Working poverty in Michigan, 1998/1999 and 2007/2008: Changes in the magnitudes and policy and socio-demographic determinants

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Abstract

Michigan has undergone enormous labor market changes since the 1990s affecting employment, income, and poverty. This paper examines changes in poverty among working families and their policy-related and socio-demographic determinants between 1998/1999 and 2007/2008 in Michigan. Findings suggest the rates of 'poverty' and 'near poverty' to be between 5 and 19% among working families, with slightly higher rates for the latter period. Public transfers combining taxes and means-tested supports, albeit making some impact among poor families with children, were unable to lower these rates. While the major socio-demographic characteristics of poverty and near poverty including large families with children and young, never married, single mother, and immigrant householders apply to working families, the roles of gender, race, marital status, and education manifest through many policy-related variables such as work hours, wages, and transfer incomes. These findings have important implications for understanding working poverty in Michigan and beyond.
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1. Introduction

In the midst of the ongoing economic meltdown, no other state in the USA can be more appropriate than Michigan to examine working poverty—poverty among families with working adults. Michigan's economy was one of the most vibrant historically with a strong manufactur-

ing sector led by its booming automotive industry. Its per capita incomes were higher than the US averages up until the late 1990s, after which they began to lag increasingly behind. Recent years have brought enormous setbacks in its economic performance with stagnant and mostly negative income growth, widening its gulf with the US per capita income. The growth in real per capita income during 1998–2007 averaged 6% in Michigan compared to 17% in the US (US Census Bureau, 2009). During the same period, the state unemployment rate increased 85% (and 110% by 2008) compared to 2% (and 29% by 2008) in the US (US Department of Labor, 2009). While the declining manufacturing sector is a national phenomenon with ever-increasing deindustrialization in the US, the magnitude of decline and its spillover especially owing to the shrinking automobile industry have been daunting in Michigan. The manufacturing employment in the state, for example, shrank 33% during this decade alone, compared to 21% in the US.

These changes have affected no other population group more adversely than those at the bottom stratum of skills and earnings. No doubt, rising unemployment is a growing concern in Michigan as it prevents the economically active population from entering the labor market and earning incomes necessary to escape poverty. For those with jobs, too, rampant unemployment causes downward pressure on wages and bleak prospect for job mobility especially among workers with fewer skills. An unprecedented decline in relatively well-paying manufacturing jobs has already hit the toll in labor market earnings as these have been at best replaced by nonmanufacturing, retail, or service jobs. For those stuck with low human capital and weak social networks, declining manufacturing jobs are making it difficult to find jobs or jobs with decent pay. Consequently, the overall earning prospect has deteriorated with a growing number of people employed and yet unable to make ends meet.

Financial hardships of families with stable labor market attachment may rise or fall with business cycles. During the economic boom of the 1990s, for example, the expanded labor demand suppressed unemployment and helped increase earnings. The current economic meltdown, in contrast, has contracted labor demand, increasing unemployment and flattening earnings especially for low-wage workers. Explaining changes in working poverty involves more than business cycles, however. A report showed that the rate of poverty among full time year round workers stabilized at 2 or 3% during much of the 1970s, 1980s, and 1990s, despite major changes in employment and economic growth (Barrington, 2000). The upward trending working poverty incidence during the major economic expansion of the 1990s suggests that low-wage workers did not necessarily share the benefits of economic growth (Barrington, 2000; Ehrenreich, 2001). This is also consistent with the statistics reported by the US Department of Labor (2000, 2007) showing poverty among population in working families to be between 5 and 6% during 1995 and 2005.

Labor market factors such as inequality, technology, and labor force composition play crucial roles in determining the earnings of the low-wage workers and their poverty status (Blank, Danziger, & Schoeni, 2006). The gulf between the productivity of skilled and unskilled or semiskilled workers has widened, increasing skills-premium and fueling wage disparities (Acemoglu, 2002; Cormier and Craypo, 2000; Danziger & Gottschalk, 1995; Danziger & Gottschalk, 2005; Galbraith, 1998). Public policies on minimum wage, welfare reform, and Earned Income Tax Credit (EITC) have affected the labor force participation, work, and earnings of low-wage workers. The past two decades have seen falling real minimum wages together with major welfare reform underscoring work and expanding means-tested supports helping to

increase economic well-being among low-wage workers (Blank, Card, & Robins, 1999; Blank et al., 2006; Hassett & Moore, 2006; Iceland & Kim, 2001; Newman & Chin, 2003; Zuberi, 2006). A policy shift has occurred from support for the poor to that for the working poor reinforcing the idea of valuing work and decreasing welfare dependency (Glennerster, 2002; Sawhill, 2003). Changes have also occurred on the supply side of labor with the labor force becoming more diverse socially and demographically (Blank et al., 2006; Blank & Shierholz, 2006; Borjas, 2006; Danziger, Corcoran, Danziger, & Heflin, 2000; Meyer & Rosenbaum, 2001). A more socio-demographically diverse workforce puts downward pressure on wages at a time with rising unemployment making poverty more likely among a wider range of workers and families. Many studies have found the working poor to be less educated, minority, single mothers with young children (Edin & Lein, 1997; Gleicher & Stevens, 2005; Joassart-Marcelli, 2005).

This study examines the magnitudes and socio-demographic characteristics of poverty among families with at least one full-time worker in Michigan during the relatively prosperous times of 1998/1999 and more difficult times of 2007/2008. Whereas the worsening economic climate is sure to increase working poverty, how is this disadvantage distributed among the various socio-demographic groups of working families? Poverty among full time working families is not an issue of a lack of jobs and thus is likely to be lower than that among the general population. But how big a problem is working poverty in Michigan? Who are the working poor? What are the policy-related characteristics of working poverty? To what extent have the transfers designed to support working families helped reduce poverty? And how, if any, did these observations change between 1998/1999 and 2007/2008? Empirical examination of these questions will add to the growing literature providing an insight into the workings of working poverty and their socio-demographic and policy implications at a time, in which the labor market and public transfer have not been able to alleviate poverty among a growing number of low-wage workers. No doubt, the unique challenges facing Michigan indicate that the findings may not be directly applicable to other states. Yet, they highlight changes in working poverty between two important points in the economic cycle with implications for our understanding of who the working poor are and how the labor market and public policies affect them.

This paper is organized as the following. The data used in the analysis and related operational issues are discussed in the next section. Section 3 reports the magnitudes of working poverty and the roles of public transfer using family incomes before and after transfers and alternative poverty thresholds. Various Logit models are estimated and reported in Section 4, identifying the roles of different policy-related and socio-demographic characteristics in determining poverty status of working families. Sections 5 and 6 discuss the findings in the larger theoretical context and the final section concludes with some policy implications.

2. Data and operational issues

This analysis uses Michigan subsamples of the Annual Social and Economic Supplements of the Current Population Survey. Given that these statewide subsamples can be relatively small, the idea is to combine the 1998 and 1999 data and the 2007 and 2008 data creating more comprehensive samples. Families, defined as households or subunits of households,[1] are treated

as the units of analysis. Although families are deemed to share resources within households, members within families are related by birth, marriage, or adoption, making resource-sharing more substantively meaningful and justifying the relevance of a family level analysis.

Poverty measurement is a complex policy issue with different methodologies yielding different outcomes. While income is the most dominant basis used to measure poverty,[2] different concepts of income can be applied. The official approach adopted by the US Census Bureau (2004) uses gross income including all cash incomes from private and public sources as the basis of poverty measurement. Sources of cash income include wages and salaries, self-employment, retirement, dividend, rent, interest, and other private and public transfer including social insurance and social assistance. Because these incomes do not fully capture one's access to financial resources, this analysis also uses incomes after taxes and transfer as an alternative form of income. The cash and near-cash transfers used to derive the after transfer income include such means-tested public assistance as federal EITC,[3] Food Stamps, school lunch, and housing subsidies. Various payroll taxes including the federal and state income tax, Social Security tax, and Medicare tax are also deducted to derive the final values of income after transfer.[4]

To identify families in poverty, I apply the official as well as adjusted poverty lines of income. The official poverty lines developed and updated by the US Census Bureau (2008) identify the amounts of income needed for families of various sizes and types to be considered nonpoor. Despite their widespread use, researchers, policymakers, and administrators recognize that these poverty lines poorly reflect a basic living standard (Blank, 2008; Citro & Michael, 1995; Wagle, 2008a,b). Recognizing this inadequacy, many federal and state agencies use their 125, 150, 200, or even greater percent adjustments to measure poverty of various degrees (NCSL, 2009; US Census Bureau, 2008; US DHHS, 2007). To be consistent, this analysis uses 200% adjustment as an alternative poverty line so that the measurement outcomes can be compared between 'near poverty' and 'poverty.' This is relevant especially in case of working families typically spending large portions of their income on childcare, transportation, out of pocket medical expenses, and other work-related expenses (Citro & Michael, 1995; Edin & Lein, 1997; Harvey & Mukhopadhyay, 2006; Iceland & Kim, 2001).

A related issue concerns defining working families. The US Department of Labor (2000, 2007) defines 'working' as being in the labor force either working or looking for work for at least 27 weeks. For the purpose of poverty measurement, however, one can normatively expect poverty not to be present among families with at least one member working full time year round. Adopting the US Census Bureau (2004) definition of full time year round work, I define 'working' as working 35 h or greater per week for at least 50 weeks.[5] Families with at least one full-time worker are categorized as 'working families.' Given the implications of working full time year round on wages and benefits including health insurance and paid vacation, two or more adults making up an equivalent of this amount is not counted as working full time. While this definition excludes many families with comparable hours of work—even more in cases with two or more adults working part time—the idea is to focus on families that are no less than 'playing by the rule' so that the findings would be based strictly on families that have stable labor market attachment.[6] Individuals younger than 18 and older than 64 are normally considered economically inactive and thus are excluded from working adults. The latter criterion has further implications for this analysis since all families headed[7] by members aged 65 and older are dropped creating a slightly more restrictive sample size.[8]

Table 1
Poverty headcount ratios (values as percentages unless indicated otherwise).

Groups	1998/1999	2007/2008	Change
% of the families poor			
N (poor and nonpoor)	2390	2488	–
Official poverty line and gross income	6.14	5.81	−5.37
200% official poverty line and gross income	17.7	18.85	6.50
Official poverty line and income after transfers	7.97	6.50	−18.44
200% official poverty line and income after transfers	26.18	25.23	−3.63
% of the population poor			
N (poor and nonpoor)	6392	7138	–
Official poverty line and gross income	4.56	5.00	9.65
200% official poverty line and gross income	16.82	18.35	9.10
Official poverty line and income after transfers	5.12	4.10	−19.92
200% official poverty line and income after transfers	24.34	23.95	−1.60
% of the children under 6 poor			
N (poor and nonpoor)	648	731	–
Official poverty line and gross income	8.28	9.72	17.39
200% official poverty line and gross income	27.65	30.36	9.80
Official poverty line and income after transfers	7.11	6.54	−8.02
200% official poverty line and income after transfers	38.90	36.10	−7.20

3. Magnitudes of poverty and the role of transfer

The magnitude of poverty varied over the period, with some of these variations stemming from the application of different poverty lines and/or definitions of income. As reported in Table 1, between 5 and 24% of the population was poor and near poor during 1998/1999 in Michigan representing 6–26% of the working families headed by members aged 18 and 65, depending on the specific poverty lines used. These figures increased by up to 10% by 2007/2008. Poverty was more prevalent among children (up to 39%) in 1998/1999 which increased by up to 17% or declined by up to 8% during the decade depending on the income definitions and poverty thresholds used. Given that families with at least one full-time worker typically earn higher labor market incomes, their poverty headcount ratios are expected to be smaller than those for the entire population—which ran between 12 and 15% during the period (not reported).[9] But the statistics that 6% of the families were poor as indicated by the application of gross income and official poverty line suggests that the wages derived from the labor market have failed to prevent poverty among a large portion of working families. Even more disturbing is the greater rate of poverty among these families when after transfer incomes are applied. Although many low-income working families qualify for some cash and/or near-cash transfers including the EITC and Food Stamps, their tax burdens especially for Social Security and Medicare tend to outweigh those of the transfers received, making an even larger number of families poor.

Greater rates of near poverty are the norm when the less stringent, 200% adjusted poverty lines are used showing the proportion of families that are barely above poverty but in no way living comfortably. Doubling of the official poverty lines appears to more than triple the poverty incidence indicating that many families considered nonpoor by the official poverty lines are right at their margin and thus not much better off. Close to 18% of the families would be

Table 2
Overlap in poverty status between gross and after transfer incomes (values as number of families).

Poverty lines		After transfer income					
		1998/1999			2007/2008		
		Nonpoor	Poor	Total	Nonpoor	Poor	Total
Gross income							
Official poverty line	Nonpoor	2,199	57	2,256	2,298	42	2,340
	Poor	15	119	134	36	112	148
	Total	2,214	176	2,390	2,334	154	2,488
200% adjusted poverty line	Nonpoor	1,777	206	1,983	1,840	160	2,000
	Poor	2	405	407	6	482	488
	Total	1,779	611	2,390	1,846	642	2,488

considered near poor using this criterion on gross income, with that number reaching over 25% when transfers are incorporated. It is reasonable to expect the near poor to contribute greater amounts of their income in payroll taxes than do the poor—in fact poverty rates increase by over 30% between the gross and after transfer income for the near poor compared to 12% for the poor. But the fact that a large proportion of the low-income working families became poor and especially near poor because of transfers indicates that the workings of the labor market and policy incentives are not right and as expected in Michigan. This makes even stronger the case for a refundable tax credit, which Michigan enacted in 2006.

Table 2 helps understand this role of transfer by providing the amount of overlap in the number of families that are near poor or poor and nonpoor. Interestingly, the poverty-enhancing role of the transfer is far greater than its poverty-reducing role. In 1998/1999, for example, transfers helped about one-half of 1% of the working families escape poverty using the official poverty lines while causing poverty among close to two-and-half percent of the working families. Using the 200% adjusted poverty lines, moreover, less than one-tenth of 1% of the families were lifted out of near poverty compared to close to 9% of the families that were forced into near poverty because of the transfer. Although the proportion of families that became poor and near poor after transfers are incorporated declined slightly, the 2007/2008 continued to see these poverty enhancing effects of transfer. It is true that transfers are provided to help improve the living standards of vulnerable groups including the unemployed, underemployed, and elderly, which are not included in this analysis. But even the EITC supports, intended to remove the burden of Social Security payroll tax deduction for low-income families with children (Hoffman & Seidman, 2003) and shown to reduce working poverty in general (Hassett & Moore, 2006; Iceland & Kim, 2001), were not adequate to help meaningfully reduce poverty.

Table 3 reports additional statistics focusing specifically on near poor and poor families and those whose poverty statuses were directly affected by transfers. For all poor families, the transfer amounts available were not enough to even compensate their payroll tax burdens. The increased burdens due to transfer were as high as 60% of the applicable poverty lines further increasing their poverty gaps. The decade observed slightly improving transfer situation that helped to lower these tax burdens even though the improvements were not sufficient to meaningfully reduce poverty gaps. The bottom part of the table, moreover, focuses on families that were affected by transfer to the extent of altering their poverty statuses. For a few families

Table 3
Income and transfer relative to poverty line incomes for various poor families (values are percentages of the applicable official poverty lines unless indicated otherwise).

Family groups	1998/1999				2007/2008			
	N	Gross income	Transfer[a]	Income after transfer	N	Gross income	Transfer[a]	Income after transfer
All poor families								
Official poverty line and gross income	134	44.45	−4.52	39.92	148	51.94	1.78	53.62
200% official poverty line and gross income	407	116.66	−16.47	100.19	488	124.61	−9.61	115.98
Official poverty line and income after transfers	176	99.72	−60.48	39.24	154	75.86	−37.73	38.13
200% official poverty line and income after transfers	611	166.43	−45.00	121.43	642	152.20	−24.19	128.01
Specific poor families								
Poor on gross income and nonpoor on income after transfer (official poverty line)	15	92.02	19.11	111.13	36	83.31	38.20	121.51
Poor on gross income and nonpoor on income after transfer (200% official poverty line)	2	186.56	22.30	208.85	6	168.58	37.71	213.58
Nonpoor on gross income and poor on income after transfer (official poverty line)	57	227.63	−171.08	56.56	42	166.90	−111.88	55.02
Nonpoor on gross income and poor on income after transfer (200% official poverty line)	206	264.97	−100.72	164.25	160	236.97	−66.63	170.34

[a] Positive values indicate transfers received and negative values indicate transfers paid.

that were at the margin of poverty line incomes, the transfer supports received helped increase income and escape poverty. For a sizable number of families, however, the taxes paid were so large—greater than 100% of the applicable poverty lines—that their nonpoor poverty status altered, thereby effectively pushing their income below the applicable poverty lines. Over time, while the size of the taxes paid declined considerably, the reductions were not enough to retain their pretransfer, nonpoor poverty status.

How have the changing labor market conditions affected these poverty dynamics during the last decade? First, the mostly negative changes in the poverty headcount ratio reported in Table 1 serve as evidence contrary to the expectation that the challenging labor market conditions in Michigan may have increased working poverty. At a first glance, poverty incidence declined by up to 18% among working families. At the individual level, however, poverty increased by gross income measures which were then reversed by the declines in poverty by after transfer incomes. Among children, poverty increased greatly—as high as 17%—before transfer incomes are included indicating that families with children may have been the hardest hit by the changing labor market conditions. Once transfer incomes are included, however, the rate of child poverty declined during the period. On the whole, the declining poverty rates among working families, coupled with increasing rates among individuals and children especially on pretransfer income, suggest that increasing numbers of small, child-less families may have been among those doing better during the period.[10]

Second, the period witnessed a slightly greater impact of transfer on reducing poverty. No doubt, poverty increased by almost all measures before transfer incomes are included. But poverty for families, individuals, or children either declined or did not increase when after transfer incomes are used. The actual impact of transfer on poverty headcount ratio, however, did not change during the period with ratios of working families that were made poor and lifted out of poverty in the 2007/2008 period remaining almost the same as those during 1998/1999. Partly, this is consistent with the overall policy situation since the period did not observe any major change in the EITC, Food Stamp, housing subsidy, and school lunch policies. But this may indicate that the utilization of these policy supports also remained largely unchanged reinforcing the idea that the impact of transfer did not vary greatly over time.

4. Policy and socio-demographic determinants of working poverty

While the size of the poor relative to working families depends on the specific poverty lines and income definitions used, it is important to understand why some of these working families may have remained near poor or poor. Albeit seemingly obvious, the lowness of wages does not fully explain poverty among working families which are of various sizes and structures.[11] The following Logit model incorporates the roles of various policy-related and socio-demographic variables, helping to understand how they affect poverty status and how their effects may have changed over time:

$$Pr(Y = 1|\mathbf{x}\&\mathbf{z}) = F(\beta + \Lambda\mathbf{x} + \Gamma\mathbf{z}) = \frac{1}{1 + e^{-(\beta + \lambda_1 X_1 + \lambda_2 X_2 + \ldots + \lambda_k X_k + \gamma_1 Z_1 + \gamma_2 Z_2 + \ldots + \gamma_k Z_k)}}$$

where *Y* is the poverty status of families ($Y = 1$ if poor and 0 otherwise) and *x* and *z* are the vectors of socio-demographic and policy-related variables ($X_1, X_2, \ldots, X_k$ and $Z_1, Z_2 \ldots Z_k$). This technique is useful here given that the goal is to identify what factors are associated the increased or decreased likelihood of poverty and near poverty among working families. Rather than getting to the actual probability, however, the model outputs provide the coefficients or effect of each variable on changing the log of the odds of being poor, which moves in the same direction as the probability of being poor.

The relevant policy-related variables include combined hours of work, average rates of wages and salaries (derived from employment and self-employment earnings), and transfer incomes as the aggregate of taxes paid and public transfers received.[12] Albeit measured at the family level, these variables are partly determined by the specific policy interventions. Work hours and wages, for example, depend on the existing childcare, transportation, minimum wage, and transfer policies as families, and especially low-income families, often weigh in their decisions in terms of the advantages and disadvantages of working versus receiving public transfer (Duncan, 2000; Moffitt, 1992, 2002). The socio-demographic variables include such family characteristics as family size, number of children under six, and single motherhood and such characteristics of family householders as age, gender, race, marital status, nativity, and education. If theoretical observations from the general poverty literature are to hold in Michigan, the effects on the likelihood of poverty of the policy-related variables are expected to be negative and those of the socio-demographic variables including unmarried, young, female, less educated, migrant, and minority householders and large, single mother families with children to be positive.

Various Logit models are estimated to determine the likelihood of poverty for working families. Given the inclusion of families headed by working age adults (between 18 and 65) and those with at least one member working full time, the models are likely to produce results that are free from self-selection bias. For both time periods, these models are estimated using poverty status based on official and adjusted poverty lines on both gross and after transfer incomes as the dependent variable.

Table 4 reports estimates from the models using the 1998/1999 data. The models show relatively strong predictive power given the inclusion of both policy-related and socio-demographic variables.[13] The overall predictive powers are comparable across models despite a considerably lower ability of the models using the official poverty lines to accurately predict poverty status. The coefficient estimates are largely consistent across models especially for the policy-related variables, which may also have been instrumental in determining the log of the odds of poverty status. Unsurprisingly, increasing work hours and the rates of wage and salaries significantly reduce log of the odds of poverty for families irrespective of the poverty lines or income definitions. Greater transfer income, however, tends to significantly increase log of the odds of poverty using official poverty lines on gross income with other models not detecting its significant role.[14]

The estimates suggest somewhat consistently positive roles of some socio-demographic variables including family size and children under six and significantly negative roles of age and some college education. What is surprising is that many of the socio-demographic characteristics such as never married, divorced/separated, high school education or less, Black, foreign born, and single mother widely understood to affect the likelihood of poverty (Danziger & Gottschalk, 2005; Gleicher & Stevens, 2005; Iceland, 2003; Meyer & Rosenbaum, 2001;

Table 4
Logit estimates of working poverty, 1998/1999.

Family and householder characteristics	Gross family income				Family income after transfer			
	Official		200% official		Official		200% official	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Policy-related variables								
Total family work hours (log)	−2.797	0.527**	−4.897	0.395**	−1.052	0.323**	−3.271	0.262**
Rates of wages and salary	−1.129	0.107**	−0.832	0.054**	−0.591	0.045**	−0.512	0.027**
Transfer income (log)	0.159	0.063*	0.030	0.063	−0.008	0.048	−0.069	0.050
Socio-demographic variables								
Age	−0.002	0.019	−0.041	0.012**	−0.015	0.013	−0.034	0.009**
Marital status								
Never married	−0.648	0.528	−1.159	0.352**	0.108	0.367	−0.328	0.252
Divorced/separated	−1.275	0.558*	−0.595	0.354	0.099	0.375	0.099	0.251
Widowed	−3.176	2.152	−0.050	0.810	0.155	0.976	−0.023	0.573
Female	−0.674	0.431	−0.530	0.244*	−0.379	0.269	−0.125	0.177
Education								
Less than high school	0.353	0.457	−0.134	0.314	0.381	0.318	0.076	0.258
Some college	0.123	0.434	−0.503	0.249*	0.030	0.285	−0.379	0.177*
Bachelors	0.565	0.714	−0.870	0.442*	0.341	0.451	−0.107	0.266
Graduate	−1.179	1.680	0.034	0.693	1.964	0.650**	0.507	0.444
Race								
Black	0.342	0.460	0.515	0.309	−0.078	0.342	0.219	0.235
American Indian	0.223	2.000	−1.598	0.876	−0.284	1.146	−1.249	0.661
Asian	−0.968	1.707	0.036	0.804	0.168	0.895	−0.793	0.688
Hispanic	−1.171	1.040	−0.159	0.899	−1.146	0.859	−0.042	0.597
Nativity								
Foreign-born citizen	0.293	0.948	0.320	0.596	0.553	0.637	0.032	0.452
Foreign-born noncitizen	0.367	0.689	0.914	0.530	−0.388	0.558	1.113	0.427**
Single mother	1.156	0.625	1.649	0.432**	−0.020	0.467	0.195	0.350
Children <6	0.979	0.312*	0.936	0.218**	0.462	0.247	0.954	0.156**
Family size	0.067	0.184	0.669	0.108**	−0.164	0.132	0.360	0.075**
Constant	25.319	4.551**	45.295	3.528**	10.948	2.822**	31.124	2.306**
Pseudo *R*-sq	0.759		0.713		0.607		0.587	
% poor accurately predicted	0.045		0.140		0.046		0.200	
% poor and nonpoor accurately predicted (weighted)	0.980		0.946		0.964		0.909	

Note: N = 2390.
  * $p < 0.05$.
  ** $p < 0.01$.

Wagle, 2009; Wilson, 1996) are not equally operational once the roles of policy-related variables are incorporated. Yet, the estimates also exhibit nuanced differences between the uses of gross and after transfer incomes as well as between the use of official and 200% adjusted poverty lines. Differences emanate from the models with gross and after transfer incomes due to varying utilization of transfer supports by different groups. By the same token, differences between the models with official and 200% adjusted poverty lines signify the concentration of different groups in the income range of greater than poverty and less than near poverty. Age, for example, is consistently relevant to predicting one's near poverty status whereas it is not so for poverty status. The roles of gender, marital status, foreign-born noncitizens, single mother, and education appear to be relevant in some models and irrelevant in others, an indication that the use of specific poverty lines and income definitions matter for identifying the relevant poverty determinants.

The estimates reported in Table 5 using the 2007/2008 data share many commonalities with the previous estimates on model fits, predictive power, and individual characteristics. With a comparable sample size, this set of models produces mostly consistent estimates on the roles of policy-related variables indicating that the transfer policy situation and its effects on poverty status did not change during the period. It is important to note, however, that the transfer income's positive contribution to the log of the odds of poverty reverted when 200% official poverty lines are used on income after transfer. The role of age, foreign-born noncitizen, single mother, widowhood, children under six, and family size appear to be consistent even though variations exist across models in detecting their significance. Foreign-born citizens are associated with greater odds of poverty whereas Blacks are associated with lower odds of poverty even though the latter effect appears to dissipate once transfer incomes are incorporated. On the whole, the model estimates are less consistent, making poverty status among working families an outcome less dependent on skills or ability as indicated by education and more dependent on such family structures as nativity, single motherhood, presence of children, and family size.

5. The role of policy-related variables

Poverty is a direct function of paid work hours that families are able to generate combined with their rates of wages and salaries. Increasing values of one or both of these variables can lower the likelihood of poverty. This observation is largely operational in Michigan without much change over time. At the same time, the role of transfer appears to be sketchy at best with the earlier period observing greater odds of poverty for families receiving transfer incomes, which observation bifurcated into positive effects on poverty when gross incomes are used and negative effects on near poverty when incomes after transfer are used.

Much of the focus on poverty revolves around people not making enough work efforts. The argument is that people remain poor because they do not work consistently or work only limited hours (Bartik, 2004; Murray, 1999; Sawhill, 2003; Schwartz, 2007). This analysis focusing specifically on families with a full time employment supports this argument with greater hours of work associated with decreased odds of poverty across all models and both time periods. At the same time, it also supports the roles of increased rates of wages and salaries with greater rates consistently helping to lower the odds of poverty. In fact, while entering the actual amount

Table 5

Logit estimates of working poverty, 2007/2008.

Family and householder characteristics	Gross family income				Family income after transfer			
	Official		200% official		Official		200% official	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Policy-related variables								
Total family work hours (log)	−4.306	0.697**	−5.952	0.459**	−1.601	0.443**	−4.669	0.339**
Rates of wages and salary	−1.044	0.101**	−0.652	0.041**	−0.791	0.065**	−0.548	0.030**
Transfer income (log)	0.239	0.073**	0.049	0.050	−0.078	0.061	−0.107	0.044*
Socio-demographic variables								
Age	−0.013	0.019	−0.024	0.011*	0.004	0.015	−0.020	0.009*
Marital status								
Never married	1.230	0.609*	−0.126	0.319	0.773	0.480	0.639	0.273*
Divorced/separated	0.317	0.608	−0.210	0.327	0.450	0.510	0.456	0.275
Widowed	2.847	1.406*	−1.125	0.859	0.631	1.321	−0.430	0.634
Female	−0.559	0.428	−0.714	0.236**	−0.060	0.339	−0.603	0.191**
Education								
Less than high school	−0.143	0.611	−0.449	0.387	−0.815	0.555	−0.237	0.339
Some college	0.239	0.396	−0.286	0.222	0.045	0.342	0.417	0.189*
Bachelors	0.017	0.642	0.169	0.338	−0.061	0.558	0.369	0.273
Graduate	−0.095	1.160	−0.452	0.641	−1.155	1.146	0.115	0.484
Race								
Black	−1.122	0.504*	−0.621	0.288*	−0.198	0.438	0.061	0.234
American Indian	1.042	1.435	−0.298	0.659	−1.321	1.340	−0.114	0.581
Asian	1.730	1.218	−0.473	0.815	2.420	1.130*	0.412	0.570
Hispanic	−0.470	0.708	0.267	0.450	−0.261	0.691	−0.067	0.386
Nativity								
Foreign-born citizen	1.834	0.853*	1.206	0.477*	−0.792	0.951	1.157	0.441**
Foreign-born noncitizen	1.944	0.953*	0.346	0.600	1.086	0.851	0.843	0.517
Single mother	−0.078	0.633	1.604	0.404**	−1.002	0.594	0.787	0.351*
Children <6	0.511	0.346	0.595	0.183**	0.635	0.340	0.464	0.150**
Family size	0.754	0.219**	1.032	0.107**	0.140	0.176	0.951	0.089**
Constant	36.173	5.853**	52.447	3.991**	15.495	3.794**	41.586	2.963**
Pseudo *R*-sq	0.791		0.715		0.723		0.654	
% poor accurately predicted	0.048		0.163		0.045		0.216	
% poor and nonpoor accurately predicted (weighted)	0.980		0.942		0.974		0.921	

Note: N = 2488.

  * $p < 0.05$.

  ** $p < 0.01$.

of income in the regressions would not be very useful as poverty status directly depends on it and while the total income goes beyond income from employment and self-employment, these two variables work interactively with one compensating for the other. Given that a family's ability to generate work hours may be constrained by a number of factors including family structure and physical and mental capacities, policies such as on childcare or transportation may help families increase their work hours with policies on minimum or living wages helping to increase incomes for low-income families.

One important policy variable that affects poverty status is the transfer income with its absence not impacting the likelihood of poverty and positive transfer receipts decreasing it. Generally speaking, transfer incomes help reduce poverty as low-income groups are likely to receive transfers more than they pay in taxes. When it comes to determining poverty status, however, receiving transfer incomes increases the odds of poverty when official poverty lines are used on gross income. This is reasonable since the actual transfer incomes have not been incorporated in poverty calculus. This is also consistent over time. Based on income after transfer, on the other hand, transfer incomes appear to significantly reduce the log of the odds of near poverty for the latter period, an indication that transfers may have played greater roles among low-income families. The evidence is not very clear since this observation dissipates for poor families using official poverty lines. But what actually may be happening is that the amounts of transfer received are not large enough to make a meaningful impact on low-income working families in Michigan.

6. The role of socio-demographic characteristics

Findings suggest that many of the socio-demographic characteristics of poverty among the general population also apply to near poverty and poverty among working families. But important differences remain with working poverty becoming increasingly less predictable especially when more stringent poverty lines are used on income after transfer.

First, age is an important factor affecting labor market earnings with young age lowering one's earning potential and making the family more vulnerable to poverty (Blank et al., 2006; Borjas, 2006; Mead, 1992; Murray, 1999; Sawhill, 2003; Schwartz, 2007). Findings suggest that the probability of being near poor decreased with householders' ages for working families in 1998/1999. When it comes to poverty, however, older age did not enjoy any systematic advantage over the younger age suggesting that the likelihood of poverty did not depend on age, with other things held constant. Transfer did not impact the way age interacted with poverty status affirming that the likelihood of using transfer to increase incomes did not vary by householder's age. The negative relationship of age with the likelihood of being near poor did not change by 2007/2008. Findings are consistent that older ages help reduce the chance of being near poor once economically inactive age of over 64 is excluded. This is reasonable given that a larger percentage of working families would be likely to be near poor.

Second, most of the discussion on race centers around the notion that minorities and especially Blacks are less likely to be working or working full time year round and thus are more likely to be poor (Borjas, 2006; Joassart-Marcelli, 2005; Shipler, 2004; Wilson, 1996). This analysis points to a negligible effect of race on the likelihood of being poor for working fam-

ilies. Results show that none of the minority races mattered in predicting the likelihood of being poor or near poor among working families in 1998/1999. By 2007/2008, however, this insignificant effect of race changed somewhat making Blacks to be increasingly less likely to be poor or near poor when gross incomes are used and Asians more likely to be poor when incomes after transfer are used. This analysis leads to an interesting finding that the effect of none of the minority races is systematic once other socio-demographic and policy-related variables are controlled. Particularly important are the roles of policy-related variables since the perceived disadvantage of minorities tend to manifest through lower work hours and wages. In 1998/1999, for example, the average wages of Black families were about one third those of White families which only slightly increased by 2007/2008. Similarly, Black families averaged about 55% of the work hours generated by White families in 1998/1999. The reason that Black families appeared to be less likely to be poor in 2007/2008 may have to do, among other things, with their increased hours of work which increased to over 88% those of White families.

Third, marital status has been a major focus in poverty research suggesting that marriage helps promote morally responsible behavior and avoid poverty (Mead, 1992; Murray, 1999; Sawhill, 2003; Schwartz, 2007; Wilson, 1996). While findings are not very consistent, results indicate that the never married and divorced/separated are associated with lower odds of poverty or near poverty for 1998/1999 when gross incomes are used. This goes against the general theoretical observation even though these groups are not likely to experience any different odds of poverty based on income after transfer. By 2007/2008, however, the never married and also widowed become more likely to experience poverty or near poverty compared to the married, a finding that can be explained in terms of the changes in the labor market and associated transfer mechanisms that do not readily favor the unmarried and divorced/separated who are likely to be single.

Fourth, the role of education is profoundly important in today's technologically sophisti-cated service economy with education representing the knowledge and skills workers need to remain competitive. Results indicate that working families with householders with college education were less likely to be near poor in 1998/1999 even though this distinction did not stand in terms of poverty. This serves as evidence that more educated working families enjoyed an advantage over the less educated ones when it comes to being near poor.[15] But this changed by 2007/2008 in a fundamental way with education not playing any significant role in determining poverty status other than for those with some college education, who tended to be even more likely to be near poor compared to those with high school education. Literature has documented increasing cleavages in real earnings between workers with and without college degrees (Blank et al., 2006; Blank & Shierholz, 2006; Hall, 2006; Joassart-Marcelli, 2005), which this analysis finds to be operational in Michigan. Despite having comparable hours of work, for example, families with householders with high school education or less earned less than a half in wages compared to those with college-educated householders. For this reason, we cannot overemphasize the role that education plays in participating in the labor market. Yet, much of how education affects labor market earnings depends on the quality as well as the quantity of attachment to the labor market.

Fifth, nativity can greatly impact one's ability to take full advantage of the education and skills possessed, with foreign-born population at a comparative disadvantage in the labor mar-ket (Borjas, 2006; Shipler, 2004; Wagle, 2009). It is one thing for immigrant families to find

jobs but they are also likely to hold jobs with lower wages, thus increasing the likelihood of poverty. Findings point to the increased likelihood of near poverty among families headed by foreign-born noncitizens when incomes after transfer are used. Although the perceived disadvantage of immigrants did not appear to be systematic in Michigan, the increased likelihood of near poverty among noncitizens is plausible given that they are less likely to benefit from transfer. This increased likelihood of near poverty among noncitizens moved to poverty based on gross income by 2007/2008. Even more interesting is the way foreign-born citizens tended to have consistently greater likelihood of poverty and near poverty suggesting that this group experienced real disadvantage over the native-born population. The lower wage jobs typically held by foreign-born workers may have disallowed their families to be at par with native population on income. And, interestingly, this disadvantage was less significant among noncitizens than among citizens, a phenomenon that may have depended on the greater work efforts of noncitizens given their ineligibility for public transfers.

Finally, the likelihood of being poor differed considerably by structure of working families. Findings do not conform to the positive relationship of female headship with poverty as is typically found among working families in general (Albelda, 1999; Blank & Shierholz, 2006; Meyer & Rosenbaum, 2001). The models exhibit a negative role of female headship for near poverty based on gross income for 1998/1999 and based on both gross and after transfer income for 2007/2008. Just like the role of race and education, the widely understood role of female headship appears to disappear once policy-related variables are incorporated. Findings also indicate positive roles of single mothers, children under six, and family size with varying degrees of significance. In 1998/1999, for example, single mother families were likely to experience greater likelihood of near poverty based on gross income, which also extended to near poverty based on income after transfer by 2007/2008. Findings are consistent with the literature highlighting the roles of single mothers and children as they both reduce the quality of human capital and likelihood of full time employment. Given that the welfare reform and economic expansion of the 1990s forced many single mothers with low human capital into the labor market, the increasing usage of transfer did not reduce their vulnerabilities (Blank et al., 1999; Danziger et al., 2000; Edin & Lein, 1997; Joassart-Marcelli, 2005; Meyer & Rosenbaum, 2001). Similar observation holds for children under six and family size with their relatively consistent and positive roles in determining near poverty for both periods. The positive role of children under six concentrated in determining near poverty in 2007/2008 and that of family size expanded into poverty in 2007/2008. Low-income working families with children continued to qualify for means-tested cash and near-cash public transfers such as EITC and Food Stamps—with the latter program pursuing greater information outreach (Cody, Schirm, Stuart, Castner, & Zaslavsky, 2008)—which may have helped lower poverty experience among larger families with children. But the labor market changes and the limited amounts of transfers rendered the condition of working families with near poverty level incomes still vulnerable.

7. Conclusion

The restructuring of the labor market in Michigan has caused great pain among workers, who are less-skilled and ill-prepared for the 21st century jobs in the service economy. Historically,

the society places enormous value to holding stable, full time jobs but the fact that a large number of families with stable work attachment are unable to earn enough income indicates the failure of the labor market to avoid poverty among low-wage workers. These cases are not very common as about 6% of the working families with householders in the economically active age (between 18 and 65) were poor in Michigan with additional 13% considered near poor. No doubt, there have been great many improvements in the way the working poor have been supported with increases in public transfer to promote work. These transfers, however, have not been sufficient to increase their disposable income and reduce poverty and thus have failed many working families. Rather than reducing them, for example, the combination of public transfers and various kinds of payroll taxes increased the incidence of poverty and near poverty among working families by up to 44%. Over time, while the rates of poverty and the poverty enhancing effects of transfer declined slightly, the declines have not been very encouraging given that programs designed to provide means-tested supports to low-income working families have matured, securing wider participation (Cody et al., 2008; Daponte, Sanders, & Taylor, 1999; Kopczuk & Pop-Eleches, 2007).

On the policy side, changes in the minimum wage have not kept up with those in the cost of living with important implications for labor market earnings and poverty. Yet, the idea of increasing minimum wages to levels that allow a full-time worker to support a typical family of four, as long advocated by the proponents of 'living wage' (Quigley, 2003; Waltman, 2004), has not garnered wider political support. Income tax credit is currently seen as a politically compromising solution to address working poverty with increasing number of states (including Michigan since 2006) initiating their own credit programs. But the amounts of tax credit have been less than adequate to cover the Social Security and other payroll tax burdens as originally planned and to avoid working poverty altogether.

Although the rates of poverty are smaller among working families than among all families, this analysis identified the major policy-related and socio-demographic determinants of working poverty in Michigan. Findings document consistently significant poverty-reducing roles of work hours and wages providing supports for policies such as childcare, transportation, and minimum wages that can increase them. Although public transfers help increase income among low-income working families, they have been either inadequate or not specifically targeted at the poor who need them the most.

On the socio-demographic characteristics, this analysis supports the theoretical observation regarding the greater likelihood of poverty among large families with children under six and young, never married, and immigrant householders for Michigan. The evidence is less than consistent, however, with parts of the variation depending on the use of poverty versus near poverty and gross versus after transfer income. More interesting is the finding that the roles of many socio-demographic characteristics such as education, race, marital status, and gender are not systematic when policy-related variables are incorporated. In one sense, the theoretically understood differences by education, race, and gender appear to manifest through work hours, wages, and amounts of transfer income received by families as those with more education and nonminority status tend to work and earn relatively more. At the same time, the roles of these human capital and demographic factors appear to have waned and even reverted especially in case of Black and female headship. Still dominant appear to be immigration and other structural factors suggesting that more targeted social policies may be required to

support families that cannot engage in the labor market meaningfully—both qualitatively and quantitatively.

A better understanding of these nuanced dynamics of working poverty helps us rethink the various labor market and social policies to support the poor. On the composition of families, these findings support the existing focus of the EITC and Food Stamps programs on targeting the vulnerability of large, single mother, young, and immigrant working families with children. While these programs have helped working families to avoid poverty, these groups were still more likely to be poor and near poor. Greater policy emphasis is needed to prepare the workforce with skills and education to remain competitive in the labor market. This can further help increase work hours and wages for families, reducing their reliance on public transfer.

While this analysis uses Michigan as a specific context with deteriorating labor market conditions, more complete understanding will derive from an expansion of this strategy to cover more cases as well as broader cases. Even within Michigan, a more complete picture of working poverty can be ascertained once the ongoing economic downturn and labor market restructuring are settled.

Notes

1. Families make up the households in single-family households whereas they represent subunits of households in case of multifamily households (US Census Bureau, 2004).
2. Other bases, that are widely used internationally, include consumption, capability, and social exclusion (Blank, 2008; Wagle, 2008a,b, 2009).
3. While Michigan introduced a refundable state EITC of its own in 2006, the figures included here do not include state EITC refunds.
4. Taxes represent the figures imputed in the CPS files extracted from the US Census Bureau website. For data unavailability reasons, the 2008 data excluded the state income taxes with potential implications for the identification of the near poor who are likely to pay them. Sales and property taxes were not incorporated given their unavailability and complex relationships with housing and mortgage costs.
5. Defining full-time work one way or the other has important implications for findings. Using a less stringent number, for example, would broaden the sample and bring the analysis closer to that for all families. At the same time, it is important to be consistent with the notion that working full time implies being at work at least an equivalent of 7 h (eight standard hours minus one lunch hour) for five days a week. Many working poverty analyses have also used this definition (Iceland & Kim, 2001; Joassart-Marcelli, 2005).
6. Similar to hours of work, this definition also has further implications. Poverty estimates from this analysis, for example, may be smaller since families with combined hours of work that are equivalent to one full-time worker are excluded. At the same time, the role of transfer in reducing poverty may be underestimated given that families working less are likely to receive greater amounts of transfer in Food Stamps and other supports.
7. It must be noted that identifying 'family householders' as householders (household reference people as identified in the CPS data) is straightforward when households comprise single families. In case of multifamily households, however, family householders need

to be identified separately. I select as the family householder the oldest adult working the most hours, with an older person in case of two adults working the same number of hours. Albeit somewhat arbitrary, I expect this process combining age and work hours to yield reasonably accurate results.

8. This process yields sample sizes that are smaller by 51 families in 1998/1999 and 76 families in 2007/2008. The resulting subsamples include about 2,400 families and close to 6,500 people. Although relatively small in number, exclusion of these families can have important effects if they include nonelderly working members. The goal, however, is to create a 'conservative' sample of working families.

9. These statistics are also slightly higher than the comparable statistics reported by the US Census Bureau (2008) for the entire US population. While the samples are more restrictive here focusing on families headed by those between 18 and 64, these differences partly highlight the increasingly worsening working poverty situation in Michigan.

10. During 1998/1999, for example, two or three member families without children under six had poverty rates of between 2 and 13%. While the higher end near poverty incidence for 200% official and after transfer income increased to 15%, these rates for 2007/2008 were still much lower than the poverty rates for all working families.

11. At the typical minimum wage of $6/h in 2007, for example, a full time year round worker would earn about $12,000, an amount barely exceeding the official poverty line income of $11,000 for individuals. Greater skills and experience that older people are likely to have may make additional earnings possible. While those at the 10th percentile in 2007 earned $8/h (US Department of Labor, 2008), even this level of earning would be grossly inadequate for families and families with children.

12. Given that transfer incomes are used in their natural logs, taxes paid taking negative values in measurement are all converted into zero and thus are excluded from the analysis. While these figures are still useful in determining the poverty status with taxes paid making families more likely to be poor, the intent here is to examine the roles of transfer receipts that, mathematically, can decrease the likelihood of poverty.

13. Many variables such as age, marital status, single mothers, and race may jointly affect the log of the odds of being poor. But incorporation of these possible interaction effects did not produce desired results due to small sample size.

14. Theoretically, there can be a strong interaction between work hours, wages, and transfer income with lower hours and wages leading to greater transfer receipts as families are likely to seek greater public supports (Duncan, 2000; Moffitt, 1992, 2002). But this potential interaction is difficult to operationalize since poverty is a censored version of the total family income.

15. Interestingly, an exception is the category with graduate degrees that appears to be more likely to be poor when after transfer incomes are used.

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