What Factors Influence a Welfare Recipient's Spell Length and Recidivism?

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Abstract. The Personal Responsibility and Work Reconciliation (PRWORA) Act of 1997 marked a significant change in US welfare policy. Under the terms of this legislation, welfare recipients are limited to 24 consecutive months of monetary benefits, not to exceed 60 months over an individual's lifetime. The primary intent of PRWORA is to force people off of welfare roles and into the work force. However, it may also have created a second effect; namely that welfare recipients treat the 60 months of welfare benefits as a stockpile of wealth. If so, recipients might strategically move on and off of the welfare roles in order to increase the length of time before one exhausts his or her total lifetime benefits. This leads to a high number of "welfare spells", each relatively short in duration. We present an empirical analysis using data from three counties in Washington State to test whether (and how) an individual's ability to maximize welfare spells varies by their potential employment opportunities and their socio-economic characteristics. We find that socio-economic characteristics such as race and gender, family structure and educational attainment all significantly influence welfare spells. Additionally, welfare spells differed significantly by county, indicating that local labor market conditions specific to those counties are also important in decisions to "bank" welfare benefits.

1. Introduction

The Personal Responsibility and Work Reconciliation Act of 1997 (PRWORA) marked a significant change in U.S. welfare policy. Prior to PRWORA, Federal welfare policies were administered through the Aid for Families and Dependent Children (AFDC) program. A key characteristic of AFDC is that welfare recipients could continue to receive monetary and non-monetary benefits (and postpone entry into the workforce) so long as they continued to accumulate human capital in a manner consistent with program guidelines. PRWORA legislation replaced AFDC with a new program entitled Temporary Assistance for Needy Families (TANF).

A fundamental difference between AFDC and TANF is the type of human capital that welfare recipients accumulate and the imposition of time limits and other sanctions for non-compliance. Under TANF, welfare recipients primarily accumulate human capital via on-the-job work experience. Some

have argued that this leads to a more narrowly defined set of career possibilities, since in some states welfare recipients are required to work immediately.[1] Whether work experience accumulation acquired through TANF leads to greater long-term wage increases and sustained economic independence from the program than that which was received under AFDC is a matter of empirical debate, and clearly depends upon individual and market specific factors, including (but not limited to) race/ethnicity, gender, age, family composition, health status, education, prior work experience and the characteristics of the labor market (Axelsen and Snarr 2004; Axelsen, Underwood and Friesner 2006; Axelsen, Friesner, Rosenman and Snarr 2007).

The implementation of TANF created at least two consequences. First, TANF shifted the responsibility

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[1] According to the National Center for Children in Poverty (www.nccp.org) thirteen states have adopted immediate work triggers, while 28 states have work triggers of 24 months or longer.

for successfully administering welfare from federal to state government. States receive a portion of a block grant and retain total control of the program and its design provided it adheres to the policies set forth under PRWORA. States can receive a greater portion of the block grant in future years if their programs are successful relative to their peers. Success is often measured by wage progression in a long term job coupled with a long term welfare exit.[2]

A second major consequence is that TANF, in altering the institution of welfare, has effectively changed the nature of welfare benefits. Under AFDC, welfare benefits were a *flow of income*, since a welfare recipient could continue the program so long as they were acquiring human capital in a manner consistent with the program's guidelines. However, under TANF some argue that welfare benefits (especially monetary benefits) potentially become a *stock of wealth* due to the imposition of time limits and other related sanctions for non-compliance. That is, because individuals now receive a finite amount of monetary (and in some instances non-monetary) benefits, it may be rational to strategically move on and off welfare in order to either increase the total length of time over which one qualifies for TANF benefits, or to "bank" them for specific situations where the individual is likely to need an alternative source of income. The latter is particularly important for individuals working in seasonal industries, such as agriculture, consumer services or retail trade, as well as for single parents with school-age children who have difficulty finding adequate child care during the summer months. Because TANF work requirements are stipulated independent of seasonal economic oscillations, individuals in these situations may be inclined to strategically use TANF benefits to offset the lack of earned income in these periods. The net result would be that individuals choose "welfare spells" that are both predictable in frequency and duration. From a policy perspective, it is vitally important that welfare administrators at the state level understand exactly how and why these welfare spells are occurring for two reasons. First, failure to do so reduces the effectiveness of a state's welfare program (as measured by the outcomes specified under TANF and PRWORA) and thus reduces available federal funding. Second, a greater understanding of the drivers of un-

employment for TANF recipients can help policy makers tailor their state's welfare program to more effectively reduce the frequency and duration of welfare spells, create upward wage mobility, and, ultimately, diminish long term dependency for these particular socio-economic segments within a state.

The remainder of this paper proceeds in several steps. In the next section we discuss the literature and provide a brief overview of Washington State's TANF program. Second, we develop some testable hypotheses about the relationships between welfare spells and the characteristics within the three counties examined, and develop an econometric methodology for hypothesis testing. The third section describes our data, while the fourth section contains empirical results. We conclude the paper by discussing the implications and limitations of our findings, as well as some suggestions for future research.

2. Review of pertinent literature

There is a growing literature that examines how economic and socio-demographic characteristics affect welfare spells in the PRWORA era.[3] Some of this literature uses state or national level data to examine the impact of time limits on welfare caseloads. Grogger (2004a) found that families with young children are more likely to save time limited welfare benefits because they have relatively more time remaining on welfare. Kaushal and Kaestner (2001) used a difference-in-difference method to estimate the impact of time limits on welfare caseloads and found that time limits are associated with a 28 percent decrease in welfare caseloads. Lastly, Grogger (2004b) estimated a hazard function and found that initial enrollment rates are primarily affected by unemployment rates, higher wages, increases in the earned income tax credit (EITC), and changes in the real value of benefit levels. Grogger (2004b) also found that exit rates are affected by low unemployment rates and TANF reforms, including time limits.

Estimating the impact of time limits on labor supply decisions is problematic in that time limits are often imposed simultaneously with other welfare reforms, including other types of sanctions and work requirements. Consequently, it is difficult to determine whether changes in labor supply decisions are directly attributable to time limits or other reforms (Grogger, Karoly and Klerman 2002). Grogger (2003) attempted to address this issue by interacting a time

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[2] In essence, the states are caught in a zero sum game. States that are initially successful in building a viable welfare program earn a higher proportion of the grant in the short run. However, other states with unsuccessful programs have an incentive to mimic the successful programs, and gain back their initial portion of the grant. Thus, the only way a state can increase its proportion of the grant in the long run is to continually improve its welfare program in a manner that outpaces its peers.

[3] While the literature on welfare spells in the PRWORA era is relatively sparse, there are a large number of studies examining welfare spells in the AFDC era. Hoynes (2000) provides an excellent review of this literature.

limit dummy variable with other covariates that are believed to influence labor supply decisions under TANF. His findings suggest that time limits cause a 13 percent drop in welfare use – much lower than the 19% reported by Grogger (2004a,b) or the 28% reported by Kaushal and Kaestner (2001). Additionally, variables such as the EITC also influence welfare participation.

A related line of literature provides a more detailed perspective by focusing on narrowly defined cohorts of welfare recipients, and more closely tracking the industry or geographic area in which the welfare recipient is working. Foster-Bey and Rawlings (2002) use a national survey of single mothers to investigate the relationship between the type of job a mother has and her long term success in leaving welfare. They find that the level of education and the industry a mother works in plays a significant role in her ability to successfully (and permanently) enter the workforce. In fact, in certain industries such as health services, personal services and educational services, women on welfare actually earned more than their (similarly educated) non-welfare counterparts.

Other studies use data from AFDC waiver studies.[4] For example, Grogger and Michalopoulos (2003) used data from the Florida Transition Program to determine how policy changes (i.e., the imposition of time limits) influence welfare spells. They found that recipients with young children are more likely to exhibit welfare spells when time limits are enforced.

Eberts (1997) used data from Michigan's welfare-to-work waiver to identify factors that allow individuals to successfully leave welfare. He found that individuals who successfully transitioned off welfare were more likely to be older, have graduated from high school, had higher levels of pre-welfare work experience and entered the welfare-to-work program earlier in the year, as opposed to the end of the year.

Harknett (2001) used data from a pilot welfare-to-work waiver in Riverside, California to determine whether race and ethnicity significantly impact an individual's ability to successfully leave welfare. She finds that, while Hispanics and African-Americans worked more than their white counterparts, they were less likely to exit welfare. One possible explanation for this result is that these groups of individuals were more likely to be single parents, and have reduced access to social support programs, including affordable child care, making it difficult to work full-time.

Despite these studies, several issues remain unresolved. First, because TANF programs vary widely by state, it is important for policy-makers to have an understanding of how socio-economic and industry-specific factors *within* a given state influence welfare spells. This provides policy makers with more information to tailor their state's TANF program to better match the needs of its constituents. Additionally, as more of these studies are conducted in different states, policy makers within a particular state can compare the effectiveness of their policies to those in other states having similar economies and similar welfare recipient populations.

Secondly, few studies have explicitly compared different regions *within* a particular state to determine whether (and how) policies should be adjusted on a local (perhaps county-by-county) basis to more effectively transition welfare recipients from welfare to long term employment. The State of Washington provides an interesting example of this phenomenon. Washington is divided both economically, culturally, and ethnically into two distinct regions. The area west of the Cascade Mountains is more populated; on average inhabitants are better educated, and likely Caucasian or African American. While the primary economic driver is manufacturing and technology, the largest employer is the service sector. East of the Cascades, Washington is predominantly rural; agriculture is the primary driver of economic activity, the population is less educated and a substantial proportion of the population is Hispanic. If exit depends on welfare recipients achieving long term employment, it is reasonable to conjecture program success will depend upon matching the socio-economic characteristics of the welfare-eligible population with those characteristic sought by employers in that region. It follows that, if, indeed, Western and Eastern Washington are different in essential economic and social characteristics, policy should be regional, and address needs specific to the area. Yet, Washington State treats all regions, all counties, and all welfare recipients "homogeneously", utilizing a uniform program across the state to achieve its TANF goals.

In this paper, we use data from three counties in Washington State to determine differences in the mix of industries by region. In addition, we analyze the socio-economic characteristics of welfare recipients within those counties, and the extent to which those differences affect the frequency and duration of welfare spells. Counties were selected to capture Washington State's geographical and cultural differences by region. In doing so, our findings not only test for the significance of within state regional effects but also social and economic conditions related to welfare

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[4] Waiver studies are quasi-random experimental designs conducted by states to test the effect of adopting a welfare reform policy (or bundle of policies) on an outcome such as dependency.

reform. More importantly, our methodology could be applied in other states to form regionally specific policy, improving the effectiveness of State TANF programs.

3. A brief overview of Washington State's TANF program

Washington State's TANF program WorkFirst can best be described via a series of steps (Washington WorkFirst 2007). For illustrative purposes, consider an individual entering the program for the first time. First, a Washington State Department of Health and Social Services (DSHS) case manager initially explores the characteristics of the new client.[5] As a part of this process, the manager must determine whether Work-First is the correct placement given the characteristics in which the new client possesses. For example, if the new client has a permanent physical or mental disability preventing success in the workforce, they are referred to another program that helps them qualify for coverage under an alternative program such as Social Security. Alternatively, if the new client has a more temporary issue (for example, struggles with substance abuse) that prevents them from directly entering the WorkFirst program, the new client will first be referred to an alternative program specifically designed to assist that individual with the specific issue preventing immediate entry into the workforce.

Once the client has been screened and any permanent or temporary conditions have been addressed, the welfare recipient is considered "ready for work" and referred to the Washington State Employment Security Department (ESD). At this point, ESD enrolls the welfare recipient in its "Job Search" program, a package of structured activities designed to help participants secure long term employment. As part of Job Search, the welfare recipient progresses through a series of workshops covering topics including (but not limited to) resume building, conducting a job search, interviewing skills and how to network with other TANF participants. The complete Job Search array takes about 12 weeks, and the WorkFirst participant is expected to treat the Job Search program as regular, full time (i.e., 40-hours per week) employment.[6]

A number of clients will successfully enter the labor market while enrolled in Job Search. If a welfare recipient secures employment during Job Search, the welfare recipient graduates from Job Search, and the ESD enrolls the welfare recipient in the Post-Employment Services (WPLEX) program. WPLEX is designed to promote job retention and wage progression for employed TANF and post-TANF participants. Post-employment activities are mandatory for those who are working part-time and receiving TANF benefits. The expectation for those employed part-time is that they spend the remainder of the traditional 40-hour work week searching for full-time employment. An individual who refuses to do so loses a portion of his or her TANF benefits (i.e., the welfare recipient is sanctioned).[7] Post-employment activities are voluntary for full-time workers on TANF, as well as those who exit TANF.

If the welfare recipient does not complete the initial Job Search program, which implies that the individual could not find employment, he or she is referred back to DSHS and enrolled in one of a number of different programs – known herein as "alternative programs." Alternative programs focus on the accumulation of specific types of human capital. For instance, if the client has difficulty finding employment, he or she might be enrolled in the "Community Jobs" (CJ) program. CJ can last for up to nine months, and provides subsidized employment while helping the welfare recipient transition to unsubsidized employment. When the client completes the CJ program, he or she is re-enrolled in Job Search.

Ideally, long-term TANF exit is associated with securing long-term employment that pays a "good" wage and provides benefits such as health insurance. However, most former TANF clients secure employment in entry-level jobs, at low relative wages, and in occupations with high turnover rates, are generally cyclical/seasonal and do not normally offer non-monetary benefits such as health insurance. Accordingly, many individuals return to TANF after exiting. These "Returners" are referred back to the ESD's Job Search program where, in addition to standard job search preparation skills discussed previously, they are enrolled in an additional "Returners Workshop" program. As such, individuals using TANF to stockpile welfare benefits through the use of multiple wel-

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[5] Demographics are defined as inclusive of race/ethnicity, gender, age, family composition, health status, disability, education level, substance abuse issues and prior work experience.

[6] If a TANF recipient does not find employment during these twelve weeks, he or she is required to undertake additional job search activities and is assigned either paid work experience (i.e., apprenticeship-type activities) or government-subsidized employment (Washington WorkFirst 2007).

[7] If a WorkFirst participant refuses to find work or participate in employment-related activities, his or her family's TANF benefits are reduced by either forty percent or the non-compliant individual's share of family TANF benefits, whichever is more. If the participant fails to comply with the program for six months, his or her family's TANF benefits are terminated (Washington WorkFirst 2007).

fare spells will likely go through the Returners Workshop and Job Search components on a regular basis.

The current structure of the WorkFirst program has several implications with regard to participants increasing welfare spells. First, individuals only have the ability to exhibit welfare spells if they are deemed fit for employment by the case manager, both mentally and physically. As such, the decision for most welfare participants is most likely a calculated one. Second, because TANF recipients are trained in how to look for and keep employment, they should find jobs that they are competent to perform and that fit their background. Moreover, the alternative programs provide additional training to employees not able to successfully enter the workforce. Finally, the fact that "Returners" are required to complete additional workshops suggests that there is a significant opportunity cost to recidivism. It may also suggest that the program does not improve "Returners" employment prospects as they are *more or less* put through the same process they had already been through prior to returning, and in fact, are enrolled in many of the same exact programs. This is the area in which our work might be most valuable to policy makers. That is, understanding the "Returners" employability prospects in a particular region, and welfare program design could be modified accordingly.

Moreover, these issues might just imply that the decision to bank welfare benefits and exhibit welfare spells represents a calculated decision on the part of the welfare recipient, and that the benefits of doing so could greatly outweigh the opportunity costs of recidivism. Since it seems reasonable to assume that welfare recipients weigh benefits and costs when choosing welfare spells, the factors which shape those benefits and costs should determine the nature and extent of such spells. A greater understanding of these factors provides some insight into how welfare policies can be redesigned in an effort to increase the cost of recidivism. Clearly, two obvious and important factors influencing these benefits and costs include the nature of the local economy in which the recipient lives (i.e., the nature of the jobs available to them, pay and benefits) and the set of socio-economic characteristics of the welfare recipient (i.e., children, race/ethnicity, gender and education, among other factors) and how well it matches a typical employer's needs and interests by region or county.

4. Empirical method

To this point we have identified two important, but unresolved issues in the PRWORA literature. First, it is important for policy-makers to understand the impact that the mix of industries and socio-demographic characteristics have on welfare spells at the state-level. Few studies have examined how differences in demographics and local labor markets within a particular state impact welfare participation and recidivism. As an example, if a local labor market is highly tied to one or two major, seasonal industries (e.g., agriculture or retail trade), then it may be difficult for welfare recipients in that market to successfully exit welfare via long term employment especially if the characteristics (e.g., demographics) of the welfare population in the local labor market match those who are generally employed in these seasonal industries. A similar result may occur with respect to demographics. For example, imagine a county that has a disproportionate number of Hispanic welfare recipients whose primary language is not English. If long term employers in this county expect their employees to speak English, language would be an employment barrier for this cohort. The effect of this could cause members of the cohort to seek employment in cyclical industries, and to stockpile benefits for use during seasonal unemployment spells. In this situation, TANF success may depend upon a regionally specific approach that identifies the existence of this language barrier and invest resources to advance English speaking skills to help move welfare recipients from cyclical to stable long term employment.

To test the above conjecture, we summarize our discussion by positing the following (null) hypotheses:

- HYPOTHESIS 1: There are no significant differences in the frequency of welfare spells and recidivism across local economies in the State of Washington.
- HYPOTHESIS 2: There are no significant differences in the frequency of welfare spells and recidivism across racial/ethnic or other demographic characteristics in the State of Washington.

We test our null hypotheses through the use of regression analyses. Hypotheses 1 and 2 pertain to the frequency, or number of times an individual enters welfare. Given the fixed number of months (60) of TANF-related benefits available to each welfare recipient, this also implies that a higher frequency of welfare spells should provide, on average, a shorter duration per spell. As such, examining the frequency of spells also allows us to infer something about the duration of spells. To investigate the determinants of welfare spell frequencies, we postulate the following negative binomial model (Greene 2000)[8]:

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[8] If necessary, the specification of (1) may also be extended to a zero-inflated Poisson or negative binomial model if the data contain a

$$f(y_i \mid \lambda_i, u_i) = \frac{e^{-\lambda_i u_i}(\lambda_i u_i)^{y_i}}{y_i!} \qquad (1)$$

where $i = 1,..,n$ denotes each observation in the sample; y_i denotes the number of times in a T month period an individual enters welfare; u_i denotes the error term and λ_i is a parameter to be estimated. Specifying the dispersion parameter lambda in (1) is the feature that differentiates the negative binomial from the traditional method of estimating count models, namely the Poisson model. The value of including lambda is that, unlike the Poisson model, it allows the mean of the negative binomial distribution to differ from its variance. Equality between the mean and variance of a distribution is generally not the case in most empirical applications, and thus is the most highly cited drawback of the Poisson model (Greene 2000).

As is typical in the literature, we assume that u is distributed as gamma. The log of the conditional mean for this distribution (μ_I) is given by:

$$\log(\mu_i) = \delta + \sum_{h=1}^{H} \phi_h D_i^h + \sum_{k=1}^{K} \gamma_k z_i^k + \sum_{l=1}^{L} \psi_l w_i^l$$
$$+ \sum_{h=1}^{H} \sum_{k=1}^{K} \gamma_{h,k} D_i^h z_i^k + \sum_{h=1}^{H} \sum_{l=1}^{L} \psi_{h,l} D_i^h w_i^l + \varepsilon_i \qquad (2)$$

where γ, ψ, ϕ and δ are parameters to be estimated; D^h, $h = 1,…,H+1$ is a series of dummy variables identifying the local market a welfare recipient resides in; z^k, $k = 1,…,K+1$ represents a series of binary ethnic/racial and other demographic identifiers; w^l, $l = 1,…,L$ represents a series of quantitative determinants of welfare spells, including (but not limited to) the age of the youngest child in the household, the age of the welfare recipient, and the education level (in years) of the recipient; and $\varepsilon_i = \log(u_i)$.

Testing hypotheses 1 and 2 can be conducted jointly or individually through the use of chi-square tests on either set of parameter estimates, or on individual parameter estimates. For example, to test hypothesis 1 in a global sense, a likelihood ratio test can be applied under the null that all of the coefficient estimates involving the local dummies are jointly equal to zero. Rejection of this null indicates that the industry a welfare recipient works in does have a significant impact on their utilization of welfare spells. Similarly, testing the null hypothesis that all of the γs and ψs are jointly equal to zero is equivalent to testing hypothesis 2. We note in passing that if we reject one or more of our hypotheses, then we can interpret the signs, magnitudes and significance of the individual parameter estimates

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preponderance of zero values (Greene 2000). Since this is not the case in our data, we use the standard negative binomial model.

to determine how these factors influence the frequency of welfare spells.

5. Data

Our data come from various state agencies directly involved with administering the welfare program within Washington State. The ESD, in conjunction with other state agencies such as DSHS, maintain several databases containing information on welfare recipient benefits, job-related earnings and demographics. Specifically, we have constructed a database of welfare recipients on a monthly basis between January 1, 1998 and December 31, 2002. In doing so, we ensure that no overlap exists between the policies and requirements of TANF and its predecessor, AFDC. Additionally, the time frame of our analysis is sufficient to obtain reasonable estimates about welfare recipient welfare spell decision making; that is, the number of times (and by extension, the average length of time) a typical recipient moves on and off the welfare rolls.

The complete population of welfare recipients in Washington State over this period of time provides a panel much too large. Thus, it was necessary for us to reduce the data set in order to simplify our analysis and obtain meaningful results. We did so in two ways. First because our variable(s) of interest pertain to the number of welfare spells a typical welfare recipient exhibits over this five year time span, our panel was collapsed into a cross-section. Our dependent variables measure the number of welfare spells (measured as both number of months and number of times an individual is on welfare) over this five year horizon, and thus are measured as counts. All variables that are time invariant (gender, race/ethnicity, primary language and prior time spent on AFDC) were subsequently reported as single values. Time variant, non-monetary, explanatory variables (including an individual's age, educational attainment, marital status, county of residence, citizenship status, the number of children in the household and the age of the individual's youngest child) were measured at the time the welfare recipient first enters the database. Finally, all time-variant monetary values (including work-related earnings per month worked and, if on welfare, monetary benefits received per month) were averaged, and thus represent the "typical" monthly earnings or welfare benefits accruing to an individual.[9]

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[9] In 1998 the citizens of Washington State passed Initiative 688 which requires the Department of Labor and Industry to annually adjust the minimum wage for inflation. Accordingly, during our study, and distortions caused by differences between nominal and real wages during a calendar are likely to be minimal.

Table 1. Variable names and definitions

Variable Name	Definition

Welfare Spell Variables

SpellNo	Number of times an individual stops working and receives welfare benefits between 1998-2002.
MonthNo	Number of months between 1998-2002 in which an individuals is not working and receives welfare benefits.

Explanatory Variables

Caucasian	Dummy variable indicating whether an individual is Caucasian.
African-American	Dummy variable indicating whether an individual is African-American.
Asian-American	Dummy variable indicating whether an individual is of Asian-American.
Latino-American	Dummy variable indicating whether an individual is of Latino-American.
English	Dummy variable indicating whether an individual speaks English as a primary language.
Female	Dummy variable identifying females.
Married	Dummy variable identifying married individuals.
Citizen	Dummy variable identifying U.S. citizens.
RecipientAge	Age of the individual in 1998.
ChildAge	Age of an individual's youngest child in 1998.
NoChildren	Number of children in the individual's household.
Education	Number of years of education (12 = High School, 16 = Four Year Degree) an individual has.
Wage	Typical (or average) monthly wage an individual earns, inclusive of work-related benefits.
Benefits	Typical (or average) monthly welfare benefits an individual receives if on welfare.
AFDCNo	Number of months on AFDC prior to joining the cohort in 1998.
Benton	Dummy variable identifying individuals living in Benton County.
Franklin	Dummy variable identifying individuals living in Franklin County.
Pierce	Dummy variable identifying individuals living in Pierce County.

Secondly, we limited our analysis to three of Washington State's thirty-nine counties: Pierce, Franklin and Benton. These counties were chosen because they exemplify the diverse political, demographic, economic and cultural characteristics present in Washington State. Each of these counties has both rural and urban elements, as well as a relatively high incidence of welfare-eligible individuals. Additionally, Washington State is unique in that there is an east-west split in terms of employment, earnings and demographics. While all areas of the State have a mix of agricultural, manufacturing and service industries, the Western Washington economy is more heavily skewed towards the service sector, has higher levels of education and income, and is predominantly Caucasian. African-Americans represent the largest minority group in this half of the State.[10] On the other hand, the eastern part of Washington is less service-driven, its population is less educated, earns less income, and is predominantly Caucasian and Hispanic. As mentioned above, our choice of counties reflects these differences. Pierce County is located in the western half of the State in the heart of the Seattle metropolitan area. Benton and Franklin counties are located in eastern Washington. Franklin County is predominantly rural, has a very large Hispanic population and has more welfare-eligible residents than does Benton County, which is more urban, predominately Caucasian, and whose economy is less focused on agriculture and low-tech manufacturing.

After transforming our panel into a cross-sectional data set, we were left with 35,132 observations/individuals. For each of these individuals, we were able to collect a complete set of observations on a number of variables (the majority of which were briefly identified in the preceding paragraphs) characterizing each welfare recipient's welfare spells, their socio-

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[10] According to the U.S. Census Bureau (2000), 77.1 percent of Washington State residents are Caucasian, compared to 79.6 percent in Benton County, 74.6 percent in Pierce County and 47.2 percent in Franklin County. The Census Bureau also estimates that in 2000, 11 percent of the Washington State population lived in poverty, com-

pared to 10.1 percent in Benton County, 10.7 percent in Pierce County and 15.3 percent in Franklin County.

economic characteristics, as well as additional information which may influence recidivism. Table 1 contains the names and formal definitions for each of these variables, while Table 2 contains some basic descriptive statistics for each variable.

Table 2 reveals several interesting trends. Most individuals in our sample live in Pierce County (27,630), while only a few thousand live in Benton County (5,174) or in Franklin County (2,328). However, the numbers are relatively proportional to the size of the general population in each of the three counties. Regardless of region, welfare recipients are a relatively uneducated group and were enrolled in AFDC for nearly two years, on average, before the implementation of TANF. At the mean, the age of the typical individual in the population at time of entry is between 33 and 35 years old, has between one and two children, and the age of the youngest child at the time of entry into welfare is between 12 and 13 years of age.

From there, welfare recipients tend to be a rather diverse group.

Females comprise between 68 and 75 percent of the cohort, with Franklin and Pierce counties on the low and high ends, respectively. Individuals in Franklin County are also much more likely to be married (18.2 percent) compared to Pierce (12.6 percent) and Benton (14.5 percent) counties. Franklin County, whose general population is disproportionately of Hispanic ethnicity, also exhibit a higher percentage of Hispanic individuals in this welfare-prone group, as well as the highest mean percentages of non-U.S. citizens and non-native English speakers. With the exception of the high percentage of African-Americans in Pierce County, both Benton and Pierce counties contain relatively similar percentages for the remaining demographic variables.

Table 2. Demographics of welfare recipients by county, 1998-2002.

	All Counties		**Pierce County**		**Franklin County**		**Benton County**	
Variable	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*
SpellNo	2.68	1.98	2.61	1.90	3.14	2.44	2.82	2.13
MonthNo	17.00	14.30	17.47	14.46	14.78	13.69	15.50	13.47
Wage	454.06	1225.28	441.16	1231.27	558.02	1255.23	476.17	1176.24
Benefits	497.68	381.55	503.56	383.96	472.83	378.32	477.42	368.79
Number of Children	1.72	1.30	1.70	1.27	2.02	1.52	1.71	1.29
Education	11.83	1.31	11.89	1.06	11.64	1.61	11.57	2.09
RecipientAge	34.44	8.79	34.50	8.73	35.03	9.66	33.84	8.67
ChildAge	12.48	9.28	12.57	9.36	12.24	9.34	12.13	8.81
AFDCNo	22.69	33.06	23.44	33.46	21.02	32.09	19.42	31.07
NoChildren	1.72	1.30	1.70	1.27	2.02	1.52	1.71	1.29
Married	0.13	0.34	0.13	0.33	0.18	0.39	0.14	0.35
Female	0.75	0.44	0.75	0.43	0.68	0.47	0.72	0.45
Citizen	0.91	0.29	0.93	0.26	0.73	0.44	0.89	0.31
Caucasian	0.68	0.47	0.69	0.46	0.37	0.48	0.79	0.41
African-American	0.15	0.36	0.18	0.39	0.04	0.19	0.03	0.18
Asian-American	0.05	0.23	0.07	0.25	0.01	0.09	0.01	0.11
Latino	0.08	0.27	0.03	0.17	0.57	0.50	0.14	0.35
English	0.93	0.26	0.94	0.23	0.75	0.43	0.92	0.28
No. of Observations	35132		27630		2328		5174	

Table 2 also presents descriptive statistics on wages, time on TANF and benefits while on TANF for the welfare population in these three counties over the period of study. Welfare dependency, welfare spells and wages vary across counties. Franklin County exhibits the highest mean number of welfare spells and, not surprisingly given the 60-month limit on benefits, the shortest mean number of months on TANF. Pierce County, on the other hand, has the lowest mean number of spells and highest mean number of months on TANF. The average individual in Pierce County accumulates just over $500 per month in welfare benefits, compared to $477 and $473 in Benton and Franklin counties, respectively. For those welfare recipients who are employed, individuals in Franklin County earn the highest mean monthly wages ($558) compared to $476 in Benton County and $441 in Pierce County.

6. Results

Table 3 contains the results derived from our negative binomial regression models. The first columns in Table 3 predict the number of months spent on TANF, disaggregated by county. Because the use of contrasts requires that we drop one of the counties (which serves as our reference point against which all contrasts are measured), we dropped Benton County. While the choice of the omitted county does not impact the results, we chose to omit Benton County because it represents the most homogenous county in terms of its socio-economic characteristics (i.e., it is predominantly Caucasian and has an economic base that is less agriculturally oriented). As the likelihood ratio test statistic and the dispersion parameter indicate, our choice of a negative binomial model (as opposed to a standard Poisson model) is appropriate and explains a significant amount of variation in welfare dependency.

Many of the coefficient estimates in the MonthNo regression exhibit signs and significance that coincide with both a priori expectations, within and across counties. We begin by examining our baseline coefficient estimates, which largely represent the Benton County dummy variable. While the effect is significant but small, we do see that lower wages in the workplace lead to more months on TANF, as do higher welfare benefits.[11] This may be due to the fact that one can only continue to receive welfare benefits on

TANF if one enters the labor force, which is likely to occur at low market wages and (as a "carrot" to gain employment) higher benefit levels. Spending more months on AFDC prior to the conversion to TANF also leads to more months on TANF, which is likely a sign of welfare dependency for the average welfare recipient in Benton County. This finding is also somewhat consistent with the notion that welfare participation is somewhat evolutionary, i.e., it is learned.

Older individuals and those with older children spend fewer months on TANF, ostensibly because issues of child care do not interfere with welfare-work decisions. Larger families do not significantly impact the number of months on TANF. Females and residents living in Pierce County are also more likely to spend more months on TANF. However, this does not appear to be due to the higher incidence of African-Americans in Pierce county. None of the remaining coefficient estimates for our baseline variables are statistically significant at conventional levels.

Next, we consider the contrasts distinguishing Pierce County from the baseline (Benton County). The likelihood ratio test (statistic value = 2013196, p-value = 0.000) indicates that Pierce County as a whole is fundamentally different than Benton County, which leads us to reject Hypothesis 1. Additionally, the signs and statistical significance of several individual parameter estimates lead us to reject Hypothesis 2 for Pierce County as well. In particular, we find that for Pierce County, more prior experience on AFDC leads to fewer months on TANF than in Benton County, which implies that welfare-to-work decisions were different in Pierce County over the period of study. Additionally, married individuals, U.S. citizens, those whose primary language is English, and individuals of Hispanic and Asian descent were likely to spend fewer months on TANF than the baseline counterparts. While Pierce County does have a higher concentration of African-Americans, the result was insignificant.

Examining the contrast estimates for Franklin County tells a very different story. Like Pierce County, the Franklin County contrasts are jointly significantly different from Benton County (LR statistic = 135680; p-value = 0.0000). However, in this county, higher welfare benefits, higher levels of education and speaking English as a primary language led to more months on TANF than in Benton County. Concomitantly, being a U.S. citizen and having more children lead to fewer months on TANF than the baseline county (Benton). Thus, we see several differences in welfare spell decisions across counties. In Pierce County (again, measured relative to Benton County),

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[11] The estimate for wages is an example where a parameter estimate that is very small in magnitude was artificially rounded to five decimal places of accuracy.

Table 3. Negative binomial results by dependent variable to explain welfare spells

Independent Variables:	Month Number					Spell Number				
	Estimate	Std. Error	Chi-Square	Prob. of Chi-Square		Estimate	Std. Error	Chi-Square	Prob. of Chi-Square	
Level-Based Explanatory Variables (Benton County)										
Intercept	2.0628	0.1192	299.5000	0.0000	**	0.3689	0.1034	12.7400	0.0004	**
Wage	-0.00001	0.00001	21.9400	0.0000	**	0.00001	0.00001	29.6000	0.0000	**
Benefits	0.0006	0.0000	286.6400	0.0000	**	0.0001	0.00001	8.4700	0.0036	**
Education	0.0200	0.0056	12.6400	0.0004	**	0.0226	0.0053	17.8200	0.0000	**
RecipientAge	-0.0066	0.0016	17.5200	0.0000	**	-0.0027	0.0013	4.2100	0.0402	**
ChildAge	-0.0029	0.0016	3.3800	0.0660	*	-0.0039	0.0013	8.5000	0.0036	**
NoChildren	-0.0030	0.0114	0.0700	0.7942		0.0008	0.0095	0.0100	0.9290	
AFDCNo	0.0044	0.0004	106.2500	0.0000	**	0.0084	0.0003	791.5800	0.0000	**
Married	0.1888	0.0325	33.8000	0.0000	**	0.1852	0.0256	52.4000	0.0000	**
Female	0.3960	0.0266	221.8600	0.0000	**	0.1500	0.0228	43.1600	0.0000	**
Citizen	0.0618	0.0550	1.2600	0.2614		0.1229	0.0463	7.0500	0.0079	**
Caucasian	-0.0927	0.0701	1.7500	0.1861		-0.1078	0.0559	3.7200	0.0537	*
African-American	0.0294	0.0903	0.1100	0.7447		-0.0901	0.0730	1.5200	0.2172	
Asian-American	0.0988	0.1249	0.6300	0.4289		-0.1425	0.1106	1.6600	0.1978	
Latino-American	-0.0098	0.0754	0.0200	0.8963		0.0567	0.0603	0.8900	0.3468	
English	-0.0145	0.0606	0.0600	0.8113		0.1168	0.0516	5.1100	0.0238	**
Pierce County Dummy	0.5987	0.1380	18.8100	0.0000	**	-0.2260	0.1222	3.4200	0.0645	*
Franklin County Dummy	-0.3645	0.2413	2.2800	0.1309		-0.2321	0.2080	1.2400	0.2646	
Pierce County Contrasts										
Wage	-0.00001	0.00001	2.3500	0.1251		-0.00001	0.0000	4.8200	0.0281	**
Benefits	0.0001	0.0000	2.4300	0.1189		-0.00001	0.0000	0.5500	0.4583	
Education	0.0035	0.0073	0.2300	0.6342		-0.0045	0.0069	0.4200	0.5190	
RecipientAge	-0.0006	0.0017	0.1100	0.7369		-0.0005	0.0015	0.1200	0.7288	
ChildAge	-0.0019	0.0017	1.2300	0.2674		0.0021	0.0015	2.1600	0.1413	
NoChildren	-0.0309	0.0123	6.2700	0.0123		-0.0073	0.0104	0.4900	0.4829	
AFDCNo	-0.0018	0.0005	14.8300	0.0001	**	-0.0012	0.0003	12.8600	0.0003	**
Married	0.0271	0.0358	0.5700	0.4485		-0.0256	0.0285	0.8000	0.3703	
Female	-0.0642	0.0292	4.8500	0.0276	**	-0.0271	0.0252	1.1600	0.2812	
Citizen	-0.1478	0.0615	5.7800	0.0162	**	0.0512	0.0531	0.9300	0.3349	
Caucasian	-0.0099	0.0747	0.0200	0.8949		0.0166	0.0597	0.0800	0.7807	
African-American	-0.0325	0.0944	0.1200	0.7305		0.0067	0.0764	0.0100	0.9301	
Asian-American	-0.3051	0.1290	5.5900	0.0180	**	-0.0577	0.1142	0.2600	0.6135	
Latino-American	-0.1573	0.0843	3.4900	0.0619	*	-0.0917	0.0682	1.8100	0.1791	
English	-0.1862	0.0678	7.5400	0.0060	**	0.2130	0.0598	12.6700	0.0004	**
Franklin County Contrasts										
Wage	0.00001	0.00001	1.2700	0.2603		0.00001	0.00001	0.8900	0.3449	
Benefits	0.0002	0.0001	14.3800	0.0001	**	-0.00001	0.00001	0.0000	0.9946	
Education	0.0254	0.0119	4.5700	0.0326	**	0.0191	0.0113	2.8900	0.0891	*
RecipientAge	0.0009	0.0027	0.1200	0.7344		0.0013	0.0022	0.3300	0.5661	
ChildAge	-0.0017	0.0027	0.4100	0.5213		0.0006	0.0022	0.0800	0.7818	

Table 3 continued. Negative binomial results by dependent variable to explain welfare spells

Independent Variables:	Month Number					Spell Number				
	Estimate	Std. Error	Chi-Square	Prob. of Chi-Square		Estimate	Std. Error	Chi-Square	Prob. of Chi-Square	
Franklin County Contrasts (cont.)										
NoChildren	-0.0685	0.0190	13.0200	0.0003	**	-0.0152	0.0149	1.0500	0.3052	
AFDCNo	-0.0007	0.0008	0.9400	0.3329		0.0003	0.0005	0.2500	0.6196	
Married	-0.0579	0.0554	1.0900	0.2960		0.0223	0.0422	0.2800	0.5970	
Female	-0.0604	0.0471	1.6500	0.1996		-0.0528	0.0387	1.8600	0.1729	
Citizen	-0.1681	0.0781	4.6400	0.0313	**	-0.1828	0.0631	8.3800	0.0038	**
Caucasian	0.1725	0.1549	1.2400	0.2653		0.1850	0.1283	2.0800	0.1494	
African-American	0.2381	0.1815	1.7200	0.1897		0.1509	0.1498	1.0100	0.3139	
Asian-American	-0.0731	0.2545	0.0800	0.7740		-0.0737	0.2213	0.1100	0.7389	
Latino-American	0.0059	0.1574	0.0000	0.9699		0.2040	0.1302	2.4500	0.1172	
English	0.1436	0.0826	3.0200	0.0823	*	0.0166	0.0675	0.0600	0.8060	
Negative Binomial Disp. Parameter	0.5328	0.0044		0.0000	**	0.0553	0.0028			**
Number of Observations	35132					35132				
Log-Likelihood Function	1233491				**	3482.135				**

** Denotes whether the result is significant at the 5% level.

* Denotes whether the result is significant at the 10% level.

Note: All values are rounded to four decimal places of accuracy. It may be the case that parameter estimates requiring more than four significant digits may artificially be rounded to +/- 0.00001.

welfare spell decisions are more a function of recidivism, as well as gender and racial/ethnic characteristics. In Franklin County, the decision is based more on financial considerations, particularly education (which partly determines employment opportunities under TANF) and existing welfare benefits. Moreover, when examining the signs of the coefficient estimates that are significant across Piece and Franklin counties, for example, speaking English as a primary language, the signs are different across counties.

The second set of columns in Table 3 contains a similar negative binomial regression, this time explaining the number of times a typical individual enters/exits TANF. As before, the likelihood ratio test for overall significance indicates that the model explains a significant percentage of welfare spells. Additionally, the significance of the dispersion parameter implies that our choice of a negative binomial model (as opposed to a Poisson) was appropriate.

When examining our baseline coefficient estimates, we see very strong similarities across our two sets of regressions. As with the MonthNo regression, in the SpellNo regression we find that higher welfare bene-

fits, higher education levels and more months of participation on AFDC all lead to a higher number of welfare spells, on average. Older welfare recipients, as well as recipients with older children, were likely to exhibit fewer welfare spells. Caucasians, as well as individuals who live in Pierce County also exhibit fewer welfare spells. Married individuals, those who speak primarily English and females exhibit a greater number of welfare spells.

However, when one examines the contrast estimates for our SpellNo regression, we obtain estimates that are strikingly different from those in the Month-No regression. In the SpellNo equation, we find very few Pierce County contrast estimates that are statistically significant at conventional levels. Speaking English as a primary language leads to a greater number of welfare spells, while greater time on AFDC and higher wages lead to fewer welfare spells. While these estimates are jointly significant (Likelihood ratio statistic = 878.96, p-value = 0.000), and thus lead us to reject Hypothesis 1, we also find that the key drivers are primarily economic (i.e., wage rates available to workers in these welfare populations) and recidivism-

oriented. Unlike the MonthNo regression, the key drivers of welfare spells (vis-à-vis Benton County) do not appear to be driven by socio-economic characteristics.

While the contrasts for Pierce County are different depending on how one defines welfare spells, the contrasts for Franklin County are jointly significant (LR test statistic = 3094.61, p-value = 0.000) and are largely consistent across equations. In the SpellNo regression, we find that two county-specific coefficient estimates were statistically significant. In particular, higher education levels lead to more welfare spells (again, compared to Benton County), while U.S. citizens exhibited fewer welfare spells. As before, this also leads us to reject Hypothesis 2, since not only are counties fundamentally different, but socio-demographic differences appear to be driving these county-specific patterns.

7. Conclusions and policy implications

Our primary hypotheses were twofold. First, we argued that welfare policies need to be county-specific when counties within a state have fundamentally different economies, and thus fundamentally different employment opportunities available to TANF-eligible individuals. This subsequently influences their welfare-to-work decisions, most notably the number and duration of welfare spells. We found evidence that this is the case in Washington State, as three of its counties' (Benton, Franklin and Pierce) welfare-eligible population's base welfare spell decisions on economic factors, and do so differently across counties.

Second, we argued that socio-demographic and cultural considerations can also influence welfare spells by framing how people perceive welfare, and also by placing constraints on recipients' abilities to exhibit labor market mobility and find adequate child care, among a host of other factors. We found evidence that this was the case in general, but also that differences in these characteristics across counties significantly explain welfare spell decisions. More significant, we discovered that particular demographics characteristics, like the ability to speak English, may be positively or negatively related to employment, depending upon the region. A corollary to both of these hypotheses is that prior experiences on welfare before its conversion to TANF (which is a combination of economic and "welfare culture" considerations) also influences welfare spell decisions. As such, the determinants of welfare-to-work decisions in general, and welfare spell decisions in particular, is a complex issue where economic and sociological principles are intricately intertwined. The result is that both eco-

nomic conditions and socio-cultural patterns in participants are heterogeneous by region requiring heterogeneous policy adjustments.

Of particular interest to policy makers is how one might tailor current TANF policy to allow for county-specific provisions which uniquely address the needs of those counties. Certainly, a broad policy at the State-level is both necessary and, to a lesser extent, equitable. However, one option might be to tailor the specific programs of WorkFirst to the needs of a given county. It may be the case that by making specific changes to the implementation of the WPLEX, CJ or Returner's workshops at the county level (either by increasing the requirements of these programs, adding language or other cultural-specific aspects to these programs, or a host of other changes), one might be able to successfully adapt the program to the unique needs of the county in question. Moreover, by allowing greater flexibility across counties, the success of the program at the State-level may also be enhanced. Most importantly, if industry mix is different across counties and culture and socio-economic characteristics are different across counties, and given that Washington State uses a work focused welfare design, it is critical that state government better connect the welfare population with industries that provide long term employment *at the county level*. Simply put, employers and welfare recipients need to be better matched to one another. The sum of the parts may in fact provide substantially better results of the WorkFirst program than current results at the state level.

While our work illustrates the need for more assessment and program changes to Washington State's TANF program, our findings are not without their drawbacks. For example, while we have shown the need to tailor programs to county-specific characteristics, we have not shown what those program changes are, nor have we identified the most effective means to implement those changes. Maybe most important, we have not illustrated what it might cost to implement and administer such a program design and whether or not the state can afford to do so. Additionally, our data examine the welfare populations in three of Washington State's 39 counties over a single five-year horizon. Thus replications of our study using different welfare populations and time frames are necessary to identify the robustness of our findings. As such, one must interpret our findings as preliminary and exploratory in nature. Should this work progress accordingly and derive similar findings, the need to design and implement policies at the county level should be clear to decision makers, and they have better information with which to more effectively meet the needs of constituents.

Acknowledgements

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