effects Model.

Endnotes

[1] Analysis within a state has several advantages over cross state analyses. The low wage labor market conditions that welfare recipients confront are more closely reflected in local county data than state averages. Second, the institutional framework—political, social and economic—is likely to be more consistent across counties in a given state than across fifty states.

[2] Henry and colleagues (1996) examine a South Carolina case study illustrating the rural spatial mismatch between where new entry-level jobs are growing and where low-income households are located. Alternatively, Smith and Woodbury (1999) find that low-wage job growth may be favorable to the employment prospects of former welfare recipients in nonurban areas; urban suburbs are likely to fare best and central cities the worst in offering low-wage job opportunities.

[3] Bartik and Eberts (1999, p. 139) find that three state "industrial mix" variables are important to understanding caseload changes across states.

[4] Possible differences in caseload change across multi-county regions, each with an urban core and rural hinterland, are also explored in this paper.

[5] See Reinschmiedt, etal 1999 for a description of caseload and unemployment rate trends in South Carolina and Mississippi.

[6] Wallace and Blank (1999) and Meyer and Rosenbaum (1999) also discuss possible EITC effects on welfare caseloads and the high marginal "tax rate" the EITC recipient pays above a low threshold income in reduced EITC payments.

[7] Data for the Council of Economic Advisors study are annual calendar year from 1976 to 1998 on all states and DC for 1173 observations (Council of Economic Advisors 1999, p. 10-13).

[8] While population is often used in cross-state studies with annual data in the denominator, monthly observations must be estimated by allocating annual county population from the Census across months using some rule of thumb. In contrast, monthly labor force is estimated from monthly administrative data. In the case of SC, monthly population and labor force estimates had a simple correlation of .99456 over the 1990-99 period and regression results differ little using labor force or population to compute rates of program participation.

[9] "The 1989 classification system of nonmetro counties, known as the ERS typology, is designed to provide policy-relevant information about diverse rural conditions to policymakers, public officials, and researchers. The classification is based on 2,276 U.S. counties (including Alaska and Hawaii) designated as nonmetro as of 1993. The typology includes six mutually exclusive economic types: five types (farming, mining, manufacturing, government and services) reflect dependence on particular economic specializations; a sixth type, termed nonspecialized, contains those counties not classified as having any of the five economic specializations" ERS (1995).

[10] Since monthly labor force estimates for counties are also used to estimate monthly unemployment rates, the unemployment rate regressor is lagged two years to ameliorate potential endogeneity problems. Similarly, employment growth rates are used rather than employment levels and they are estimated for the most recent quarter and lagged four quarters when used as regressors. Tests for lag length in SC indicated that economic vitality affects caseloads up to about a 24-month lag.

[11] As one reviewer suggested, growth in retail jobs is a better proxy for change in demand for former TANF recipients than overall employment growth. This would allow estimates of the change in the low wage labor force opportunities consistent with a local labor market segmented, in part, into a low-wage sector that behaves differently than the neoclassical paradigm. In particular, the low wage labor market is characterized by the minimum wage floor and little upward mobility (few "job ladders"). Since former TANF recipients can be expected to participate in this segment of the labor market, measures of job growth in this segment are preferred to overall job growth but monthly data series at the county level are not available. However, concern with endogeneity between labor force on the LHS and lagged unemployment rates on the RHS is lessened by the nature of this labor market segment since the minimum wage inserts an institutional wedge into the interplay between wage rate changes and labor force changes.

[12] The general panel model is $Y_{ct} = \sum X_{ctk} \beta_k + U_{ct}$ c= 1…N; t= 1, ,T with N the number of counties and T the length of the monthly time series for each county. Fuller-Battese (1974) is the error components model where $U_{ct} = \gamma_c + \gamma_t + \varepsilon_{ct}$ and ε_{ct} is normally and independently distributed with mean 0 and constant variance. The error components are estimated first then the regression parameters are estimated with GLS. The Parks (1967) model assumes a stationary first order autoregressive process within each county with contemporaneous correlation between counties so that $U_{ct} = \rho_i U_{ct-1} + e_{ct}$ and nonconstant error variance. The covariance matrix is estimated in a two-stage procedure and then model regression parameters by GLS. SAS Institute (1979) provides a summary of these two models and software for estimation.

[13] The associated p values are in the .2 or above range. Tables with detailed statistical properties are available on request.