Food Stamp Dynamics Across Rural and Urban Landscapes in the Era of Welfare Reform

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Executive Summary

Welfare reform has forced the scientific community to look into new conceptual and empirical frameworks for examining low income populations. This project goes beyond prior theory by integrating the influence of individual, place, and geographic setting characteristics on food stamp dynamics into a single model. Analytically, this model allows one to test whether place resources influence food stamp dynamics. Specifically, it allows one to gauge the impact of spatial inequality, in terms of economic resources and social resources across rural and urban populations.

In Mississippi, the low-income population that is served by food stamps is predominantly composed of single, middle-aged, African American mothers with less than a high school education. These individuals are situated in a local economy that offers employment primarily in the service sector, followed by manufacturing, government and extractive industry. Furthermore, recipients are situated in an environment where 50 percent of the work force is composed of women. As far as the local civic capacity is concerned, food stamp recipients are in an environment where networks of association are more likely to develop around small service businesses. Those recipients also live in local communities that, on average, undertake moderate levels of collective action. Finally, approximately 26 percent of recipients live in metro areas, and the remaining 74 percent are spread between the four rural geographic settings. Specifically, of the 74 percent, 25 percent are located in the Delta, 23 percent in the Northeast, 13 percent in the Southeast, and 13 percent in the Southwest.

The cumulative probability of exiting food stamps indicates that the period between the first month and the thirteen month, following the passage of the 1996 Welfare Reform Act, was the most critical time for recipients to exit. Such effect continued throughout the second year, at the end of which the probability leveled out. Though white recipients and recipients situated in metro areas experienced a higher probability of exit than their counterparts, their cumulative probability closely resembles that of the overall probability. These trends can be explained in several ways. One is that, in the first two years, there was confusion about eligibility. Another is that Mississippi could have emphasized the reduction of caseloads more than promoting work as a panacea of dependency. As a result, over the years various stakeholders in grassroots organizations have helped the state to clarify eligibility requirements and to promote the importance of work.

The results of the logistic regression analysis indicates that, in Mississippi, middle-aged, African American mothers are less likely to exit food stamps than their counterparts. The results also indicate that the context in which the recipients are situated determines the extent to which individuals can leverage their personal attributes to exit food stamps. Specifically, poor labor market characteristics, low local civic capacity, and communities with low activeness reduced the likelihood of recipients to exit. Most importantly, recipients situated in rural settings are always less likely to exit than those in metropolitan settings.

In conclusion, this research clearly shows that individual and contextual characteristics are important factors to predict exit from the food stamp program. However, this research does not reveal the extent to which the policy itself is a major factor in the dramatic declines in food stamp program participation. Furthermore, this research does not provide any information about processes behind food stamp decline. This suggests that econometric models must be supplemented with data from case studies.

Introduction

The healthy economy, along with the Personal Responsibility and Work Opportunity and Reconciliation Act of 1996 (PRWORA) has encouraged many low-income individuals to move off public assistance (Zedlewski and Brauner 1999). Since 1996, nationwide, there has been 20% drop in food stamp program participation and 34% drop in TANF assistance rolls. Some states have experienced even more dramatic declines, one of which is Mississippi with 40% and 60% drops in food stamp and TANF rolls, respectively (see Figure 1). While some of the individuals that have dropped do not need further public assistance, others do. The former are individuals able to take advantage of the healthy economy by moving into the workforce. They are typically more likely to be white, married, educated, skilled, and have at least one full-time earner in the household (Blank and Ruggles 1994; Blank and Ruggles 1996; Harris 1996; Zedlewski and Brauner 1999). On the other hand, individuals that do need assistance are ones who dropped because of barriers imposed by the Act. They are typically more likely to be African American, unmarried, low educated, employed in low-paid, part-time jobs, and eligible for the food stamp program (Nord, Jemison, and Bickel 1999). Most importantly, though they are eligible for assistance, these low-income individuals fail to participate in the food stamp program more than ever, because the PRWORA has added a new set of barriers to existing structural impediments (Zedlewski and Brauner 1999).

Traditional structural impediments include lack of transportation, stigma, limited support networks, and place of residence (rural versus urban) (Quandt and Rao1999; Ralston and Cohen 1994; Wolfe et al. 1996). On the other hand, PRWORA barriers include: (1) work requirements for able-bodied adults without dependents (ABAWD); (2) cuts for permanent resident aliens; (3) reduction of basic benefits; (4) establishment of new shelter deduction caps; and (5) sanctions of food stamp benefits for TANF sanctions (in 16 states, such as Mississippi, food stamp benefits can be cut by 25% as a result of TANF sanctions). Another barrier, that is a byproduct of the law, is ignorance. Often, in the perception of low-income individuals, there is no difference between welfare and food stamp eligibility. In general, the working poor believe that earnings may disqualify them for food stamps (Zedlewski and Brauner 1999).

Little is known of the dynamics of exiting food stamp programs in the era of welfare reform, and how those dynamics play in the context of rural-urban differences. Understanding these dynamics is particularly important for those states that have experienced dramatic drops. Of all the states, Texas and Mississippi are the only two states in the southern region that have experienced dramatic declines. Mississippi is the focus of this project. Though Mississippi's food stamp program rolls are shrinking, a large portion of the population are locked in poverty and in food insecurity. This warrants an analysis of the forces that determine food assistance program participation. However, there is a dearth of studies that explore factors that relate to exiting the food stamp program. Traditionally, assessment of participation in public assistance programs have been primarily focused on the dynamics of AFDC/TANF clients. We will use this literature to develop our theoretical model.

Theoretically, differences in welfare dynamics -- moving off and back on public assistance and length of spells of being off and on -- can be explained using two general models: the human capital model (Becker 1962; Becker 1964; Mincer 1962; Schultz 1961), and the community

model (Flora 1998; Putnam 1993a; Putnam 1993b; Sharp and Flora 1999; Wilkinson 2000). Scholars that embrace the human capital model argue that welfare dynamics are governed by

some other personal characteristics such as marital status, age, race, age of children, and numbers of children (Bane and Ellwood 1983; Blank 1989; Ellwood 1986; O'Neill et al. 1984; O'Neill et

that welfare dynamics are governed by both social and economic resources available to the place where the clients live (Edin and Lein 1996; Harris 1993; Harris 1996; Pickering 2000; Wilson

settings (Summers 1986; Wilkinson 2000). The type of geographic setting is critical because it creates the circumstances that shape the economic, demographic, and social context of a place,

Rank and Hirschl 1988).

Though the studies that do exist acknowledge the importance of individual, place, and

model. *In this project, a theoretical model is developed to integrate individual, place, and geographic characteristics that influence food stamp dynamics*. Though the term "dynamics" refers to exit and re-entry, our project will concentrate only on the factors that predict exit.

Theoretical Model

Our theoretical model integrates individual, place, and geographic characteristics to explain variability in food stamp exits. The general model is illustrated below in Figure 2. This model shows the expected influence of the geographic setting (rural or urban) on the community characteristics. Which in turn, may influence the extent to which clients with different attributes are able to exit food stamp programs.

Objectives

*The overall objectives are: **(1)** to assess how individual and community characteristics impact exits from food assistance programs across Mississippi's rural-urban landscape since the passage of the 1996 Welfare Reform Act; and **(2)** to assess the use of food assistance programs across racial groups.*

Research Design and Methods

The research design was driven by the theoretical model presented in Figure 2. First, we computed the probability of exiting the food stamp program across racial groups and across metro/nometro places of residence. Second, we documented the impacts of individual characteristics on exiting food stamps, and then estimated a contextual model of food stamp exits to assess the impact of economic and social resources, controlling for individual attributes.

Dependent Variable

The dependent variable is the probability of exiting food stamps. This variable was operationalized as a dummy variable, where 0 = No Transition and 1 = Transition. Data for this variable was obtained from the State of Mississippi Department of Human Services. They provided us with their monthly food stamp administrative data from October,1996 to date. These data consist of files updated monthly containing information about qualitative changes in terms of being on or off the food stamp program, along with other individual characteristics. The original FoxPro monthly data files from the Department of Human Services were cleaned and transformed into a format suitable for SPSS and SAS. A person/month/record file was developed using this data. First, in each of the monthly files, variables were renamed based on a linear month. Second, those files were merged into a single file. Third, this file was used to compute the cumulative probability of exiting food stamps.

Individual Characteristics

Regarding individual characteristics, six variables were developed. Their description, along with their sources, are reported in Table 1. All of the variables, with the exception of age and numbers of children, were measured on a nominal scale. Age and numbers of children were measured on a ratio scale. Sex was operationalized as a dummy variable where female was coded as 0 and male was coded as 1. Three sets of dummy variables were developed for race. Here, white was used a reference group. Similarly, three dummy variables were created for education. In this case, some college was used as a reference group. Marital status was dichotomized into not married equals zero and married equals one. The descriptive statistics are reported in Table 2.

Community Characteristics

Four general community characteristics were relevant to address our objective: (1) labor market characteristics, (2) local civic capacity, (3) local agency, and (4) local spatial characteristics. In this study, the unit of analysis is the county. Their description, along with their sources, are reported in Table 1.

Labor Market Characteristics. Four major characteristics were used to determine the impact of local characteristics on exiting food stamps. The first characteristic was industry structure, and it was measured as the percent of employment in extractive, manufacturing, services, and government. The second characteristic was concentration of poverty in compact areas within the county. This variable was measured as the percentage of the total poor people of the county living within the boundaries of concentrated areas around census defined places. For a full discussion, see Parisi et al.(2000). Two other measures were used to determine the role of women in the local economy: (1) percentage of females in the workforce, and (2) percentage of female-headed households.

Civic Infrastructure. Three measures were used to gauge the local civic infrastructure:

(1) small manufacturing business, (2) small service business, (3) self-employed, (4) middle class, and (5) church density. Small manufacturing was measured as the percentage of manufacturing businesses with less than 20 employees. Similarly, small service was measured as the percentage of service businesses with less than 20 employees. Self-employed was measure as the percentage of people that were self employed. Middle class was measured as the percentage of people earning an income between $30,000 and 50,000 dollars. Church density was measured as the number of churches per 1,000 population.

Local Agency. Local agency refers to the ability of a place to act on its own toward locally-oriented issues. As a result of the 1996 Welfare Reform Act, local communities were asked to take action toward three major issues: (1) job promotion, (2) workforce development, and (3) church involvement. Three activeness indices were used to measure local agency: job promotion activeness index, workforce development activeness index, and church activeness index (See Tables 3a, 3b, and 3c). These indices were recoded into low, moderate, and high action. Low action was between 0 and .33; moderate action between .34 and .66; and high action greater than .66. A full discussion of the data gathering procedure and the development of the activeness indices can be found in Parisi et al. (2000).

Local Spatial Characteristics. These characteristics were measured by developing a set of dummy variables to compare metro and nonmetro geographic settings. In Mississippi there are four major nonmetro settings: Delta, Northeast, Southeast, and Southwest. The dummy variable allows for the comparison of each setting to metropolitan areas.

Analysis

We conducted two analyses. The first analysis was to estimate the cumulative probability by race and place of residence. The second analysis was to determine the individual and community factors explaining the probability of exiting.

Cumulative Probability. Of food stamp recipients in Mississippi, 92 percent experienced three spells, and the remaining eight percent experienced between four and ten spells. Despite this, there was little variability in the shape of the curves of the cumulative probability of exiting across spells. As a result, we reported only the overall cumulative probability. The results of this analysis are reported in Figure 3. As shown in the figure, the probability of exiting is high in the first 13 months. Within this period, 70 percent exited food stamps. Between the 13^{th} and 24^{th} month, an additional 10 percent of recipients experienced an exit. After month 24, the probability of exiting diminished dramatically. Between the 24^{th} and 60^{th} months, an additional 10 percent experienced an exit from food stamps. The end result of this analysis is that, in the five years since welfare reform, 85 percent of recipients experienced at least one exit. When cumulative probability was examined by race, whites, as expected, experienced a higher probability of exiting food stamps than African Americans (See Figure 4). Similarly, when places of residence were compared, recipients in metro areas experienced a higher probability of exiting than their nonmetro counterparts (See Figure 5).

Logistic Regression Analysis.

Despite having the data for a five-year period since the passage of the Act, we limited our analysis to a one year period. We limited our study to this year for two reasons. The first is that the person-month file for 61 months is prohibitively large for any analysis on a PC. The second reason is that the majority of the recipients experienced at least one exit within the first thirteen months.

The analytical strategy is to estimate a discrete time model for transitions off food stamps. The general model is:

$$\left(\frac{P_{it}}{1 - P_{it}} \right) = e^{b_{0t} + b_i X_i}$$

where:

P_{it} = is the probability of recipients exiting during the time interval t, given the covariates and that they still are at risk of making the transition at the beginning of the interval.

β_0 = Estimated vector of log odds of the probability of exiting when the vector β_i equals 0;

β_i = Estimated vector of the log-odds of the probability of exiting for each unit change in the corresponding vector of independent variables;

Here, the log-odds $[\ln(P_{it}/1\text{-}P_{it})]$ of the probability of recipients exiting during the time interval t is a linear additive function of the vectors of the independent variables. However, because log-odds (logit) make little intuitive sense, this model can be transformed into the following multiplicative probability model:

$$\log\left(\frac{P_{it}}{1 - P_{it}} \right) = B_{0t} + B_1 X_i$$

This exponential relationship implies that, for every unit increase in the independent variable, there is a multiplicative effect on the odds of the probability of exiting.

The results of the analysis are reported in Table 4. The coefficients reported in the table are odds ratios. An odds ratio less than one implies a negative relationship, while one greater than 1 implies a positive relationship with transition off food stamps.

Model 1 includes only the individual characteristics. All the variables were found to be statistically significant except marital status. Males were found to be 4.5 percent more likely to transition off food stamps. Similarly, whites were found to be approximately 60% more likely to exit than blacks. On the other hand, other minorities were found to be 3.27 times more likely to exit than blacks. For age, it was found that older people were less likely to transition off food stamps. Results for education were mixed. Finally, recipients with children were found to be less likely to exit.

Model 2 adds the labor market characteristics. When these characteristics were included in the model, the size of the impact of sex and race changed slightly. The impact of age and number of children remained significant and the size of their impact remained the same. Though all but one (employment in manufacturing) of the labor market characteristics were significant, their impacts were nominal. Of the industry structure variables, percent employed in service and percent employed in government were found to be positively related to probability of exit. In contrast, employment in extractive industry was found to be negatively related. Similarly, the higher the concentration of poverty within a county, the lower the probability of exiting. Percent of females in the labor force was found to be positively related, but female-headed households was found to be negatively related. In sum, the labor market characteristics, to some extent, determine the impact of individual characteristics on probability of exit.

Model 3 adds the local civic capacity variables. All but self-employment and church density were found to be statistically significant. Of those significant, only small manufacturing businesses was negatively related. These characteristics had relatively little impact on the individual characteristics, and their impact on the probability of exiting was minimal.

Model 4 adds the local agency variables. All three variables were found to be statistically significant. However, only workforce development activeness index was found to be negatively related. Their overall impact on the probability of exiting is greater than local civic capacity and local labor market characteristics.

Model 5 adds the local spatial characteristics. Recipients in the metro region were found to be more likely to exit than recipients in nonmetro regions. Of the four nonmetro regions, those in the Delta were least likely to exit.

Summary and Conclusion

Welfare reform has forced the scientific community to look into new conceptual and empirical frameworks for examining low income populations. This project goes beyond prior

theory by integrating the influence of individual, place, and geographic setting characteristics on food stamp dynamics into a single model. Analytically, this model allows one to test whether place resources influence food stamp dynamics. Specifically, it allows one to gauge the impact of spatial inequality, in terms of economic resources and social resources across rural and urban populations.

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Table 1: Variable Description and Source

Variable	Description	Source
Individual Characteristics		
Percent off Food Stamps	0= No transition, 1=Transition	MDHS[1]
Sex	0 = Female, 1 = Male	MDHS
Race	White, Black, Other (white reference group)	MDHS
Age	Number of years	MDHS
Education	Less than high school, high school, some college	MDHS
Marital Status	0 = Not married, 1 = Married	MDHS
Children	Total number of children	MDHS
Community Characteristics		
Labor Market Characteristics		
Extractive	Percent employed in extractive	REIS[2]
Manufacturing	Percent employed in manufacturing	REIS
Service	Percent employed in service	REIS
Government	Percent employed in government	REIS
Poverty	Percent of total poverty within concentrated areas in the county	Census[3]
Females in the Workforce	Percent of females in the workforce	Census
Female Headed Households	Percent of households headed by females	Census
Local Civic Capacity		
Small Manufacturing	Percent of manufacturing businesses with less than 20 employees	ABD[4]
Small Service	Percent of service businesses with less than 20 employees	ABD
Self-Employment	Percent self employed	Census
Middle Class	Percent with income between $30,000 and $50,000	Census
Church Density	Number of churches per 1000 Population	USDC[5]
Local Agency		
Job Promotion	Activeness index for job promotion in the community	UCES[6]
Workforce Development	Activeness index for workforce development	UCES
Church Activeness	Activeness index for churches	UCES
Local Spatial Characteristics		
Region	Dummy variables for Metro, Delta, Northeast, Southeast, Southwest	UCES

(1) 1997-2001 Mississippi Department of Human Services
(2) 1997 Regional Economic Information Service
(3) 1990 Decennial Census Data
(4) 1998 American Business Directory
(5) 1997 U.S. Department of Commerce

(6) 2000 Unit for Community and Environmental Studies, Social Science Research Center, Mississippi State University

Table 2: Descriptive Statistics

Variables	Mean	SD	Minimum	Maximum
Percent off Food Stamps	32.99	-	-	-
Individual Characteristics				
Sex				
Percent Male	28.00	-	-	-
Percent Female	72.00	-	-	-
Race				
Percent African American	70.00	-	-	-
Percent White	29.30	-	-	-
Percent Other	0.70	-	-	-
Age	41.95	19.37	18.00	98.00
Education				
Percent Less than High School	84.00	-	-	-
Percent High School	12.00	-	-	-
Percent College	4.00	-	-	-
Marriage	15.50	-	-	-
Children	1.24	1.42	0.00	14.00
Labor Market Characteristics				
Employed in Extractive Industry	1.79	1.85	0.00	10.79
Employed in Manufacturing	18.30	9.67	0.00	46.99
Employed in Services	26.74	8.73	2.66	80.95
Employed in Government	17.85	5.76	3.51	40.43
Poverty Concentration	63.82	16.24	11.08	91.85
Females in the Work Force	50.71	5.41	37.92	60.51
Female Headed Households	16.79	4.96	7.81	29.61
Local Civic Capacity				
Small Manufacturing	2.28	0.73	0.00	5.86
Small Service	35.75	3.45	5.88	43.67
Self-Employment	7.24	1.38	3.96	11.74
Middle Class	19.33	4.42	10.25	30.79
Church Density	3.70	2.01	0.41	13.10
Local Agency				
Job Promotion	2.03	0.85	1.00	3.00
Workforce Development	1.99	0.81	1.00	3.00
Church Activeness	2.10	0.79	1.00	3.00
Local Spatial Characteristics - Region				
Metro	25.70	-	-	-
Delta	25.25	-	-	-
Northeast	22.70	-	-	-
Southeast	13.30	-	-	-

Southwest	13.10	-	-	-

Table 3a: Since 1990, have any organized groups, agencies, or citizens in your community taken any of the following actions to attract jobs? (Yes, No, Don't Know)

Action	Factor Score
Developed program(s) to expand business and industry	.752
Developed program(s) to keep business and industry	.772
Developed information program(s) about the community for business and industry investors	.718
Built an industrial park	.638
Remodeled an existing building or manufacturing plant	.632
Changed zoning to increase land for commercial and industrial use	.680
Improved roads	.639
Developed program(s) to inform people about local jobs	.711
Issued bonds for community improvements	.699
Promoted downtown shopping	.776
Improved the appearance of shopping areas	.711
Developed intervention program(s) to reduce crime	.633
Gained access to the Internet	.525
Developed a web-site	.681
Other	.019

Eigenvalue: 6.6; Percent variance explained: 44.00; Alpha: .91

Table 3b: Since 1990, have any organized groups, agencies, or citizens in your community taken any of the following actions to improve the quality of the local labor force? (Yes, No, Don't Know)

Action	Factor Score
Developed professional job training program(s)	.793
Developed adult literacy program(s)	.799
Developed program(s) to encourage new local businesses	.801
Developed program(s) to reduce high school dropouts	.884
Developed program(s) to improve public education of youth	.864
Developed or expanded special programs for youth	.798
Developed program(s) to strengthen the partnership between business and local schools	.848
Other	.028

Eigenvalue: 4.8; Percent variance explained: 59.7; Alpha: .90

Table 3c: Since 1990, have churches in your community been actively involved in delivering the following services? (Yes, No, Don't Know)

Action	Factor Score
Food assistance	.601
Home care assistance	.759
Job Assistance	.772
Youth programs	.652
Tutoring	.788
Child care	.706
Consulting	.827
Rent/Utility payments	.678
Other	.212

Eigenvalue: 4.3; Percent variance explained: 47.4; Alpha: .86

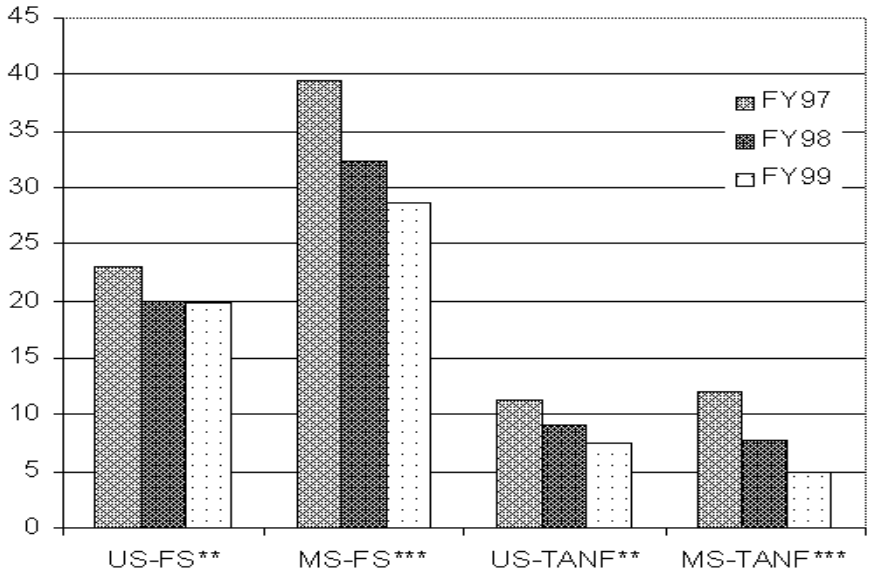
Table 4: Logistic Regression Analysis of Individual and Contextual Characteristics on Food Stamp Transition

Variables	(1)	(2)	(3)	(4)	(5)
	Odds	Odds	Odds	Odds	Odds
Intercept	3.085***	2.537***	1.994***	2.984***	3.306***
Individual Characteristics					
Sex (Reference: Female)	1.955***	1.963***	1.967***	1.965***	1.967***
Race (Reference: African American)					
White	1.401***	1.365***	1.387***	1.375***	1.354***
Other	3.272***	3.111***	3.148***	3.109***	3.083***
Age	0.962***	0.962***	0.963***	0.962***	0.962***
Education (Reference: Some College)					
Less than High School	1.105***	1.116***	1.120***	1.113***	1.124***
High School	0.771***	0.773***	0.776***	0.774***	0.775***
Marriage	0.980	0.981	0.987	0.981	0.980
Children	0.829***	0.829***	0.829***	0.830***	0.829***
Labor Market Characteristics					
Employed in Extractive Industry	-	0.994*	-	-	-
Employed in Manufacturing	-	1.001	-	-	-
Employed in Services	-	1.008***	-	-	-
Employed in Government	-	1.006***	-	-	-
Poverty Concentration	-	0.995***	-	-	-
Females in the Labor Force	-	1.005***	-	-	-
Female Headed Households	-	0.996***	-	-	-
Local Civic Capacity					
Small Manufacturing	-	-	0.973***	-	-
Small Service	-	-	1.009***	-	-
Self-Employment	-	-	1.002	-	-
Middle Class	-	-	1.007***	-	-
Church Density	-	-	1.001	-	-
Local Agency					
Job Promotion	-	-	-	1.086***	-
Workforce Development	-	-	-	0.890***	-
Church Activeness	-	-	-	1.042***	-
Local Spatial Characteristics					
Region (Reference: Metro)					
Delta	-	-	-	-	0.829***
Northeast	-	-	-	-	0.882***
Southeast	-	-	-	-	0.954**
Southwest	-	-	-	-	0.949***
-2 Log Likelihood	257957.827	256436.922	256420.320	254916.920	256575.624

***p<.001, **p<.01, *p<.05

[+]The parameters reported in the table are odds ratios. An odds ratio less than one indicates a negative relationship with probability of exit, and an odds ratio greater than one indicates a positive relationship.

Figure 1: Food Stamp and TANF Caseloads: FY97 - FY99*



* All data refer to the average monthly number of particpants during the fiscal year.

**Data from USDA, Food and Consumer Service and USDHHS, Administration for Children and Families (in millions).

***Data from Mississippi Department of Human Services (in tens of thousands).

Figure 2: Theoretical Model

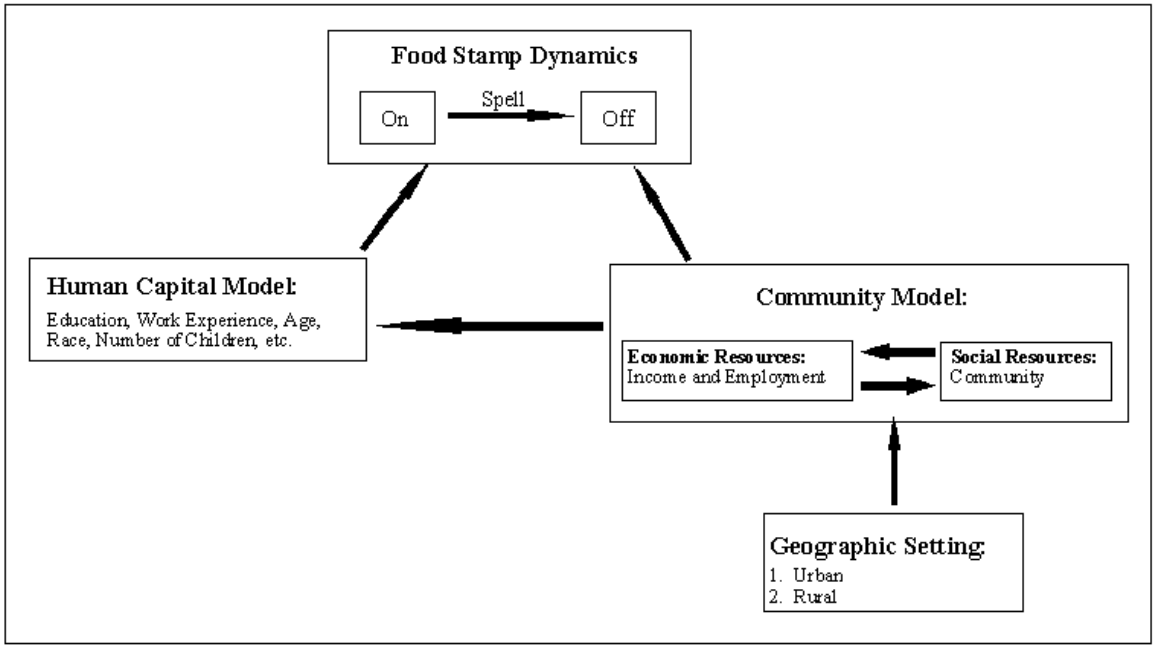


Figure 3: Overall Cumulative Probability of Exit

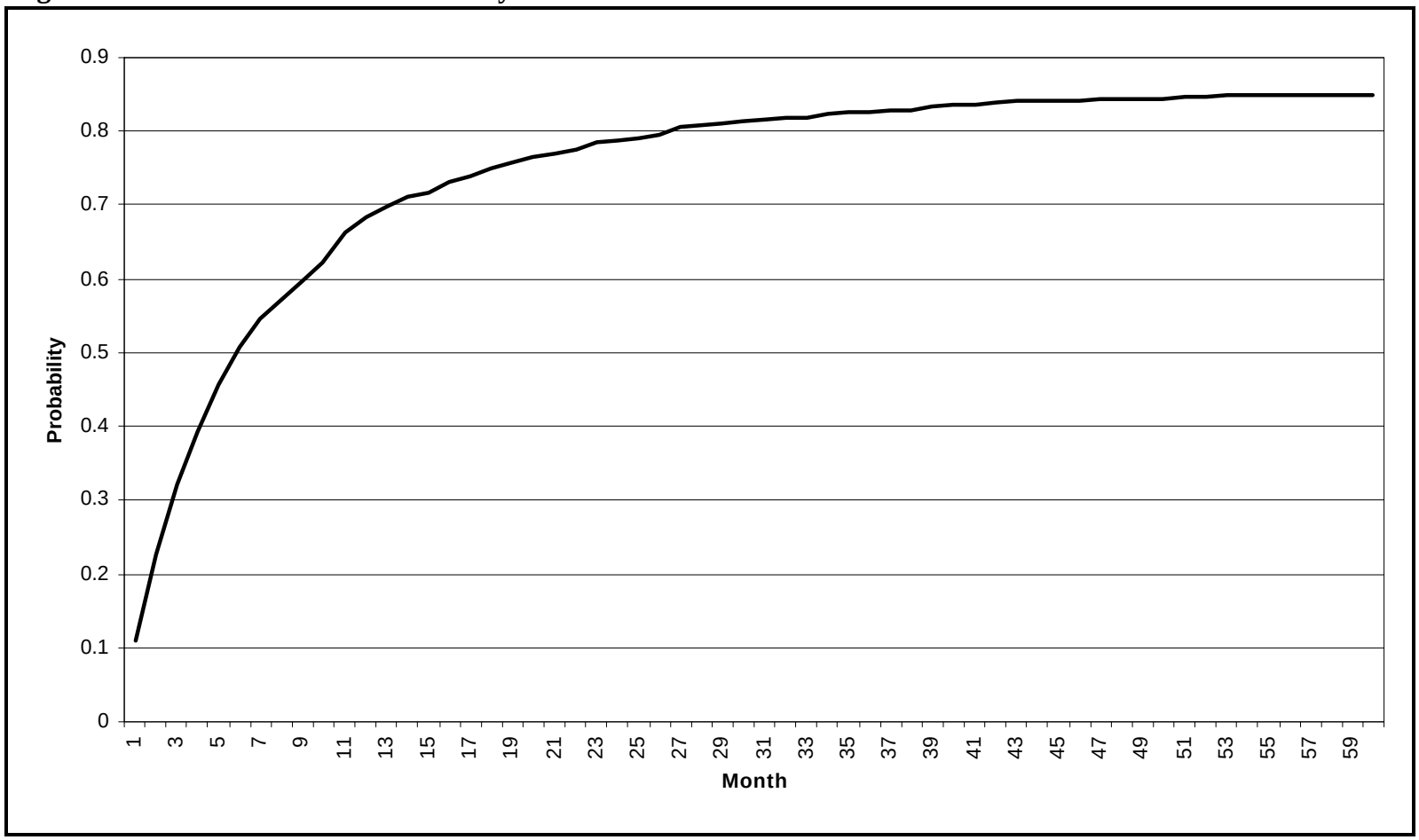


Figure 4: Cumulative Probability of Exit by Race

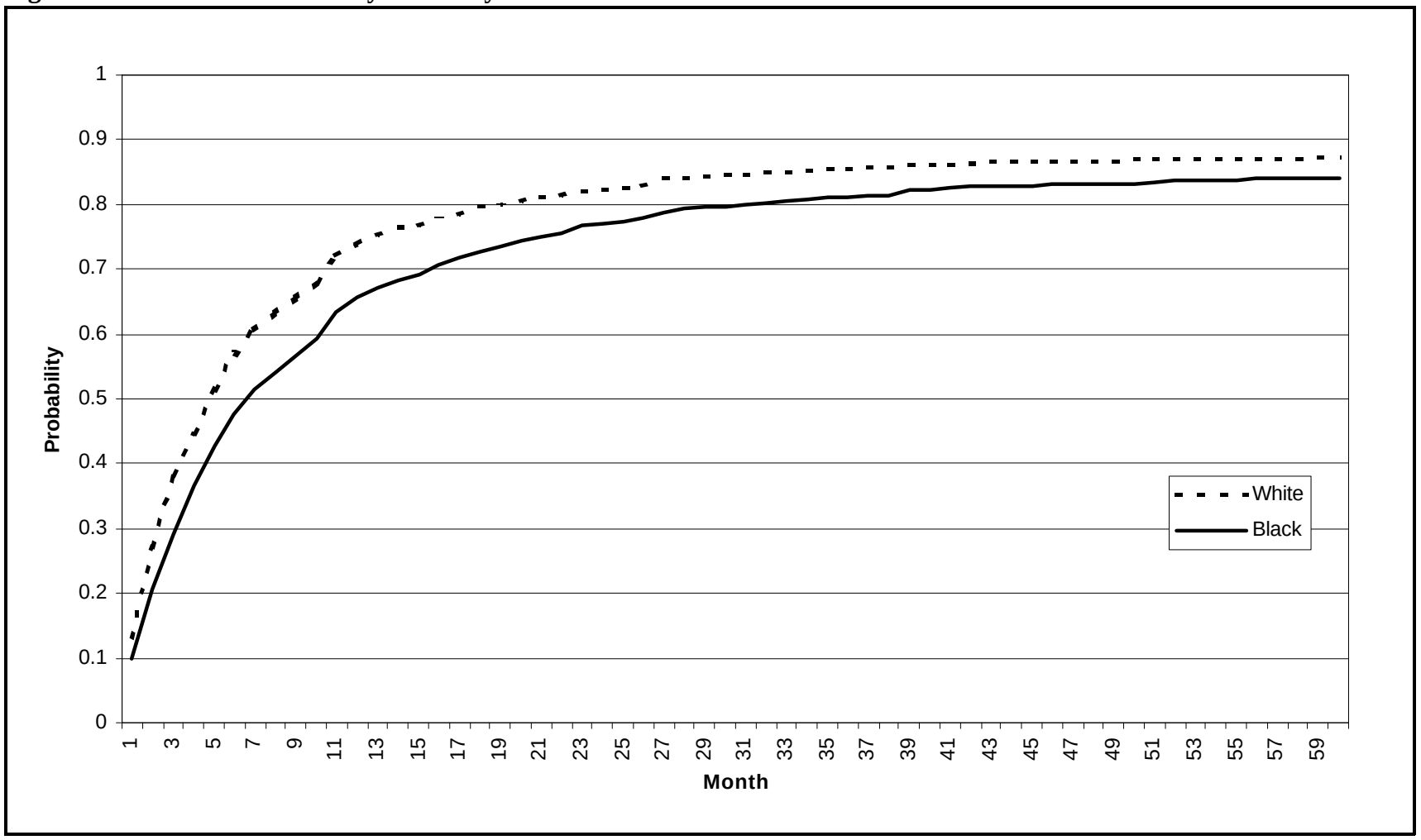


Figure 5: Cumulative Probability of Exit by Place of Residence