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Importing the Poor: Welfare Magnetism and Cross-Border Welfare Migration

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Abstract

I test for welfare-induced migration by comparing AFDC participation in border counties to interior counties in the same state. If migration costs are lower for border county residents, border counties on the high-benefit side of a state border should have higher welfare participation relative to the state's interior counties. Border counties on the low-benefit side should have lower welfare participation relative to the state's interior counties. The results obtained using county-level data from 1970–90 indicate that having a neighbor with benefits that are $100 lower increases AFDC expenditures in border counties by 4.0–6.8 percent relative to interior counties.

I. Introduction

The effect of cross-state differences in social welfare program generosity on migration decisions has been much debated in both the academic and popular press. Most of the scrutiny has been directed towards the Aid to Families with Dependent Children (AFDC) program, the program that historically provided cash benefits to low-income single mothers. While benefits for most other federal income maintenance programs, such as food stamps and Social Security Insurance (SSI) are set at the federal level, states set the monthly benefit level for AFDC. Historically, cross-state variation in benefits has been sizeable, generating the concern in high-benefit states that potential welfare recipients would migrate in to receive the larger benefits and increase state expenditures on the program. Many states originally had residency requirements associated with the AFDC program, but the Supreme Court struck these down in 1969.

The federal Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 reformed the AFDC program, replacing it with Temporary Aid to Needy Families (TANF). Under TANF, states have even more authority in determining the scope and generosity of their welfare programs. The concern about welfare-induced migration is evident in the fact that several states again tried to incorporate residency requirements into their programs, although the Supreme Court again struck these down in 1999. Some commentators warned that the devolution of power to the states under TANF would result in a "race to the bottom." There was concern that states would endeavor to keep their welfare programs less generous than their neighbors' in order to avoid attracting potential welfare recipients from neighboring states.

These concerns were initially unfounded. TANF caseloads plummeted in the late 1990's. In a robust economy, many states had budget surpluses and in particular a surplus of federal block grant funds under TANF. There was little pressure to cut benefits. The economic landscape has changed. In the current climate, there will be many more people seeking

welfare benefits and state budget surpluses have evaporated. The concern over welfare migration and the resulting downward pressure on benefits is renewed.

There already exists a sizable literature on welfare migration and the evidence from this literature is quite mixed. This paper seeks to add to this literature with a substantially different estimation strategy than has been pursued by previous studies. The most recent work on this topic has studied micro-data on migration, comparing the migration responses of potential welfare recipients to subpopulations unlikely to be eligible for benefits. This paper takes a different approach by comparing welfare program size in border counties to interior counties within states.

Presumably both the costs of information about neighboring state benefit levels and the costs of physical relocation to a neighboring state are lower for border county residents. Additionally, border county residents may be more able to move across state lines while maintaining important social support networks. If so, then at a state border with a large cross-border benefit differential, the border counties on the high-benefit side should have higher welfare participation relative to the interior counties of the high-benefit state, having disproportionately attracted welfare migrants. Likewise, the border counties on the low-benefit side should have lower welfare participation relative to the interior counties of the low-benefit state, having disproportionately lost welfare migrants. This suggests that one can test for welfare migration by comparing AFDC participation in border counties to interior counties in the same state and determining whether the difference is related to the cross-border welfare benefit differentials. The results of the differences-in-differences strategy employed in this paper imply that having a neighboring state with monthly benefits that are $100 lower increases AFDC expenditures in border counties by 4.0–6.8 percent relative to interior counties.

II. Literature Review

The early analysis of welfare migration was often very aggregate in nature and furthermore tended to condition on welfare receipt in the selection of the sample for study. For example, Gramlich and Laren (1984) use the Panel Study of Income Dynamics (PSID) and the 1980 Census to estimate inter-regional migration rates of 1979 AFDC recipients. They find that AFDC participants are more likely to have migrated from low-benefit to high-benefit regions than vice versa.

As Meyer (2000) discusses in some detail, welfare participation is more likely in a high-benefit state, both due to the mechanical effect that higher benefits increase the earnings threshold at which a mother becomes ineligible, and due to the higher work disincentive provided by higher welfare benefits. Therefore, as Meyer points out, if one conditions on welfare receipt, the resulting sample automatically has more individuals that have migrated to high-benefit states than low-benefit states, even if the migration was not motivated by welfare benefits.

There are a number of papers that use micro-data to analyze individual location or migration decisions as a function of welfare benefits and economic conditions. Blank (1988) uses 1979 March Current Population Survey (CPS) data to analyze the regional location and welfare participation choices of single mothers. She finds that single mothers are more likely to locate in and receive welfare in states with higher combined AFDC and labor market income. Enchautegui (1997) uses the 1980 Census to analyze the probability a woman makes an interstate move between 1975 and 1980 as a function of differences in welfare benefits and economic conditions between own region and destination regions. She finds

large effects of welfare benefits on migration for single mothers as well as moderate effects for female high school dropouts, Anglo-American, and African-American women.

The difficulty with models that estimate the effect of welfare benefits on migration decisions is that welfare benefits and economic conditions tend to be positively correlated. Therefore, if one does not adequately control for the economic incentives facing a woman, the estimated effect of welfare benefits on migration potentially reflect migration for improved labor market opportunities. Since both Blank and Enchautegui predict labor market outcomes at potential destinations using relatively large regions, this increases the probability that the economic incentives for migration are not adequately measured.

The most recent wave of literature attempts to untangle the labor market and welfare benefit incentives by using comparison groups. Some of Enchautegui's specifications move in this direction, as she interacts marital status and labor market attachment measures with the welfare benefit differential. Her finding that unmarried women and women without recent labor force participation are generally more responsive to welfare benefits bolsters her finding of welfare migration. Walker (1994) uses the aggregate county-to-county migration flows file from the 1980 Census to analyze the inter-state migration of poor young women using non-poor young women and poor young men as comparison groups. He specifically focuses on migration between contiguous counties across three state borders with relatively large welfare benefit differentials. He finds little evidence of welfare migration. Levine and Zimmerman (1999) use the National Longitudinal Survey of Youth (NLSY) to compare inter-state migration decisions of poor single mothers to four different control groups: poor single women without children, poor single men, poor married women, and poor married men. They also find no evidence of welfare-induced migration.

Meyer (2000) points out that by conditioning on poverty-status, both Walker and Levine and Zimmerman understate the welfare migration effects.[1] Meyer instead uses the 1980 and 1990 Census to compare inter-regional migration of single mothers to single women without children and married mothers. He finds evidence of modest welfare migration, particularly when he conditions on a sample of high school dropouts. Consistent with welfare-induced migration, Meyer also finds that migrants to high-benefit states have much higher rates of welfare participation than those native to the state, and this difference is much larger than for migrants to low-benefit states.

Gelbach (2002) adds a creative insight to this literature. He points out that the incentives to migrate for welfare benefits are highest when a mother's children are young, as there is a longer period of welfare benefit eligibility. He finds evidence in the 1980 and 1990 Census that for single mothers with less than a college degree, own state's welfare benefits affect the decision to leave one's state and that these effects are decreasing in the age of the oldest child. He finds that the main welfare benefit effect and interaction effect with child's age are not present in a comparison group of single mothers with college degrees.

As is always the case with comparison group estimation methods, the identifying assumption in this set of migration studies is that the targeted welfare migrant group is relatively similar to the comparison group, except for eligibility for welfare receipt. Specifically, the welfare migrant group and the comparison group must be equally responsive to unobserved factors that are correlated with welfare benefits, such as

[1]Specifically, Meyer argues that states with higher benefits tend to have lower poverty rates, both due to stronger economies and more generous social services. Therefore, a sample of women in poverty will be more likely to include those who have migrated to a low-benefit state than a high-benefit state.

unobserved economic conditions or state amenities, so that the difference in their responsiveness to welfare benefits can be interpreted as the true welfare migration effect.

One difficulty with more recent studies is that moving from the welfare recipient population to broader target groups, such as all single mothers, dilutes the welfare effect, as a larger fraction of these groups are moving for reasons other than welfare benefits. These broader samples include more women who are migrating for employment opportunities, potentially increasing the probability that welfare benefit effects will be confounded with labor market effects.

This paper uses a very simple alternative differences-in-differences strategy that allows the focus once again to return to the welfare recipient population while avoiding the biases that plagued earlier work that conditioned on welfare participation. This strategy also uses a "stock" measure of welfare participation, so that it includes families who moved to the area to receive welfare benefits before the period of study, including welfare recipients living in high-benefit areas because their mothers moved to the area to receive higher welfare benefits. The use of a stock measure of participation provides some advantages over the micro-data studies that only study migration within a narrow time interval.

One further issue relevant for the current study is the level of spatial detail used in previous studies. Gramlich and Laren (1984), Blank (1988), and Meyer (2000) all study location or migration using rather large regions. Enchautegui (1997), Levine and Zimmerman (1999) and Gelbach (2002) study the decision to leave the current state of residence. Walker (1994) studies migration between contiguous counties on state borders.

Walker's focus on short-distance migration between contiguous counties has been criticized. Because the current study assumes that inter-state migration between border counties is important, it is appropriate to consider these criticisms. Both Meyer (2000) and Brueckner (2000) argue that the focus on short-distance moves across state borders ignores the fact that most migration is longer-distance, between major metropolitan areas and/or across regions. While it is true that the majority of migration involves longer-distance moves than between contiguous counties, there is no evidence that the majority of welfare-induced migration is long-distance.

If most migration by non-elderly individuals is motivated by the desire to relocate in better labor market conditions, a short-distance move should not have an appreciable effect on wages. In contrast, because welfare policy changes discretely at state borders, a short-distance move can have a large effect on welfare benefit payments. Holmes (1998) conducts a study of the effect of state right-to-work policies on firm location near state borders. Holmes argues that by studying geographic areas close to state borders, it is more likely that differences in the state policy of interest, rather than differences in unobserved factors, are causing the observed difference in behavior. By the same reasoning, the study of the effect of state welfare policy on differences in welfare program outcomes at state borders has similar advantages.

III. Empirical Strategy

A. Differences-in-Differences Strategy

The estimation strategy used in this paper relies on the crucial assumption that the costs of between-state migration are lower for individuals located in the border counties compared to the interior counties. Besides the physical costs of relocating, this could also reflect the lower information costs for border residents. Those living in border counties may be more

aware of the neighboring states' welfare benefit policies. Short-distance moves may also allow welfare mothers to retain social networks that are often crucial to their survival.[2]

Consider the very simple example for a country with two states illustrated in Figure 1. The top state is the high-benefit state and the bottom state is the low-benefit state. Area H1 contains the interior counties of the high-benefit state that do not border on the other state and area L1 is similarly defined for the low-benefit state. Area H2 contains the counties of the high-benefit state that border on the other state, and area L2 is likewise defined for the low-benefit state. If the assumption of differential migration costs is correct, then, all else equal, the border counties in area H2 should disproportionately draw migrants from the border counties in area L2. In this case, AFDC participation should be higher in the border counties of the high-benefit state (H2) relative to the interior counties of the high-benefit state (H1), and AFDC participation should be lower in the border counties of the low-benefit state (L2) relative to the interior counties of the low-benefit state (L1). Let AFDC be a measure of county-level per capita AFDC participation, then an appropriate differences-in-differences formulation is:

$$[mean(AFDC_{H2}) - mean(AFDC_{H1})] - [mean(AFDC_{L2}) - mean(AFDC_{L1})]$$

Because this method compares border counties to interior counties within a state, it nets out the within-state relationship between welfare benefits and participation. In other words, both interior and border counties in high-benefit states should have higher welfare participation for the reasons described in Meyer (2000), but the difference between border and interior counties should reflect the differential due to higher welfare migration into border counties. This approach therefore avoids the pitfalls of earlier studies that conditioned on welfare receipt.[3]

In general, studying differences in counties at state borders reduces the potential for omitted variable bias, because counties on each side of the border should be relatively similar in unobserved characteristics, such as geography, climate, and cost-of-living. Furthermore, economic theory tells us that large differences in labor market opportunities should not exist; any such differences should be arbitraged away by migration. In order for an unobserved characteristic to mimic a welfare migration effect, it would have to disproportionately draw welfare-prone individuals into border counties of high-benefit states so that per capita AFDC participation would increase. If the unobserved trait were some amenity in high-benefit states that draws migrants uniformly from the whole population, per capita welfare participation would not increase.

To allow for the difference in AFDC participation between border and interior counties to depend on the size of the cross-border welfare benefit differential, and to allow for the inclusion of control variables, this empirical strategy is implemented in a regression framework. A simplified version of the regression model for one time period and two states is:

[2]Edin and Lein (1997) find that most mothers on AFDC receive income transfers from relatives, boyfriends or absent fathers that are an important component of their monthly budget.

[3]This test for welfare migration does not analyze actual migration flows, but rather considers an observable and testable implication of welfare-induced migration. Meyer (2000) also performs a test of this form, showing that there are higher welfare participation rates among migrants to high-benefit states than among natives of those states and that this difference is larger than the participation differential between migrants and natives in low-benefit states. In a similar spirit, Borjas (1999) examines whether California's generous welfare system has made it a magnet for low-skilled immigrants from other countries. He finds that immigrant welfare recipients are much more likely to live in California than native welfare recipients.

$$AFDC_{cs}=\beta_1 Border_{cs}+\beta_2 BenefitDiff_{cs}+\beta_3 StateH_s+\beta_4 StateL_s+\varepsilon_{cs} \quad (1)$$

where *AFDC* is a measure of AFDC participation in county *c* in state *s*, *Border* is an indicator variable that equals one if the county is on the state border, *BenefitDiff* is the difference between neighbor's AFDC benefit and own state's AFDC benefit for border counties. This variable is positive if the neighboring state has higher benefits, negative if the neighbor has lower benefits and is zero for interior counties. *StateH* and *StateL* are state fixed-effects.

The mapping between the regression results and the differences-in-differences formulation is:

$$[E(AFDC_{H2})-E(AFDC_{H1})]-[E(AFDC_{L2})-E(AFDC_{L1})]=2\beta_2(BenefitDiff_{H2}) \quad (2)$$

where $BenefitDiff_{H2}$ is the cross-border benefit differential for border counties in the high benefit state.[4] Because $BenefitDiff_{H2}$ is negative, we expect β_2 to be negative, indicating that a neighbor with a lower benefit increases AFDC participation in your state. The factor of two in the expression indicates that the border counties of the low-benefit state have lost β_2 ($BenefitDiff_{H2}$) welfare participants and the border counties of the high-benefit state have gained β_2 ($BenefitDiff_{H2}$) welfare participants, generating a cross-border participation differential of $2\beta_2$ ($BenefitDiff_{H2}$).

B. Variation in AFDC Benefits

The measure of AFDC Benefits used in this analysis is the monthly guaranteed benefit level to a family of four with no additional income.[5] Panel A of Table 1 reports statistics on the distribution of AFDC Benefits (in 1983 dollars) across all 50 states and the District of Columbia for 1970, 1980 and 1990. These statistics confirm stylized facts that have been widely reported. At the start of the 1970's, welfare benefit levels were, by today's standards, relatively generous. The median benefit was $567, while a number of states had benefits above $800. Over the 1970's and 1980, the real value of benefits declined at all points of the distribution, compressing the distribution considerably. It is telling that the median benefit level in 1990 was the 10th percentile benefit level in 1970.

While some migration papers have made adjustments to the basic AFDC guarantee level for cost-of-living and for benefits from other welfare programs (usually food stamps and Medicaid), this paper uses the unaltered guarantee level to construct the cross-state benefit differentials used in the regression analysis.[6] Any welfare benefits measure used in this analysis is in many ways a proxy for the overall generosity of a state's social services for the poor. This is because states with higher benefits are often more generous towards the poor in other, perhaps unmeasured, ways.[7] Because the benefit level is a highly visible indicator of generosity, and because state legislatures must vote on each change in benefit levels, the

[4] $Benefitdiff_{L2} = -Benefitdiff_{H2}$

[5] Obtained from Robert Moffitt's data base of welfare program characteristics, available at http://www.econ.jhu.edu/People/Moffitt/DataSets.html. Benefits vary by county for both New York and Michigan. In this analysis, the Wayne County benefits are used for Michigan and the New York City benefits are used for New York. The results in this paper were also re-estimated dropping New York and Michigan and any counties bordering on these states from the sample, without any appreciable change in the results.

[6] A recent paper by Greenwood and Graves (2003) customizes the potential AFDC payment to individual families based on the number of children and the state's benefit schedule by family size.

[7] These differences could include less quantifiable characteristics such as the accessibility and friendliness of caseworkers.

basic guarantee level is arguably a strong indicator of a state's overall attitude towards poverty.[8] It is not clear that any of the common adjustments produce a better proxy.

There are some more specific reasons why individual adjustments are not pursued. Food stamp benefits are set at the federal, rather than state, level. The data that exists on average Medicaid expenditures by state is not available for the whole time period of study in this analysis and has been documented to contain considerable error.[9] Because this paper tests for evidence of short-distance moves across state lines between border counties, the difference in cost-of-living between the original location and the destination should be small. In reality, any of these adjustments would tend to merely compress the distribution of benefits, rather than substantially altering the rank ordering of states in benefit generosity.

IV. Regression Analysis

A. Data

The data used in this analysis were obtained from the Regional Economic Information System (REIS) of the Bureau of Economic Analysis (BEA). This data contains annual measures of county-level AFDC expenditures, population, and employment and earnings by sector. The sample used for the analysis in this paper is all counties in the 48 states of the continental US and all years from 1970–90. Welfare reform at the state level in the early to mid 1990's and at the federal level after 1996 substantially alters several features of AFDC. This period is therefore excluded from the analysis.[10]

The available measure of county welfare participation is AFDC expenditures per capita. The ideal measure of county welfare participation would be AFDC caseload per capita. Unfortunately, county-level caseload information is not available for the time period of study. Because, however, welfare policy is set at the state level, and state-year effects are included in the model, the within-state differences in AFDC expenditures should largely reflect differences in caseloads. To be more concrete, the dependent variable, logarithm of AFDC expenditures per capita in county *c* in state *s*, can be expressed as a function of the number of AFDC families in the county, the AFDC benefit for a family (set at the state level), and county population:

$$\log(AFDCExp_{cs})=\log\left[\frac{(\#AFDCFamilies_{cs})*(AFDCBenefitperFamily_{s})}{Population_{cs}}\right]$$

If, using the notation of Figure 1, we difference the log of AFDC expenditures per capita between the border and interior regions of the high benefit state we obtain:

$$\log(AFDCExp_{H2})-\log(AFDCExp_{H1})=\log\left(\frac{(\#AFDCFamilies_{H2})}{Population_{H2}}\right)-\log\left(\frac{(\#AFDCFamilies_{H1})}{Population_{H1}}\right)$$
$$+\log(AFDCBenefitperFamily_{H})-\log(AFDCBenefitperFamily_{H})$$

so that the AFDC benefit per family clearly differences out. By limiting the analysis to the study of differences in AFDC expenditures *within* states, we difference out the state-specific

[8]In theory, it could be the case that low benefit states compensate with generosity in other services to the poor, but in practice it is generally the case that states that are provide meager benefits tend to be relatively punitive in other areas of social welfare policy.

[9]Robert Moffitt includes a warning concerning use of the Medicaid data he provides in his welfare benefits data base on his website, referenced in footnote 4 above.

[10]See Kaestner, Kaushal, and Ryzin (2001) for an analysis of the effects of welfare reform measures on migration.

component of expenditures, the AFDC benefit per family set by state policy, and are left with variation in county caseloads to identify the effect of interest.

B. Analysis using Cross-Border Benefit Differentials for Border Counties

The baseline regression model is:

$$\log(AFDCExp_{cst})=\beta_0+\beta_1 Border_{cst}+\beta_2 BenefitDiff_{cst}+X\beta_3+(State_s*Year_t)\delta+(State_s*MSA_c)\varphi+\varepsilon_{cst} \quad (3)$$

where the dependent variable is the logarithm of real AFDC expenditures per capita and *Border* is an indicator for border county. [11] *BenefitDiff* is the maximum difference between neighboring states' real AFDC benefits for a family of four and own state's benefits (equals zero for interior counties).[12] Panel B of Table 1 reports statistics on the distribution of this benefit differential for the 1,142 border counties in the sample. For the regression analysis, this benefit difference is converted so that it is measured in hundreds of dollars.[13] *X* is a vector of county-level control variables, described below. *State* is a vector of state indicators, *Year* is a vector of year indicators and *MSA* is a Metropolitan Statistical Area (MSA) indicator. State-year effects purge the data of anything that varies over time at the state level. Rather than merely controlling for whether or not a county is in an MSA, State-MSA effects allow for baseline differences between MSA and non-MSA counties within each state.

Notice that the specification in equation (3) is almost identical to the illustrative specification in equation (1). The only changes have been that the log of AFDC expenditures has been inserted as the dependent variable, additional county-level controls have been added, the state fixed-effects have been replaced with state-year effects and state-MSA effects, and the benefit differential is measured in hundreds of dollars. As such, the interpretation of β_2 in this regression is analogous to the differences-in-differences interpretation provided in equation (2). The coefficient on the benefit differential is interpreted as the percentage difference in per capita AFDC expenditures between border and interior counties for a $100 cross-border difference in monthly welfare benefits.

The additional county-level controls include the fraction of county population that is black in 1970, the logarithm of county population, the employment-to-population ratio, real monthly earnings per worker in the manufacturing sector (in hundreds of dollars), and real monthly earnings per worker in the services sector (in hundreds of dollars).[14] Sample means for these control variables are reported in Panel A of Table 2. Three additional variables are used to control for differences in the labor market between a border county's own state and neighboring states. These three variables are the maximum difference between neighbor states' unemployment rates and own state unemployment rate, maximum difference between neighbor states' monthly earnings per manufacturing worker and own state's (in hundreds of dollars), and maximum difference between neighbor states' monthly earnings per service

[11]The logarithm of per capita AFDC expenditures is used as the dependent variable, rather than the level, because residual plots from the levels regression indicated a highly skewed distribution of the residuals. Log-linear specifications have typically been used in welfare caseload studies (for example: Ziliak et al. 2000; Blank 2001). Additionally, the log-linear specification ensures that the state benefit levels will be differenced out by the state fixed-effects, as described above.

[12]Suppose, for example, a county borders on two states, that own state benefits are $200, one border state has $100 benefits and the other has $250 benefits. The maximum benefit difference for that border county is −100. 16 percent of border counties border on more than one state.

[13]AFDC expenditures, benefit levels and sector-specific earnings are all adjusted for inflation using the July CPI-U with base years 1983–4.

[14]Because AFDC participation rates are higher among black women than white women, changes in the fraction of the population that is black could reflect differential migration responses by race. Therefore, I only control for the baseline value of the fraction of the population that is black from 1970.

sector worker (in hundreds of dollars) and own state's. Panel B of Table 2 reports statistics on the distribution of the cross-state economic controls.

Results obtained for the baseline specification described in equation (3) are reported in the first column of Table 3. [15] The coefficient on the benefit difference is −.0546 and statistically significant.[16] The estimate indicates that having a neighboring state with benefits that are $100 lower than own benefits increases AFDC expenditures in border counties by 5.5 percent relative to interior counties.[17] The results also indicate that counties with larger populations and a higher fraction of the population that is black in 1970 have higher expenditures, while a higher employment-to-population ratio and higher earnings per worker in manufacturing lower per capita expenditures. A lower unemployment rate in a neighboring state reduces own AFDC expenditures, presumably by drawing potential welfare participants to the better labor market.

One concern about the estimation strategy used in this paper is the wide variation in the size of counties across the country. Some of the counties in the western states are extremely large, so that border county residents can still face a substantial migration distance to cross a state border. When the AFDC benefit differential for border counties is interacted with a dummy that equals one if the distance from the border county to the nearest state is less than 25 miles, the coefficient on the AFDC benefit difference is −.0334, while the coefficient on the benefit difference interacted with the distance dummy is −0.0431.[18] This suggests that the effect of a $100 cross-border benefit differential is only a 3.3 percent change in expenditures for border counties that are more than 25 miles from the nearest state, but the effect of a $100 differential is a 7.7 percent change in expenditures for border counties within 25 miles of another state. The difference between the two effects is statistically significant.

The second column of Table 3 reports the results from interacting the benefit differential measure with an indicator that equals one if the benefit difference is positive as well as with an indicator that equals one if the difference is negative. This allows a test of whether the effects are symmetric.[19] While the coefficients for a positive benefit difference are somewhat smaller in magnitude than those for a negative benefit difference, testing fails to reject equivalence of the two coefficients with a p-value of 0.48.[20]

[15]The number of observations is 55,910, rather than 64,617 because of missing data on AFDC expenditures, manufacturing earnings, and service sector earnings. Earnings and expenditures values are sometimes suppressed in the BEA data for confidentiality reasons, generally for less populous counties in the earlier years of the sample.

[16]Standard errors are Huber-White robust standard errors with clustering to adjust for the repeated observations on each county.

[17]The coefficient on the border county dummy in column 1 indicates that on average border counties have per capita AFDC expenditures that are 5.6% higher than interior counties. This coefficient picks up any unobserved differences in conditions between state borders and state interiors that are constant across states, regardless of benefit level. As was shown in equation (2), taking the differences between border and interior counties and then differencing across states nets out the overall effect of being a border county, leaving the differences-in-differences estimate of the migration effect.

[18]For border counties, the median distance to the nearest state is 26 miles. Distances used in this paper are distances between county centroids.

[19]The equivalence of the coefficients on the positive and negative differential variables is not mechanical. The coefficient on the positive differential variable is identified from comparisons of border counties to interior counties within the same state for those border counties adjacent to higher benefit states. The coefficient on the negative differential variable is identified from comparisons of border counties to interior counties within the same state for those border counties adjacent to lower benefit states.

[20]A further robustness check would be to add state*border fixed effects to the model. This allows a baseline difference between border and interior regions of each state. This specification would not be identified in the simple 2-state model in Figure 1. Identified in this case comes from the fact that most states border on multiple states so that the benefit differential varies across border counties within the same state, and there is also variation in the benefit differential over time. The results from Table 3 are completely robust to this change in specification, which increases the magnitudes of the effects somewhat. The results of Table 4 are also robust to the addition of state*border or state*(distance to nearest state<25 miles) fixed effects.

C. Analysis using Benefit Differential with Nearest State for All Counties

There are alternative ways of measuring the benefit differential, one of which is pursued in Table 4. Rather than only calculating a benefit differential for border counties, differentials are now calculated for all counties. The conceptually easiest way to calculate a differential for all counties is to calculate the difference in AFDC benefits between the nearest state and own state. Distribution statistics for this benefit differential measure are reported in Panel C of Table 1. All regressions in Table 4 contain the same control variables used in Table 3. The cross-state economic controls are recalculated for all counties based on the unemployment rate, manufacturing earnings per worker, and service earnings per worker in nearest state and own state. Summary statistics for these controls are reported in Panel C of Table 2.

The baseline specification used in column 1 of Table 4 includes a border county dummy, the AFDC benefit difference calculated for all counties using the nearest state, and the interaction of this differential with the border county dummy. The results indicate that having a benefit that is $100 higher than that of the nearest neighbor increases AFDC expenditures in border counties relative to interior counties by just under 4 percent.

Column 2 changes the specification used in column 1 by replacing the border county dummy with an indicator variable that equals one if the distance to the nearest state is less than 25 miles.[21] The results indicate the nearest state having a benefit that is $100 lower than own benefits increases county AFDC expenditures by 4.9 percent for counties within 25 miles of another state relative to counties in the same state that are more than 25 miles from another state.

Column 3 of Table 4 tests for symmetric effects of a positive and negative differential with the nearest state, and fails to reject equivalence of effects with a p-value of .330.

Column 4 extends the specification in column 2 to estimate the effect of a benefit differential with the nearest state for counties that are more than 25 miles, but less than 50 miles, from the nearest state. While the coefficient on the benefit differential for the counties within 25 miles of another state is −0.0616, the coefficient on the differential for the counties between 25 and 50 miles of another state is only −0.0293, indicating that the effects are much larger for cases in which a very short distance allows individuals to cross state borders.[22]

D. Effects over Time

An advantage of using a “stock” measure of welfare participation is that it includes families who have already moved to the area to receive welfare benefits before the period of study. This includes welfare recipients living in high-benefit areas because their mothers moved to the area to receive higher welfare benefits. The effects of cross-state benefit differentials could increase over time as welfare recipients accumulate in the high-benefit state.[23] In Table 5, two of the previous regression specifications are re-estimated separately for the 1970’s and 1980’s. The first column reports the coefficient on the AFDC benefit differential when the model is estimated using years 1970–80, and the second column reports the coefficient estimate that is obtained when the model is estimated using years 1981–90.

[21]96% of the 541 counties within 25 miles of another state are border counties.

[22]An alternative measure of the benefit difference would be to use the maximum AFDC benefit differential within 25 or 50 miles of the county. Results obtained using this alternative specification were consistent with those reported here.

[23]We might expect that this process should reach a steady-state equilibrium, with new migrants replacing previous migrants who no longer have the young children necessary for welfare eligibility. If, however, inter-generational transmission of welfare receipt is strong enough, convergence could be quite slow or not occur at all.

The first row of Table 5 uses the baseline specification from column 1 of Table 3. The coefficient on the benefit differential for the 1970's is −.0528 and the coefficient for the 1980's is −0.0613, suggesting little difference in the migration effect for the 1970's and the 1980's. The final column of Table 5 reports a test for equality of the 1970's and 1980's coefficients. Not surprisingly, the test fails to reject equality of the coefficient. Prior results, however, suggest that the preferred specification should be one for which the migration effect is estimated for counties within 25 miles of a neighboring state. Therefore, the second row of Table 5 uses the specification from column 2 of Table 4. The coefficient on the interaction of benefit difference with nearest state and the indicator for nearest state is within 25 miles is −0.0382 for the 1970's and is −0.0882 for the 1980's, suggesting much more sizeable effects in the 1980's. The difference in the coefficients is statistically significant. [24]

While these results suggest that the effects of the cross-state benefit differentials did increase over time, as the stock of welfare-prone residents accumulated in counties on the high-benefit sides of state borders, it should be noted that other conditions could result in a similar pattern. It is possible that the correlation between welfare benefits levels and other forms of government support for low-income families strengthened during the 1980's, so that a benefit differential in 1980's signaled a larger difference in overall amenities for the poor than it did in the 1970's.

Because the identification strategy used in this paper does not require time-series variation in welfare benefits, it is possible to estimate a separate regression for each year in the data. Figure 2 plots the coefficient estimates obtained from estimating annual versions of both specifications used in Table 5. As was the case in Table 5, the results show that the coefficient estimate is increasing in magnitude over time for Specification B, which takes into account distance to nearest state, but not for Specification A. Additionally, the graph shows that the magnitude of the coefficient "spikes" in the 1973–74 recession and the 1981–82 recession for both specifications, although the spikes are much pronounced for Specification B.

The spiking of the effect during a recession reflects both the increased incentives to migrate for welfare benefits during the recession and, perhaps more importantly, the participation effects of an economic downturn. If a larger welfare-prone population has accumulated over time in the border regions of a high benefit state, the welfare participation rate of this welfare-prone group is going to be highest during an economic recession, increasing the magnitude of the participation differential between border and interior regions of the state.

E. Interpreting Magnitudes of Effects

It would be useful to interpret the estimates in this paper in terms the magnitude of actual migration flows. One important caveat is that these estimates cannot be used to calculate a magnitude for total welfare migration, because they only estimate the effect of *differential* migration to and from border regions of states. If there is almost no welfare migration to and from interior regions of states, then they reflect the full welfare migration effect. If there is substantial welfare migration to and from these interior regions, then these estimates substantially underestimate the total amount of welfare-induced migration, even between border counties, because this interior migration is differenced out by the identification strategy.

[24]Walker also found evidence of stronger effects in the 1980's than 1970's even though he analyzed actual migration flows. Walker (1994) found little evidence of welfare migration between border counties using 1980 Census data, but Walker (1995) found migration effects using 1990 Census data. Walker argues that the decline in real wages during the 1980's increased the importance of welfare benefit levels in migration decisions.

Meyer (2000) makes a set of calculations in which he estimates that the long-run difference in number of welfare recipients due to migration is about 2.0–2.5 times the migration flow during a five-year period.[25] The estimates in this paper, which can be taken as estimates of long-run differences in the stock of welfare participants due to migration, can be divided by this multiplier to produce an estimate of the 5-year migration flow between border regions of states due to a $100 cross-border benefit differential. To the extent that there is welfare migration between interior regions of states, this estimate will understate the total migration flow. To the extent that a portion of the long-run differences estimated in this paper are due to intergenerational transmission of welfare participation by previous generations of welfare migrants, which does not factor into Meyer's calculation of the multiplier, this method will overstate the migration flows.

Dividing the estimates in this paper, which indicate a 4.0–6.8 percent long-run difference in welfare caseloads due to a $100 cross-border differential, by Meyer's multiplier suggests that a $100 cross-border differential will induce 1.6–3.4 percent of welfare recipients in border regions to migrate across state borders in a 5-year period. Looking again at Figure 2, a better estimate of the long-run effects of welfare migration might be to take the average of the estimates from Specification B graphed from 1984–1987. This approach uses estimates from the later years of the sample, but excludes 1988–1990, years in which the large effects likely reflect the beginnings of the large run-up in caseloads experienced during the early 1990's. The average of the coefficient estimates from 1984–1987 is −.0792. Dividing by the multiplier produces an estimate that a $100 cross-border differential will induce 3.2–4.0 percent of welfare recipients in border regions to migrate in a 5-year period.

These results suggest modest to moderate migration at state borders in response to a fairly substantial cross-border differential. They also suggest that welfare migration is probably not currently a substantial phenomenon given the relatively small cross-border differentials that presently exist, but that welfare migration could become much more common if the generosity of state policies under TANF start to diverge in a more dramatic fashion.

V. Conclusions

This paper compares the size of welfare programs in counties at or close to state borders relative to interior counties to test for evidence of cross-border welfare migration in response to state differences in welfare benefit generosity. The results indicate that border counties on the high-benefit side of state borders with a large benefit differential have higher welfare expenditures per capita relative to the interior counties of their state, and border counties on the low-benefit side of state borders have lower welfare expenditures per capita relative to the interiors of their state.

The results indicate that having a neighboring state with welfare benefits that are $100 lower than own benefits increases welfare expenditures in border counties 4.0–6.8 percent compared to interior counties. To the extent that there is also welfare migration to and from interior counties, this comparison of border counties to interior counties understates the full welfare migration effect. An additional issue of interpretation is that it must be remembered that the AFDC benefit differential acts as a proxy for the overall difference in treatment of low-income families between the neighboring states, so that the estimate effect of a $100

[25]Specifically, Meyer assumes that the long-run number of people who have changed locations and are on welfare is $L=N_0+N_5P_5+N_{10}P_{10}+N_{15}P_{15}$, where N_j is the number of people that moved because of welfare benefits during the five-year period ending j years ago and P_j is the probability a woman that was a single mother welfare recipient j years ago is a single mother welfare recipient today. Meyer assumes and confirms that P_j is very small for j>15. Assuming that migration flows are relatively constant, this reduces to: $L=N(1+P_5+P_{10}+P_{15})=NP$ where P is the multiplier for the five-year migration flows. Meyer's estimates from PSID data from 1968–1992 suggest that P is in the range of 2–2.5.

benefit differential is more accurately interpreted as the effect of the total difference in social services for the poor associated with a $100 benefit differential.

By exploiting a testable implication of welfare migration for aggregate measures of welfare participation, this research fills a gap in the welfare migration literature, which largely reports welfare migration effects from micro-data using non-eligible comparison groups. These results combined with those obtained by other recent high-quality studies generate mounting evidence for the presence of positive, but moderate, effects of welfare benefit generosity on migration decisions.

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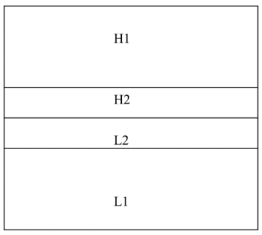

Figure 1.
Two State Example

Figure 2.
Coefficient Estimates by Year

Table 1

Distribution of State-Level AFDC Benefits and Cross-State Benefit Differentials Over Time

	1970	1980	1990
A. AFDC Benefits			
10th Percentile	331	226	189
25th Percentile	385	301	265
Median	567	424	331
75th Percentile	674	519	438
90th Percentile	803	640	524
B. Maximum Difference Between Neighbor States' Benefits and Own Benefits (Border Counties)			
10th Percentile	−244	−139	−118
25th Percentile	−133	−81	−56
Median	−10	1	2
75th Percentile	128	82	56
90th Percentile	154	156	121
C. Difference Between Nearest State's Benefits and Own States' Benefits (All Counties)			
10th Percentile	−210	−139	−120
25th Percentile	−128	−73	−52
Median	−10	11	2
75th Percentile	100	81	52
90th Percentile	210	152	118

Notes: Real monthly benefit to a family of four in 1983 dollars. Panel A describes the distribution of state-level benefits for the 50 states plus District of Columbia. Panel B describes the distribution of cross-border benefit differentials for the 1,142 border counties in the continental US. Panels C describes the distribution of benefit differentials between nearest state and own state for the 3,077 counties in the 48 states of the continental US.

Table 2

Descriptive Statistics, 1970, 1980 and 1990

	1970	1980	1990
A. County Characteristics			
AFDC Expenditures per Capita	37.4 (31.4)	40.3 (31.8)	39.6 (33.4)
Border County	0.371	0.371	0.371
County Population (in thousands)	65.7 (230.3)	73.3 (238.6)	80.3 (266.5)
Fraction Black in 1970	0.090 (0.149)	0.090 (0.149)	0.090 (0.149)
Employment-to-Population Ratio	0.404 (0.101)	0.439 (0.120)	0.481 (0.139)
Manufacturing Earnings Per Worker	14.0 (4.2)	15.3 (5.1)	15.5 (5.2)
Service Sector Earnings Per Worker	9.96 (2.83)	9.64 (2.12)	9.04 (2.63)
B. Maximum Difference Between Neighbor State and Own State (Border Counties)			
Unemployment Rate			
25^{th} Percentile	−0.80	−1.10	−0.70
75^{th} Percentile	0.90	1.20	0.70
Manufacturing Earnings Per Worker			
25^{th} Percentile	−1.94	−2.00	−2.50
75^{th} Percentile	1.98	2.17	2.52
Service Sector Earnings Per Worker			
25^{th} Percentile	−1.33	−1.08	−1.72
75^{th} Percentile	1.39	1.09	1.94
C. Difference Between Nearest State and Own State(All Counties)			
Unemployment Rate			
25^{th} Percentile	−0.70	−0.90	−0.70
75^{th} Percentile	0.70	1.20	0.60
Manufacturing Earnings Per Worker			
25^{th} Percentile	−1.98	−1.75	−2.53
75^{th} Percentile	1.51	1.34	2.26
Service Sector Earnings Per Worker			
25^{th} Percentile	−1.41	−1.09	−1.94
75^{th} Percentile	1.20	0.97	1.44

Notes: There are 3,077 counties in the 48 states of the continental US. AFDC expenditures and Sector-Specific Earnings reported in 1983 dollars. Earnings per Worker measures are reported as monthly earnings in 100's of dollars.

Table 3

Effect of Cross-Border AFDC Benefit Differences on Border County AFDC Expenditures, 1970–1990

	(1)	(2)
AFDC Benefit Difference	−0.0546*** (0.0104)	
Positive AFDC Benefit Difference		−0.0449* (0.0179)
Negative AFDC Benefit Difference		−0.0640*** (0.0159)
Border County	0.0558** (0.0168)	0.0459*** (0.0209)
Log(County Population)	0.1153*** (0.0119)	0.1152*** (0.0119)
Fraction Black in 1970	2.765*** (0.0814)	2.765*** (0.0814)
Employment-to-Population Ratio	−0.7226*** (0.1376)	−0.7235*** (0.1376)
Manufacturing Earnings Per Worker	−0.0052* (0.0021)	−0.0051* (0.0021)
Services Earnings Per Worker	−0.0071 (0.0048)	−0.0070 (0.0048)
Unemployment Rate Difference	0.0461*** (0.0057)	0.0461*** (0.0057)
Manufacturing Earnings Difference	0.0067 (0.0054)	0.0067 (0.0054)
Service Earnings Difference	−0.0095 (0.0084)	−0.0098 (0.0085)
Number of Observations	55,910	55,910

Notes: Dependent variable is the logarithm of county real AFDC expenditures per capita. AFDC benefit difference is the maximum difference (in 100's of dollars) between neighbor states' benefits and own state's benefits for border counties (=0 for interior counties). In column 2, the AFDC benefit difference is interacted with a dummy for a positive difference and a dummy for a negative difference. All regressions include state-year effects and state-MSA effects. Huber-White robust standard errors reported in parentheses. There are 3,077 counties in the 48 states of the continental US.

* significant at 5 percent level

** significant at 1 percent level

*** significant at 0.1 percent level

Table 4

Effect of AFDC Benefit Differential with Nearest State on County AFDC Expenditures, 1970–1990

	(1)	(2)	(3)	(4)
AFDC Benefit Difference with Nearest State	−0.0303** (0.0101)	−0.0346*** (0.0096)		−0.0239* (0.0109)
AFDC Benefit Difference with Nearest State* Border	−0.0397*** (0.0116)			
AFDC Benefit Difference with Nearest State* Nearest State<25 Miles		−0.0489** (0.0162)		−0.0616*** (0.0171)
AFDC Benefit Difference with Nearest State*(25 Miles< Nearest State<50 Miles)				−0.0293* (0.0128)
Positive AFDC Benefit Difference with Nearest State			−0.0520*** (0.0139)	
Positive AFDC Benefit Difference with Nearest State* Nearest State<25 Miles			−0.0299 (0.0271)	
Negative AFDC Benefit Difference with Nearest State			−0.0156 (0.0151)	
Negative AFDC Benefit Difference with Nearest State* Nearest State<25 Miles			−0.0681** (0.0236)	
Number of Observations	55,910	55,910	55,910	55,910

Notes: Dependent variable is the logarithm of county real AFDC expenditures per capita. Benefit difference measure is the benefit difference (in100's of dollars) between *nearest* state and own state for *all* counties. Huber-White robust standard errors reported in parentheses. All regressions include own county controls, economic controls for differences between nearest state and own state, state-year effects and state-MSA effects. Column 1 interacts the benefit difference measure with a border county dummy. Column 2 interacts the benefit difference measure with an indicator that equals one if the county's nearest state is within 25 miles. Column 4 interacts the benefit difference measure with indicator variables that equal one if the county's nearest state is within 25 or 25–50 miles, respectively.

* significant at 5 percent level

** significant at 1 percent level

*** significant at 0.1 percent level

Table 5

Effect of Cross-State AFDC Benefit Differentials on County AFDC Expenditures, 1970–1980 and 1981–1990

	1970–1980	1981–1990	Test for Difference
Specification A: Column 1 of Table 3			
AFDC Benefit Difference	−0.0528*** (0.0100)	−0.0613 (0.0163)	−0.0084 (0.0134)
Specification B: Column 2 of Table 4			
AFDC Benefit Difference with Nearest State* Nearest State<25 Miles	−0.0382* (0.0151)	−0.0882** (0.0289)	−0.0500* (0.0239)
Number of Observations	28,578	27,332	

Notes: Dependent variable is the logarithm of real AFDC expenditures per capita. All regressions include county controls, cross-state economic controls, state-year effects and state-MSA effects. Huber-White robust standard errors reported in parentheses.

* significant at 5 percent level

** significant at 1 percent level

*** significant at 0.1 percent level