Geographic Differences in AFDC and Food Stamp Caseloads in the Welfare Reform Era

James P. Ziliak*
Department of Economics
University of Oregon

David N. Figlio
Department of Economics
University of Florida

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* Address correspondence to James P. Ziliak, Department of Economics, 1285 University of Oregon, Eugene, OR 97403-1285; Email: jziliak@oregon.uoregon.edu. We wish to thank Stephen Goetz, Robert Moffitt, Sue Johns at the State of Oregon's Adult and Family Services for providing the Oregon caseload data, Carol Weidel at the State of Wisconsin's Department of Workforce Development for providing the Wisconsin caseload data, and seminar participants at the Rural Dimensions of Welfare Reform Conference in Washington, D.C. We gratefully acknowledge financial support from the Joint Center for Poverty Research and the Economic Research Service, U.S. Department of Agriculture. All errors are our own.

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Abstract: The substantial economic expansion of the 1990s, coupled with the dramatic changes in the delivery of cash assistance in America, may have had differential impacts on welfare caseloads across geographic areas because of spatial differences in the composition of labor-market skills and welfare caseloads. We examine urban and rural differences in the impact of the macroeconomy and welfare reform on AFDC/TANF and Food Stamp caseloads using county level data from the states of Oregon and Wisconsin for 1990–1999. These states are credited with being early major innovators in the area of welfare reform, so it is of great interest to examine whether the business cycle and welfare reform have had a different geographic impact in these states. With the exception of Oregon's food stamp caseload, we find no statistically significant urban and rural differences in the long-run impact of the macroeconomy. However, we do find important geographic differences in the impacts of welfare reform on AFDC/TANF and food stamp caseloads across both states—the 1996 federal welfare reform legislation resulted in a more pronounced leveling down of urban caseloads relative to rural caseloads.

Key Words: Welfare Reform, Business Cycle, Welfare Caseloads, Urban and Rural Differences

The decline in welfare caseloads over the past decade is not only unprecedented in the history of public welfare in America, but is staggering in its depth. The number of families on the largest cash assistance program, Temporary Assistance to Needy Families (TANF), formerly known as Aid to Families with Dependent Children (AFDC), declined by nearly 50 percent by mid-1999 from their 1994 peak of just over 5 million. Likewise, the number of families on the largest food-assistance program, Food Stamps, fell over 30 percent to 18 million from a record high of 27.5 million in 1994. Some states, such as Wisconsin, have experienced declines of over 90 percent in their caseload levels. During this period the U.S. has been in the longest economic expansion in its history, with unemployment rates at 30-year lows. In addition, states began experimenting in earnest with their welfare programs in the mid-1990's, which culminated in the passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996. Several recent attempts have been made to document the relative contributions of the macroeconomy and welfare reform in accounting for the caseload declines (Bartik & Eberts, 1999; Blank, 1997; Council of Economic Advisors, 1997; Figlio, Gundersen, & Ziliak, 2000; Figlio & Ziliak, 1999; Moffitt, 1999; Wallace & Blank, 1999; Ziliak et al., 2000). Although welfare reform has been a contributor to the recent caseload decline, the consensus from this literature indicates that the robust economy played the dominant role in the caseload decline. In this paper we extend the literature by examining geographic differences in the impact of welfare reform and the business cycle on AFDC/TANF and Food Stamp caseloads.

While the current economic expansion has been quite deep, it is likely that not all sectors of the labor market have been affected equally. This is most evident in light of the continued widening income gap between the rich and the poor that has been attributed to technological change that is biased toward highly skilled workers (Bound & Johnson, 1992; Danziger & Gottschalk, 1994; Katz & Autor, 1999). In general, the welfare caseload is not composed of highly skilled workers, and it is plausible that those who are most apt to possess skills that are in demand in the present economic environment are likely to reside in urban centers, as opposed to rural locales (Holzer, 1999). In addition, it is conceivable that comparable economic shocks and welfare-reform aspects may have different effects in urban and rural areas if the nature of the caseload differs substantially across regions. Hence, it is possible that the business cycle and welfare reform have had nonneutral effects across urban and rural sectors of the economy.

In this paper we examine urban and rural differences in AFDC/TANF and Food Stamp caseloads using county level data from the states of Oregon and Wisconsin.[1] These states are credited with being major innovators in the area of welfare reform, so it is of great interest to examine how much of their caseload declines are explained by welfare reform and the business cycle. In addition, these states are also among the states that Ziliak and colleagues (2000) found to have large pre-PRWORA caseload changes attributable to welfare reform. While the recent caseload literature has relied on state-level panel data to conduct their analyses, state-level data does not provide a clear measure of urbanicity aside from some proxy such as the percent of the population in an urban center. Instead, we exploit differences at the substate level where it is straightforward to classify counties as being urban or rural based on their population. Similar to the previous literature, we are able to exploit both cross-sectional and time-series variation to identify the business cycle effect on welfare caseloads, since we observe county-level differences in business cycles within a single state. Unlike the previous literature, though, we identify the welfare-reform effect strictly off of time-series variation because all counties within the state faced the (major) reforms at the same time.[2] This provides less identifying information for the welfare-reform effect; consequently, in our econometric model we attempt to control as much as possible for other common shocks that might have affected the counties at the same time as welfare reform.

We specify a two-step model where in the first step we estimate a model of welfare caseloads as a function of the business cycle and a full set of month dummy variables. The month dummies will contain information about shocks common to all counties, including welfare reform. In the second step we use the coefficients on the month dummies as the dependent variable in a regression with the welfare-reform indicators among the set of covariates. The state-level panel data literature emphasized the need to control for state-specific fixed effects and state trends, along with caseload and business cycle dynamics (Figlio & Ziliak, 1999). Hence, we control for both unobserved fixed and trending differences across counties, and we permit a dynamic response of current caseloads to past caseloads and unemployment rates.

We find in the static models that there are economically and statistically significant geographic differences in the impact of the macroeconomy on both AFDC/TANF and Food Stamp caseloads in Oregon and Wisconsin, but those differences disappear once we permit caseload and business-cycle dynamics (with the exception of Food Stamps in Oregon). Likewise, across both states and programs, there are significant differences in the effect of welfare reform in the static caseload models, which, although weaker in the case of Wisconsin's Food Stamp Program, continue to hold up in the dynamic models. While the passage of PRWORA resulted in a substantial additional leveling down of welfare caseloads in Oregon and Wisconsin, this effect is more pronounced in urban relative to rural counties.

Data and Econometric Model

The data for the project consist of monthly county-level panel data from January 1990 through December 1999 for the states of Oregon and Wisconsin. Our primary variables of interest are AFDC/TANF caseloads, Food Stamp caseloads, unemployment rates, population, and welfare waiver/TANF approval and implementation dates. All the administrative caseload and unemployment data, as well as county population, for Oregon are obtained from the monthly *Branch and District Data* published by the Department of Adult and Family Services. While there are 36 counties in the state, only 33 maintain independent welfare agencies, resulting in 3960 county months of data. The administrative caseload data for Wisconsin's 71 counties (that are not dominated by an Indian Reservation) are obtained directly from the Department of Workforce Development (DWD), the unemployment rates come from the Department's *Wisconsin Labor Market Information* web page, and the county population figures come from the Department of Administration's *Demographic Services Center* web page. This results in 8520 county-months of data for our analysis of Wisconsin caseloads.

Because of the dramatic changes in the delivery of welfare in the state of Wisconsin, a brief discussion of the coding of their AFDC caseloads is warranted. Beginning in October 1997 until April 1998, the DWD transitioned in the reporting of caseload data between the AFDC program and W-2, Wisconsin's work-based replacement for AFDC. The W-2 caseload is broken down into W-2 with payment and W-2 without payment. The former program is similar to AFDC in that the recipient obtains a monthly cash grant, and is composed of individuals on subsidized trial jobs, community service jobs, and those individuals who have no work component. The W-2 without payment program is composed of individuals on unsubsidized employment and contains no cash grant (but may still qualify for food stamps, Medicaid, child care, and the earned income credit). During the transition period, DWD combined the traditional AFDC caseload with the “W-2 with payment” caseload. In order to maintain consistency in our series, we only track cases on the W-2 with payment program after March 1998. As a consequence, we expect the W-2 caseload to be less responsive to macroeconomic activity because it is composed of the most difficult-to-employ clients.

The data regarding welfare waiver/TANF approval and implementation dates comes from Crouse (1999). Under waivers from federal restrictions on state AFDC programs, many states began experimenting with their welfare programs in the early to mid-1990s. Oregon was an early innovator in this regard and received their first major waiver approval in July 1992. This waiver, which was implemented in February 1993, allowed Oregon to require more clients to participate in the Job Opportunities and Basic Skills (JOBS) training program. In March 1996, Oregon received its second major welfare waiver, implemented in July 1996, which permitted the state to impose time limits on benefit receipt and to impose sanctions for failure to comply with program rules. The state’s TANF plan was approved and implemented in October 1996.

Wisconsin received much attention in the late 1980s and early 1990s with various experiments such as “Learnfare”(Wiseman, 1996). Learnfare was approved in 1988 and required 13-19 year old teens to attend school on a regular basis, the failure of which resulted in excluding them from calculation of the family’s AFDC benefit. Wiseman (1996, p. 526-527) notes that implementation was an “administrative disaster,” and that “Learnfare had no detectable effect on school participation" for students subject to the program compared to those not subject. Most of the early waivers covered only a very small segment of the AFDC caseload, and had a more rhetorical than real impact on caseloads (Wiseman, 1996). Wisconsin received approval for its first major statewide waiver in June 1994, which imposed a "family cap" on benefits by offering a fixed benefit regardless of family size. The second series of waivers were approved in August 1995 which limited exemptions to JOBS work requirements and strengthened JOBS sanctions. Both the first and second waivers were officially implemented in January 1996. Similar to Oregon, Wisconsin was among the first to have its TANF plan approved in October 1996, but the actual implementation was delayed until September 1997.

The remaining key data issue in our analysis is designating counties as urban or rural. Our primary approach is to select counties within Metropolitan Statistical Areas (MSA) as urban counties. Oregon has five MSAs that encompass eight counties. In addition, we include Linn County, which contains the city of Albany and lies between the Salem and Corvallis MSAs. Wisconsin has eleven MSAs, which encompass sixteen counties. In addition we included four additional counties, three of which border urban areas in Minnesota (Douglas, Pierce, and St. Croix), as well as Portage County, which borders the Wausau MSA and contains the city of Stevens Point. We depict the geographic location of the urban and rural counties for Oregon and Wisconsin in Figures 1 and 2. As is evident from the figures, urbanicity is strongly concentrated in the western part of Oregon, particularly between Eugene and Portland; whereas, in Wisconsin, urbanicity is more spatially diffuse, while still concentrated in the triangle area encompassing Madison, Kenosha, and Milwaukee.

[Figures 1 and 2 here]

Preliminary Data Analysis

Table 1 presents some descriptive data on the within-state distribution of the change in AFDC/TANF caseloads from the period prior to welfare reform (December 1992) to the last date in our sample period (December 1999). Specifically, Table 1 lists the 20 largest caseload-declining counties in both Wisconsin and Oregon (this obviously draws further into Oregon's list than into Wisconsin's, since Oregon has fewer than half the number of counties as does Wisconsin). We observe that in both Oregon and Wisconsin, *every* county reduced its AFDC/TANF caseload over this time period. This decline could be due to welfare reform, to economic growth, and/or to other unobserved variables that are trending over time within the states. But it is also apparent that this reduction is by no means uniform. In Wisconsin, Milwaukee County's caseload per capita declined by more than 17 times the decline of Ozaukee County. In Oregon, Klamath County's caseload decline is nearly five times that of Wallowa County's. Even within the top-10 caseload decliners in each state, the differential is 114 percent in Wisconsin and 44 percent in Oregon. These differences alone underscore the importance of carrying out within-state exploration.

[Table 1 here]

Table 1 also reports the unemployment rate changes over this time period (in terms of percentage points). While we do not observe a perfect within-state relationship between changes in the welfare caseload and changes in unemployment rate, the relationship between these two variables is nonetheless quite strong. In Wisconsin, the top 20 caseload decliners averaged an unemployment rate decline that was nearly twice that of the remaining counties, while in Oregon the top 20 caseload decliners averaged an unemployment rate decline that was more than half that of the remaining 13 counties. Hence, there is some evidence that within-state differences in caseload declines are attributable to within-state differences in the effects of the business cycle.

There is only weak evidence of within-state urban-rural differences in caseload reductions in Table 1, however, and the urban-rural differences are not consistent across the two states. While in Wisconsin four of the top-five caseload-declining counties were urban counties, for instance, the top-four caseload-declining counties in Oregon were rural counties. However, the top-20 caseload decliners in both states have similar urban-rural composition to the states as a whole. There is no readily apparent urban-rural difference in the relationship between the business cycle and the AFDC/TANF caseload.

We begin our more formal examination of geographic differences in AFDC/TANF and Food Stamp caseloads in the welfare reform era with a graphical exposition. In Figures 3a–3c and 4a–4c we compare average monthly total, urban, and rural per capita welfare caseloads to unemployment rates for Oregon and Wisconsin, respectively. We make the further distinction of comparing seasonally adjusted caseloads and unemployment (right panels in the figures) to those without seasonal adjustment (left panels).[3] Additionally, we highlight with vertical lines the month in which the welfare waivers and TANF program were approved and implemented.

[Figures 3a–3c here]

Beginning with Oregon in Figures 3a–3c, there is clear evidence of a downward secular trend in total, as well as urban and rural, AFDC caseloads beginning around the time of implementation of the first welfare waiver. It appears that the decline is more rapid in the urban counties relative to the rural counties, but both are highly pronounced. Coincident with the caseload declines was a secular decline in unemployment rates, which was also more pronounced in the urban counties and is much more apparent in the seasonally adjusted figures. Interestingly, average monthly Food Stamp caseloads continued to grow for an additional 36 months until the second waiver approval, and then followed AFDC with a downward secular trend that was particularly rapid for urban counties. A number of other interesting features emerge from the diagrams. First, the deep seasonal variation in unemployment rates is driven by seasonality among the rural counties. This highlights the economic hardship that rural residents dependent upon seasonal industries face within a given year, and underscores the potential consumption-smoothing benefits of welfare transfers (Gruber, 1996). Second, Food Stamp caseloads are substantially more variable over the seasons than are AFDC caseloads, and appear to be tightly linked to seasonal movements in unemployment.

[Figures 4a–4c here]

Unlike Oregon, the downward secular trend in Wisconsin's AFDC caseloads began well before the approval of their first major welfare waiver. Indeed the downward trend in the early 1990s was driven by caseload movements among the rural counties as urban AFDC caseloads did not begin their decline until just prior to the first waiver approval in mid 1994. Also dissimilar to the case of Oregon was the secular decline in Food Stamp caseloads a full two years prior to the first waiver approval. There was an upward spike in per capita Food Stamp caseloads of about 20 percent in January 1992 that affected all counties uniformly, but the Food Stamp rolls have declined largely unabated since that date. During most of the 1990s Wisconsin has also experienced a secular decline in unemployment rates. However, similar to Oregon, the average unemployment rate appears to have bottomed out by the start of 1997, and the caseload declines followed suit shortly thereafter. Also similar to Oregon, the figures highlight the fact that rural counties experience greater seasonal swings in both unemployment and caseloads than rural counties, although seasonal amplitudes in rural Oregon appear more dramatic than in Wisconsin.

Econometric Model

The figures highlight the fact that there might be substantial differences in the response of welfare caseloads to not only seasonal cycles, but also the business cycle and welfare reform across urban and rural counties within the states of Oregon and Wisconsin. Consequently, we specify a model whose parameters vary by state and by urbanicity. In addition, following the state-level welfare caseload literature, we permit permanent fixed and trending differences across counties within states in order to control for both unobserved time invariant and time-varying differences in county caseload patterns. Moreover, based on the results of Figlio and Ziliak (1999) and Ziliak and colleagues (2000), we consider both static models and dynamic models of caseload adjustment.

A complication arises in our analysis in that the welfare waivers affect all counties simultaneously, unlike the state-panel models where waiver approval and implementation affected states at different times. Consequently, we are able to identify the impact of welfare waivers within a state strictly by time-series variation in the caseload trends. This implies we need to control as much as possible for other factors that might be affecting the counties at the same time in order to have any confidence in attributing caseload changes to welfare reform. We adopt a two-step estimation strategy to help in identifying the welfare-reform effect. In step one we estimate a model of the log of per capita welfare caseloads (*c*) on county unemployment rates (*u*), county fixed effects (l) and trends (*m*), and 120 month-dummy variables (*m*). Specifically, for county i (i=1,..33 (71)) in region j (j=total, urban, rural) of state k (k=Oregon and Wisconsin) in time t (t=1,…120) our first-stage model is:

(1) $$\ln(c_{ijkt}) = b_{jk} u_{ijkt} + m_{jkt} + l_{ijk} + m_{ijk} t + e_{ijkt} ,$$

where e_{ijkt} is a random error. The month dummy variables (m_{jkt}) are intended to capture all seasonal, secular, and cyclical shocks common across counties in region j of state k in month t.

In step two of our estimation procedure we attempt to decompose the estimated month effects into their component parts of cyclical, seasonal, and trend effects. Specifically, our step two model is

(2) $$\hat{m}_{jkt} = j_{1jk} nu_t + j_{2jk} d + j_{3jk} t + j_{4jk} w1_{kt} + j_{5jk} w1_{kt} * t + j_{6jk} w2_{kt} + j_{7jk} w2_{kt} * t$$
$$+ j_{8jk} wr_{kt} + j_{9jk} wr_{kt} * t + h_{jkt} ,$$

where nu_t is the national unemployment rate in month t, *d* is vector of 12 dummy variables representing each month of the year, *t* is an overall linear trend, $w1_{kt}$ is a dummy variable reflecting the date of first welfare-waiver approval or implementation in state k, $w2_{kt}$ is a dummy variable reflecting the date of second welfare-waiver approval or implementation in state k, wr_{kt} is a dummy variable reflecting the date of TANF program approval or implementation in state k, and h_{jkt} is a random error.[4]

The national unemployment rate is intended to capture the impact of the aggregate labor market on local welfare caseloads. Ziliak and colleagues (1999) show that real wages are sensitive to both local and national labor-market conditions; thus, we wish to allow for the possibility of that welfare caseloads also respond to aggregate business-cycle conditions. The month-of-year dummy variables are an attempt to control for seasonal effects in welfare caseloads. Lastly, because we are identifying welfare reform off of a break in trend, we wish to permit as much flexibility as possible in the impact of welfare reform by specifying a spline function that allows for both a level effect (welfare-reform dummy variables in equation (2)) and a rate-of-change effect (interactions between welfare-reform and the trend in equation (2)).

Our dynamic models differ from the static variants in the following manner. Based on preliminary specification testing, we append three lags of both log per capita caseloads and unemployment rates to the right hand side of equation (1).[5] In step two the dependent variable becomes $\hat{m}_{jkt} / (1 - \sum_{l=1}^{3} \hat{r}_{ljk})$, where $\hat{r}_{ljk}$ are the estimated coefficients on the lagged dependent variable. This implies that the estimated second-step cyclical, seasonal, and welfare-reform coefficients represent long-run effects on welfare caseloads.

Results

In the ensuing tables we report the estimates from the first-step local unemployment rate along with the second-step national unemployment rate and welfare-reform spline function. For the dynamic models we only report the long-run effects, which offers a more transparent comparison with the static model estimates. There are 12 specifications in each table; static and dynamic total, urban, and rural models based on either welfare-reform approval dates or implementation dates. At the bottom of the tables we provide p-values from Wald tests that the urban and rural local unemployment rates are statistically equal (Wald-UR), and that the urban and rural welfare-reform spline functions are equal (Wald-WR). While a measure of overall fit of the two-step model is not available, the adjusted R^2 in each of the first and second-step models ranged from 0.96–0.99.

Oregon Caseloads in the Welfare Reform Era

In Table 2 we present the results from our two-step model for the impact of welfare reform and the macroeconomy on log per capita AFDC/TANF caseloads in Oregon. Beginning with total caseloads in the static model of approval dates it is clear that AFDC caseloads are strongly countercyclical in local labor markets. A one-percentage point increase in the monthly unemployment rate leads to a 1.6 percent increase in monthly caseloads. However, AFDC caseloads seem largely insulated from changes in the U.S. labor market, as reflected in the statistically zero coefficient on national unemployment. Moreover, in results not tabulated we could not reject the null of no seasonality in total per capita AFDC caseloads. Importantly, though, each component of the welfare-reform spline, both intercepts and slopes, are statistically different from zero, and they are statistically different from each other (i.e. we resoundingly reject the null of equal slopes and of equal intercepts). There is a sizable level *increase* after approval of the first and second waivers that is capturing the run-up in AFDC caseloads in the early 1990s, but the rate of increase after the first waiver neutralizes the overall upward trend, and then actually accelerates downward after the second waiver approval. This decline, however, slows down after approval of Oregon's TANF plan.

[Table 2 here]

Perhaps more important, the static waiver approval model estimates in Table 2 reveal economically and statistically significant differences in the cyclicality of urban and rural AFDC caseloads. Evaluated at the means of the unemployment rate of 5.5 and 7.8 percent for urban and rural counties, respectively, the elasticity of urban caseloads with respect to the unemployment rate is 0.16, whereas the comparable rural elasticity is 0.04, or 75 percent lower. In addition, urban caseloads are statistically significantly more countercyclical with regard to national labor markets than are rural caseloads. This underscores the relatively worse economic opportunities available to rural residents during economic expansions. There are other substantial differences between urban and rural counties in Oregon based on the static models. First, similar to the results with the total caseload, urban AFDC clients experience no significant seasonal variation, while their rural counterparts do face significant seasonality. Second, there are statistically important secular differences in the rural and urban caseloads in response to welfare reform. The run-up in the early 1990s caseloads was more severe in rural counties, thus they “downsized” at a faster clip after the first and second waiver approvals.

While the results remain largely intact when we move to static models with waiver implementation dates, there are several important differences in the dynamic models. The long-run impact of the local unemployment rate on total and rural caseloads is about 30 and 100 percent higher in the dynamic model, respectively. However, the long-run local business cycle effect in urban counties is below its static counterpart. This occurs because the third lag on unemployment is negative and offsets some of the earlier positive lag effects. Although the long-run impacts are individually statistically insignificant, and are statistically the same between urban and rural counties, many of the (unreported) short-run coefficients are significant. In general, there is a large loss of efficiency in the reported dynamic estimates, primarily because the standard errors are a convolution of errors from both the coefficients of interest and the coefficients on the lagged dependent variables. Unlike the static model there is evidence in the dynamic model of a significant seasonal component in urban AFDC/TANF caseloads, but this is still less important that in rural counties.

[Figure 5a here]

To aid in interpreting the coefficients on the welfare spline function across the various model specifications, we present four diagrams of fitted welfare-reform effects on AFDC/TANF caseloads in Figure 5a. The first row pertains to the static models with waiver approval and implementation dates, while the second row contains parallel estimates from the dynamic models. The static approval and implementation effects only differ with respect a larger welfare-reform level effect in the implementation models. The dynamic models, however, tell a slightly different story. In these models there is a massive leveling down of welfare caseloads in the half year between the second waiver approval and TANF approval, which is slightly more pronounced in urban counties. This suggests that TANF did not affect the rate at which recipients were leaving the AFDC rolls in Oregon so much as there was just a massive downsizing of the program.

[Table 3 and Figure 5b here]

In Table 3 and the accompanying Figure 5b we present the parallel Food Stamp program estimates for Oregon. Similar to the AFDC/TANF results, Table 3 reveals that rural county Food Stamp caseloads are significantly less countercyclical than their urban counterparts. This holds not only across all of the static, but also the dynamic specifications as well. Unlike the AFDC model, however, the long-run impact of the business cycle is larger in urban counties compared to the static estimate. Indeed, the long-run effect of the local business cycle is considerably larger for Food Stamps than for AFDC caseloads across all geographic regions, a result that is not too surprising given the different demographic compositions of the programs. Additionally, Food Stamps have a significant seasonal component in both urban and rural counties across the static and dynamic models.

Collectively, welfare reform has a statistically significant different impact on Food Stamp caseloads across urban and rural counties in Oregon. However, as evidenced in Figure 5b, the differences are much less pronounced than for AFDC. This is particularly true in the early to mid 1990s, such that the differences do not manifest themselves until approval of the second welfare waiver. While statistically indistinguishable in the static models, the dynamic models reveal a substantially larger leveling down of urban Food Stamp caseloads after TANF relative to rural caseloads.

Wisconsin Caseloads in the Welfare Reform Era

In Table 4 we present the static and dynamic AFDC/TANF caseload results for the state of Wisconsin. Most striking in the static models is the acyclicality of the total caseload to local business-cycle conditions. This result is made more astonishing by the weakly *procyclical* estimate for urban counties in Wisconsin. What can possibly account for this seemingly perverse result? Much of the answer rests in the way that welfare cases are categorized in Wisconsin’s post-TANF welfare program, W-2. As discussed in the Data Section, only the most difficult to employ cases are on the W-2 program that provides a cash payment similar to the previous AFDC program. Hence, we expected a weakened business-cycle effect because of the changing composition of the program. Indeed, in results not tabulated we ended the sample in September 1997, the month before the phasing in of W-2, and found a strong countercyclical estimate for urban caseloads (and actually a somewhat weakened effect for rural caseloads).

Although we expect Wisconsin’s caseloads to have a dampened macroeconomic effect after W-2, this conclusion is somewhat premature for two reasons. First, the AFDC caseload, both rural and urban, is highly responsive to the national business cycle, especially in the dynamic models. Second, the dynamic models reveal a sizable long-run local business-cycle effect for urban counties, suggesting that the static model is likely misspecified. In this case, though, the rural counties caseloads reverse from being countercyclical to acyclical. Similar to Oregon, the dynamic models reveal that urban caseloads are statistically no different than rural caseloads in terms of business-cycle responsiveness.

[Figure 6a here]

As in the previous section, we rely on Figure 6a to help interpret the urban/rural differences in welfare-reform across model specifications.[6] Unlike Oregon, the trend in AFDC caseloads in Wisconsin has been negative for the entire decade. Indeed, Wisconsin was the lone state to not experience the sizable run-up in welfare caseloads in the early 1990s. As a consequence, the approval of Wisconsin's first waiver had no effect on either the level or trend in their caseloads, regardless of whether we model caseloads as a static or dynamic process. With approval of their second waiver, there was a leveling up of AFDC caseloads, which was slightly more pronounced in rural counties, followed by a strong deceleration. At this juncture, there are sharp differences in the predictions from the static and dynamic models. The static model predicts that the story after the passage of TANF was a strong acceleration in caseload declines, whereas the dynamic model paints a picture more in line with Oregon in that TANF resulted in a massive leveling down in welfare caseloads, which was significantly more pronounced in urban areas.

[Table 5 and Figure 6b here]

In Table 5 and Figure 6b we present the estimates from the Food Stamp models for Wisconsin. Similar to the AFDC results, the static models predict that rural caseloads are more cyclically sensitive at both the local and national levels than urban caseloads, but that the geographic differences are statistically indistinguishable. These results, however, are partially reversed in the more preferred dynamic specifications—urban caseloads are more cyclically sensitive, but again the differences are not statistically different. The need for the dynamic specification is accentuated further by examining the welfare-reform estimates across the static and dynamic models. While both sets of estimates reflect a leveling down in Food Stamp caseloads after the passage of TANF, this impact is nearly double in the dynamic as opposed to static specifications.

Interactions Between Welfare Reform and the Business Cycle

The results described above suggest that welfare reform explains considerably more of the post-PRWORA caseload decline in Wisconsin and Oregon than does the macroeconomy. However, it may still be the case that the effect of welfare reform may differ significantly depending upon the strength of the economy, and furthermore that this difference may in turn vary depending on whether the locale is urban or rural. This section provides some preliminary evidence on this question.

To carry out this exercise, we apply our fully dynamic model of the AFDC/TANF or Food Stamp caseload, but add additional variables reflecting the interaction of each economic variable with dummy variables reflecting either the *approval* or the *implementation* of a welfare waiver or of TANF. The coefficient estimates on these interaction terms indicate the degree to which the estimated welfare reform effects are due to an economic interaction. Table 6 presents the results of this investigation for the case of Oregon. The left half of Table 6 describes the estimated interactions between welfare reform and the macroeconomy in determining the AFDC/TANF caseload, while the right half of Table 6 reports the estimated interactions associated with the Food Stamp caseload. As with the previous tables, the numbers presented in Table 6 are estimated long-run effects of the interaction between welfare reform and the macroeconomy. They can be thought of as the long-run increase in the caseload associated with the relevant welfare reform policy change when the unemployment rate increases by one percentage point.

As can be observed in Table 6, there appears to be no consistent pattern that emerges from this exercise. (The same can be said for the case of Wisconsin, not reported in this paper.) Looking at the state as a whole, the interaction between welfare reform (measured by approval) and the local unemployment rate never approaches statistical significance at conventional levels when describing either AFDC/TANF or Food Stamp caseloads. On the other hand, this interaction tends to be statistically significant when welfare reform is characterized by its implementation date. Here, however, the estimated interaction terms differ across welfare waivers, as well as across AFDC/TANF and Food Stamp caseloads. Specifically, we observe that the negative effect of welfare reform on AFDC/TANF caseloads appears to be significantly dampened as unemployment rates increase in the case of Oregon's first welfare waiver and TANF, but significantly *enhanced* as unemployment rates increase in the case of Oregon's second welfare waiver. With regard to Food Stamp caseloads, this interaction is positive and significant when associated with the first welfare waiver, as well as the second welfare waiver (though this interaction is only significant at the 17 percent level,) but the interaction is trivial both in magnitude as well as statistical significance when describing the effects of TANF. Therefore, while we can conclude that the effects of the implementation of Oregon's first welfare waiver were larger when unemployment rates were lower than when they were higher for both AFDC and Food Stamps, the estimated interactive effect of the second welfare waiver apparently moves in opposite directions for AFDC and Food Stamps.

Table 6 also provides evidence for urban-rural differences in these interactions. The positive interaction between Oregon's first welfare waiver and the macroeconomy are consistently more pronounced in rural settings than in urban settings. The results suggest that the first welfare waiver's effects on both AFDC and Food Stamp caseloads were significantly enhanced by a strong economy in rural areas of Oregon, but that this interaction is not observed in urban areas. In other words, a strong economy was apparently quite important for the implementation of Oregon's first welfare reform in rural areas, but not in urban areas.

In the case of Oregon's second welfare waiver or for TANF, however, the results are not at all clear-cut. Never are the interactions between the macroeconomy and the second welfare waiver statistically significant, and the signs of these interactions are not consistent between approval and implementation, nor between AFDC/TANF and Food Stamps. Therefore, there is little evidence to suggest that the urban-rural differences apparent with regard to Oregon's first welfare waiver are present in the case of Oregon's second welfare waiver or in the case of TANF. This is consistent with our prior, spelled out in Figlio and Ziliak (1999) and Ziliak and colleagues (2000), that whereas the macroeconomy was the driving factor behind caseload declines prior to the passage of PRWORA, the momentum of welfare reform was likely to gain increasing influence after PRWORA.

Conclusion

This paper demonstrates while that both welfare reform and economic conditions played major roles in explaining the recent dramatic reductions in AFDC/TANF and Food Stamp caseloads in Oregon and Wisconsin, only in the case of Oregon's Food Stamp Program are there significant urban-rural differences in the impact of the macroeconomy on caseloads. However, the results suggest that welfare reform has had substantially different effects in urban and rural settings on welfare caseloads—passage of PRWORA resulted in a more pronounced leveling down of urban caseloads relative to rural caseloads—but these differences are somewhat weaker for the Food Stamp caseload. The difference in welfare-reform effects may result from urban-rural differences in the implementation of welfare reform that are not directly observable to the researcher, but that we will seek to uncover in future work. We also find urban-rural differences in the ways in which welfare reform interacted with the business cycle—but only with regard to early welfare waivers, and not in the most recent time period. These results suggest that a strong macroeconomy bolstered the early AFDC/TANF and Food Stamp caseload reductions associated with welfare reform in Oregon, but generally only in rural areas. However, there appears to be no strong interactive effect, nor are there significantly observable urban-rural differences in this interactive effect, in the more recent rounds of welfare reform.

Because the majority of the most recent caseload declines in Oregon and Wisconsin are likely due to welfare reform, it is possible to commit a "fallacy of composition," i.e. the notion that what is true for a part is true for the whole. We have documented elsewhere, as have others, that the robust economy has been the key behind national caseload reductions, and the evidence presented here is not intended to overturn the results for the U.S. as a whole. This seems particularly important given that the welfare-reform identification strategy is arguably more robust when one is able to exploit both cross-sectional and time-series variation rather than the straight time-series variation used herein. That said, if we are willing to attribute the bulk of the recent caseload declines in these two states to welfare reform then this suggests that a large portion of the decline may be permanent and there may not be a major caseload reversion in the next recession. On the other hand, the findings of some interactive effects between welfare reform and the business cycle in the early years of welfare reform are cause for more detailed future investigation of this issue. In addition, the fact that urban-rural differences in the effects of welfare reform on the AFDC/TANF caseload are stronger than for the Food Stamp caseload raises questions about urban-rural differences in the implementation of welfare reform. Because this may also have implications for caseloads during the next economic downturn, more detailed evaluation of the implementation of welfare reform is needed in future work.

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Table 1: Top 20 Counties Ranked by Decline in AFDC/TANF Caseloads per 100 Residents, Oregon and Wisconsin

Wisconsin			Oregon		
County	Change in Caseload	Change in Unemployment Rate	County	Change in Caseload	Change in Unemployment Rate
Milwaukee	-3.30	-0.5	Klamath	-1.54	-2.8
Sawyer	-2.67	-4.7	Jefferson	-1.29	-3.2
Douglas	-2.13	-3.0	Umatilla	-1.28	-0.9
Rock	-1.93	-0.6	Josephine	-1.27	-3.6
Racine	-1.91	-3.2	*Linn*	-1.19	-3.8
Burnett	-1.82	-3.2	Malheur	-1.18	-0.3
Kenosha	-1.78	-2.2	Douglas	-1.16	-3.0
Adams	-1.72	-2.1	*Jackson*	-1.14	-2.8
Forest	-1.69	-1.5	*Marion*	-1.11	-1.6
Rusk	-1.54	-7.8	Coos	-1.07	-2.9
Eau Claire	-1.51	-3.1	*Lane*	-1.06	-2.0
Florence	-1.49	-4.7	Harney	-1.06	-1.9
Ashland	-1.48	-0.3	*Multnomah*	-1.00	-2.2
Jackson	-1.46	-4.3	Clatsop	-0.97	-3.7
La Crosse	-1.43	-0.7	Gilliam	-0.96	0.2
Polk	-1.35	-5.1	Tillamook	-0.96	-2.9
Chippewa	-1.33	-3.0	Union	-0.94	-2.1
Juneau	-1.31	-2.0	Crook	-0.90	1.3
Washburn	-1.29	-6.0	Lincoln	-0.89	1.2
Barron	-1.28	-3.1	Wasco	-0.88	-2.1
Smallest caseload reduction:			Smallest caseload reduction:		
Ozaukee	-0.19	1.5	Wallowa	-0.33	0.3
Average of Top 20	-1.72	-3.1	Average of Top 20	-1.09	-2.0
Average of State Remainder	-0.81	-1.6	Average of State Remainder	-0.60	-1.3

Note: Urban counties are denoted in *italics*. Changes in caseloads per 100 residents and in unemployment rates are measured from December 1992 to December 1999. The change in unemployment rates is denoted in percentage points.

Table 2: Static and Dynamic Estimates of the Macroeconomy and Welfare Reform on Oregon's AFDC/TANF Caseloads by Geographic Region

	Approval Dates						Implementation Dates					
	Static			Dynamic			Static			Dynamic		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Unemployment Rate (local)	1.567 (0.135)	2.849 (0.368)	0.468 (0.151)	2.089 (0.997)	1.980 (2.746)	0.969 (0.959)	1.567 (0.135)	2.849 (0.368)	0.468 (0.151)	2.089 (0.997)	1.980 (2.746)	0.969 (0.959)
Unemployment Rate (national)	1.622 (2.628)	2.652 (2.770)	-1.853 (2.469)	5.734 (7.963)	6.973 (11.417)	3.997 (7.052)	4.137 (1.985)	3.931 (2.008)	2.970 (2.192)	3.913 (7.029)	2.993 (10.282)	5.021 (6.110)
Trend	0.010 (0.002)	0.006 (0.003)	0.014 (0.002)	0.002 (0.007)	-0.001 (0.009)	0.004 (0.006)	0.006 (0.002)	0.004 (0.002)	0.008 (0.002)	0.003 (0.004)	0.002 (0.006)	0.002 (0.004)
1st Waiver	0.347 (0.115)	0.256 (0.121)	0.496 (0.110)	0.253 (0.299)	0.265 (0.405)	0.304 (0.287)	0.383 (0.084)	0.342 (0.085)	0.433 (0.094)	0.568 (0.226)	0.681 (0.311)	0.516 (0.214)
1st Waiver* Trend	-0.011 (0.004)	-0.007 (0.004)	-0.016 (0.004)	-0.005 (0.010)	-0.006 (0.014)	-0.007 (0.010)	-0.009 (0.003)	-0.007 (0.003)	-0.010 (0.003)	-0.012 (0.007)	-0.015 (0.010)	-0.010 (0.007)
2nd Waiver	1.582 (0.289)	1.408 (0.299)	2.039 (0.303)	3.974 (1.416)	3.481 (2.227)	5.293 (1.049)	1.959 (0.936)	1.675 (0.991)	2.545 (0.916)	16.179 (2.934)	22.535 (3.784)	13.575 (2.889)
2nd Waiver* Trend	-0.022 (0.004)	-0.020 (0.004)	-0.028 (0.004)	-0.055 (0.018)	-0.049 (0.029)	-0.072 (0.013)	-0.026 (0.012)	-0.023 (0.012)	-0.034 (0.011)	-0.206 (0.037)	-0.285 (0.047)	-0.173 (0.036)
Tanf	-1.364 (0.321)	-1.216 (0.335)	-1.610 (0.324)	-5.333 (1.423)	-5.791 (2.239)	-5.689 (1.071)	-1.859 (0.944)	-1.612 (1.001)	-2.206 (0.920)	-17.819 (2.944)	-25.174 (3.804)	-14.227 (2.890)
Tanf*Trend	0.015 (0.004)	0.012 (0.004)	0.019 (0.004)	0.064 (0.018)	0.069 (0.029)	0.071 (0.014)	0.021 (0.012)	0.017 (0.012)	0.026 (0.012)	0.220 (0.037)	0.311 (0.047)	0.177 (0.036)
Wald-UR		0.000			0.728			0.000			0.728	
Wald-WR		0.000			0.000			0.000			0.000	

NOTES: Robust standard errors are reported in parentheses. All regressions control for county fixed effects and trends. The coefficients reported for the dynamic models are long-run effects. Wald-UR and Wald-WR are p-values from Wald tests that the urban and rural local unemployment and welfare-reform coefficients are equal. There are 3953 total observations, 1080 (2873) of which are from urban (rural) counties.

Table 3: Static and Dynamic Estimates of the Macroeconomy and Welfare Reform on Oregon's Food Stamp Caseloads by Geographic Region

	Approval Dates						Implementation Dates					
	Static			Dynamic			Static			Dynamic		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Unemployment Rate (local)	1.411 (0.108)	2.702 (0.274)	0.473 (0.121)	2.248 (0.517)	4.091 (1.329)	1.048 (0.537)	1.411 (0.108)	2.702 (0.274)	0.473 (0.121)	2.248 (0.517)	4.091 (1.329)	1.048 (0.537)
Unemployment Rate (national)	1.667 (1.122)	1.923 (1.345)	0.019 (1.066)	-1.598 (3.884)	-1.356 (5.839)	-5.102 (5.582)	1.647 (0.839)	1.496 (0.992)	0.151 (0.814)	-1.193 (3.245)	0.809 (5.153)	-5.948 (4.097)
Trend	0.006 (0.001)	0.002 (0.001)	0.006 (0.001)	0.008 (0.004)	0.006 (0.006)	0.010 (0.005)	0.006 (0.001)	0.002 (0.001)	0.006 (0.001)	0.007 (0.003)	0.003 (0.005)	0.010 (0.003)
1st Waiver	0.080 (0.047)	0.038 (0.057)	0.103 (0.045)	0.176 (0.160)	0.122 (0.230)	0.285 (0.237)	0.110 (0.030)	0.089 (0.036)	0.106 (0.031)	0.156 (0.118)	0.054 (0.191)	0.279 (0.144)
1st Waiver* Trend	-0.002 (0.002)	-0.001 (0.002)	-0.004 (0.002)	-0.006 (0.006)	-0.005 (0.008)	-0.010 (0.008)	-0.003 (0.001)	-0.002 (0.001)	-0.003 (0.001)	-0.005 (0.004)	-0.001 (0.006)	-0.010 (0.005)
2nd Waiver	0.377 (0.161)	0.415 (0.177)	0.317 (0.165)	1.869 (0.850)	2.943 (1.157)	0.746 (0.882)	0.871 (0.441)	0.807 (0.551)	0.941 (0.404)	5.677 (1.903)	7.380 (2.773)	5.591 (1.920)
2nd Waiver* Trend	-0.005 (0.002)	-0.006 (0.002)	-0.004 (0.002)	-0.025 (0.011)	-0.039 (0.015)	-0.010 (0.011)	-0.011 (0.005)	-0.011 (0.007)	-0.012 (0.005)	-0.072 (0.024)	-0.094 (0.035)	-0.070 (0.024)
Tanf	0.061 (0.180)	0.053 (0.199)	0.196 (0.173)	-1.979 (0.864)	-3.162 (1.174)	-0.548 (0.897)	-0.462 (0.452)	-0.378 (0.562)	-0.438 (0.411)	-5.786 (1.915)	-7.607 (2.786)	-5.374 (1.930)
Tanf*Trend	-0.002 (0.002)	-0.002 (0.002)	-0.003 (0.002)	0.022 (0.011)	0.037 (0.015)	0.006 (0.011)	0.004 (0.006)	0.003 (0.007)	0.005 (0.005)	0.070 (0.024)	0.092 (0.035)	0.066 (0.024)
Wald-UR		0.000			0.034			0.000			0.034	
Wald-WR		0.000			0.051			0.000			0.057	

NOTES: Robust standard errors are reported in parentheses. All regressions control for county fixed effects and trends. The coefficients reported for the dynamic models are long-run effects. Wald-UR and Wald-WR are p-values from Wald tests that the urban and rural local unemployment and welfare-reform coefficients are equal. There are 3953 total observations, 1080 (2873) of which are from urban (rural) counties.

Table 4: Static and Dynamic Estimates of the Macroeconomy and Welfare Reform on Wisconsin's AFDC/TANF Caseloads by Geographic Region

	Approval Dates						Implementation Dates					
		Static			Dynamic			Static			Dynamic	
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Unemployment Rate (local)	0.265	-1.597	1.047	3.841	7.638	-0.445	0.265	-1.597	1.047	3.841	7.638	-0.445
	(0.341)	(0.778)	(0.377)	(2.772)	(6.574)	(2.225)	(0.341)	(0.778)	(0.377)	(2.772)	(6.574)	(2.225)
Unemployment Rate (national)	7.454	7.533	8.678	30.639	29.274	27.677	5.102	5.346	6.155	8.120	5.331	11.359
	(2.350)	(2.145)	(2.838)	(12.927)	(16.514)	(8.720)	(1.043)	(0.944)	(1.246)	(4.880)	(5.961)	(3.484)
Trend	-0.013	-0.020	-0.008	-0.020	-0.036	-0.012	-0.014	-0.020	-0.009	-0.017	-0.033	-0.010
	(0.001)	(0.001)	(0.001)	(0.005)	(0.007)	(0.003)	(0.000)	(0.000)	(0.001)	(0.002)	(0.002)	(0.001)
1st Waiver	0.035	0.080	0.122	-0.073	-0.294	0.198	2.859	2.567	3.377	4.093	4.227	3.889
	(0.263)	(0.247)	(0.298)	(1.206)	(1.503)	(0.834)	(0.138)	(0.132)	(0.156)	(1.365)	(1.719)	(0.869)
1st Waiver* Trend	0.000	-0.001	-0.001	0.007	0.010	0.001	-0.040	-0.036	-0.048	-0.062	-0.064	-0.059
	(0.005)	(0.004)	(0.005)	(0.021)	(0.027)	(0.014)	(0.002)	(0.002)	(0.002)	(0.017)	(0.021)	(0.011)
2nd Waiver	2.148	1.835	2.591	6.831	8.056	5.003						
	(0.417)	(0.395)	(0.466)	(1.970)	(2.272)	(1.489)						
2nd Waiver* Trend	-0.032	-0.027	-0.038	-0.099	-0.116	-0.074						
	(0.006)	(0.006)	(0.007)	(0.028)	(0.032)	(0.021)						
Tanf	3.834	3.811	3.890	-6.727	-8.512	-2.836	-0.732	-0.309	-1.596	-21.391	-23.731	-15.147
	(0.582)	(0.536)	(0.686)	(3.264)	(3.686)	(2.427)	(1.117)	(1.031)	(1.317)	(4.737)	(5.602)	(3.342)
Tanf*Trend	-0.049	-0.048	-0.048	0.070	0.091	0.024	-0.005	-0.008	0.002	0.189	0.213	0.130
	(0.007)	(0.006)	(0.007)	(0.035)	(0.040)	(0.026)	(0.010)	(0.009)	(0.012)	(0.044)	(0.053)	(0.031)
Wald-UR		0.002			0.244			0.002			0.244	
Wald-WR		0.000			0.000			0.000			0.000	

NOTES: Robust standard errors are reported in parentheses. All regressions control for county fixed effects and trends. The coefficients reported for the dynamic models are long-run effects. Wald-UR and Wald-WR are p-values from Wald tests that the urban and rural local unemployment and welfare-reform coefficients are equal. There are 8414 total observations, 2399 (6015) of which are from urban (rural) counties.

Table 5: Static and Dynamic Estimates of the Macroeconomy and Welfare Reform on Wisconsin's
Food Stamp Caseloads by Geographic Region

	Approval Dates						Implementation Dates					
	Static			Dynamic			Static			Dynamic		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Unemployment Rate (local)	0.802 (0.061)	0.569 (0.126)	0.609 (0.082)	1.631 (0.353)	2.267 (0.844)	1.084 (0.428)	0.802 (0.061)	0.569 (0.126)	0.609 (0.082)	1.631 (0.353)	2.267 (0.844)	1.084 (0.428)
Unemployment Rate (national)	7.932 (1.439)	7.778 (1.304)	8.594 (1.712)	16.919 (6.476)	18.379 (8.161)	18.288 (6.597)	9.448 (0.911)	9.111 (0.824)	10.563 (1.095)	14.078 (3.775)	14.294 (4.802)	15.769 (3.848)
Trend	0.004 (0.001)	0.002 (0.001)	0.004 (0.001)	0.001 (0.002)	-0.003 (0.003)	0.001 (0.003)	0.003 (0.000)	0.002 (0.000)	0.003 (0.000)	0.002 (0.001)	-0.001 (0.001)	0.002 (0.001)
1st Waiver	0.124 (0.057)	0.118 (0.058)	0.171 (0.063)	-0.503 (0.372)	-0.596 (0.490)	-0.605 (0.387)	1.105 (0.056)	1.128 (0.051)	1.031 (0.072)	0.762 (0.472)	0.853 (0.587)	0.470 (0.505)
1st Waiver* Trend	-0.003 (0.001)	-0.003 (0.001)	-0.004 (0.001)	0.010 (0.007)	0.013 (0.009)	0.012 (0.007)	-0.017 (0.001)	-0.017 (0.001)	-0.016 (0.001)	-0.013 (0.006)	-0.014 (0.007)	-0.009 (0.006)
2nd Waiver	0.928 (0.093)	0.939 (0.091)	0.861 (0.109)	1.236 (0.702)	1.217 (0.871)	1.381 (0.787)						
2nd Waiver* Trend	-0.014 (0.001)	-0.014 (0.001)	-0.013 (0.002)	-0.021 (0.010)	-0.022 (0.012)	-0.023 (0.011)						
Tanf	-0.750 (0.118)	-0.712 (0.114)	-0.831 (0.131)	-1.412 (0.631)	-1.672 (0.765)	-1.387 (0.718)	-1.169 (0.108)	-1.171 (0.103)	-1.149 (0.123)	-1.644 (0.510)	-2.069 (0.650)	-1.276 (0.537)
Tanf*Trend	0.008 (0.001)	0.008 (0.001)	0.009 (0.002)	0.015 (0.008)	0.018 (0.010)	0.015 (0.009)	0.012 (0.001)	0.012 (0.001)	0.012 (0.001)	0.018 (0.006)	0.023 (0.007)	0.014 (0.006)
Wald-UR		0.791			0.211			0.791			0.211	
Wald-WR		0.000			0.239			0.000			0.077	

NOTES: Robust standard errors are reported in parentheses. All regressions control for county fixed effects and trends. The coefficients reported for the dynamic models are long-run effects. Wald-UR and Wald-WR are p-values from Wald tests that the urban and rural local unemployment and welfare-reform coefficients are equal. There are 8414 total observations, 2399 (6015) of which are from urban (rural) counties.

Table 6: Dynamic Estimates of the Interaction Between Macroeconomy and Welfare Reform in Oregon

	AFDC/TANF Cases						Food Stamp Cases					
	Approval Dates			Implementation Dates			Approval Dates			Implementation Dates		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Effect of welfare waiver 1 as local unemployment rate increases by 1 percent	0.028 (p=.99)	0.377 (p=.89)	2.184 (p=.10)	2.968 (p=.01)	0.996 (p=.72)	1.951 (p=.04)	-0.051 (p=.97)	-1.005 (p=.48)	1.836 (p=.01)	0.976 (p=.10)	-0.451 (p=.75)	2.466 (p=.00)
Effect of welfare waiver 2 as local unemployment rate increases by 1 percent	1.956 (p=.53)	-3.836 (p=.45)	0.304 (p=.89)	-7.110 (p=.01)	-10.530 (p=.13)	-2.924 (p=.34)	1.889 (p=.26)	2.924 (p=.24)	1.141 (p=.27)	1.923 (p=.17)	4.453 (p=.20)	-0.517 (p=.76)
Effect of TANF as local unemployment rate increases by 1 percent	1.822 (p=.24)	-2.222 (p=.67)	0.073 (p=.97)	7.425 (p=.01)	3.004 (p=.67)	3.057 (p=.32)	0.862 (p=.31)	-2.454 (p=.34)	-1.624 (p=.13)	-0.094 (p=.95)	-3.912 (p=.26)	-0.463 (p=.79)

NOTES: Robust p-values of dynamic long-run interactive effects are reported in parentheses. All regressions control for county fixed effects and trends. The coefficients reported for the dynamic models are long-run effects. There are 3953 total observations, 1080 (2873) of which are from urban (rural) counties.

[1] See Weber and Davis (1999) for a descriptive analysis of Oregon's welfare caseloads.

[2] We inquired with the relevant state agencies whether there were county differences in the actual implementation of welfare reform, but officials in each state claimed there were none.

[3] For the seasonally adjusted figures we plot the average monthly residual from the regression of per capita welfare caseloads on 12 month-of-year dummy variables.

[4] The error term is not identically distributed because of heteroskedasticity induced by the generated dependent variable (Saxonhouse 1976). We calculate second-step standard errors that are robust to heteroskedasticity.

[5] The dynamic fixed effects models are unlikely to suffer from the so-called Nickell (1981) bias, the bias in the lagged dependent variable coefficient in fixed-effects panel data models with short time periods, because T=120. In our original work on national AFDC caseloads with monthly state-level panel data we advocated the use of dynamic first-difference panel models because of a nonstationarity in monthly caseloads (Ziliak et al 2000). Subsequent analysis in Figlio and Ziliak (1999) indicates that the estimates from levels and first differences models are roughly in accord once one controls for caseload and business cycle dynamics.

[6] Recall that since the first and second waivers were implemented on the same date that it is not possible to identify their separate effects.