Wal-Mart and County-Wide Poverty

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Abstract

Wal-Mart has created tremendous economic benefits for consumers by providing more choices at lower prices, especially in communities that had only local retail monopolies prior to the chain's arrival. Yet no retailer evokes stronger negative emotions than this chain. Recent media attention has focused on questionable labor practices and other impacts of the stores, while academic studies have examined impacts on retail wages, employment levels and existing stores. Missing from the literature is an analysis of whether the "Wal-Mart effect" is large enough to influence *community*-wide poverty rates.

We find, after controlling for other factors determining changes in the poverty rate over time, that both counties with more initial (1987) Wal-Mart stores and with more additions of stores between 1987 and 1998 experienced greater increases (or smaller decreases) in family poverty rates during the 1990s economic boom period. We offer three possible explanations for this finding, including that Wal-Mart stores destroy civic capacity in the communities in which they locate by driving out local entrepreneurs and community leaders.

Introduction

Local leaders and academic researchers are increasingly interested in the community-level effects of "big box" retailers and discount department stores. Wal-Mart, in particular, has received considerable and mostly negative recent public media and Congressional attention, in addition to spawning a number of hostile web-sites.[1] The interest in Wal-Mart is not surprising as it has no equal among big box retailers. With total revenues of $256 billon in 2003, Wal-Mart Stores Inc. is the largest corporation in the world. The chain employs 1.3 million workers worldwide and operates 4,750 stores (3,600 in the US). Because of its size, purchasing power and technological sophistication, the chain is revolutionizing not only the industrial organization of local retail trade, but also the wholesale and transportation logistics industries. *BusinessWeek* recently described the "Wal-Mart effect" in a cover story,[2] referring to the corporation's cost efficiency that has contributed to economy-wide productivity gains and reduced recent inflation rates by about one percentage point. On the other hand, Wal-Mart has been blamed for the loss of US manufacturing jobs and the demise of mom-and-pop-type retailers.

This study examines the impact of Wal-Mart stores on county-level family poverty rates in the US. The analysis is relevant to local policy-makers as they debate the pros and cons of having Wal-Mart and other "big box" retailers locate in their communities. The attraction of such retailers has been viewed as a strategy for stimulating local economic growth (e.g., Ketchum and Hughes 1997). However, retail stores have a much smaller net economic impact

[1] Two prominent examples are www.walmartwatch.com and www.walmartsucks.org; bumper stickers include "SprawlMart sucks the life out of downtown businesses." Other negative coverage includes a recent report that the chain was fined $3.1 million by the EPA for violating for the second time the Clean Water Act by failing to control run-off from its construction sites (*Salt Lake Tribune* on-line, May 13, 2004). Anecdotal evidence suggests that Wal-Mart stores increase crime rates (see "Crime linked to Wal-Mart overwhelms small-town police," *The Daily News, Huntingdon, PA*, May 25, 2004, p.7), and a recent report by the advocacy group Good Jobs First suggests that the chain benefits from substantial public subsidies (Mattera and Purinton, 2004). See Miller (2004) for the Congressional report. Representative Miller is the senior Democrat from California.

[2] See the October 6, 2003 issue.

on local economies than manufacturing firms, for example. In particular, retail stores are usually part of what economists call the non-basic sector, which exists solely to serve the so-called *basic* sector. The basic sector commonly includes agriculture, mining and manufacturing, and it is responsible for exporting goods and services that bring "new money" into a community. As this new money is spent and re-spent in the community, economic growth occurs. While important (because it supports the basic sector), the non-basic sector does not play this role of bringing in new money, and it therefore makes a much smaller contribution to local economic growth over time than does the basic sector.

Furthermore, detractors have argued that because these retail jobs are low-paying they will not help families transition out of poverty. *BusinessWeek* reports that the average wage for an "associate" in 2001 was $8.23 per hour, for an annual income of $13,861, which was below the federal poverty line for a family of three at that time. While individual workers have the option of working or not working for Wal-Mart, a public welfare issue arises if the chain creates externalities that raise poverty levels in the community. In that case public tax dollars are spent on welfare programs and a disutility is created for those who are concerned about poor people living in their community. The Wal-Mart phenomenon is such that the chain seeks to minimize its workers' pay, while the rents captured by the Walton heirs place them among the ten wealthiest Americans.[3]

[3] As reported in *Forbes* magazine (2003 Special Issue on the 400 Richest People in America), widow Helen R. Walton and heirs S. Robson, John T., Jim C. and Alice L. Walton each had a wealth of $20.5 billion in 2003. Alternatively, at a combined total of $102.5 billion the Walton wealth is twice that controlled by Microsoft Chairman Bill Gates. Only three individuals had greater wealth in 2003: William H. Gates with $46 billion, Warren Buffett with $36 billion, and Paul Allen (also of Microsoft), $22 billion. As a comparison to the annual earnings of an associate worker, assuming a conservative annual rate of return on the Wal-Mart wealth of 1 percent in 2003, each of the five heirs would have earned an income of $205 million. The CostCo™ Wholesale Corp. has a different labor policy.

Literature

Popular press articles on Wal-Mart focus on the company's non-unionization policy and the provision of part-time jobs with low wages and few benefits, along with impacts on the environment, congestion and crime rate (see footnote 1). Considerable attention has also been paid in the academic literature to retail restructuring caused by the chain (e.g., Artz and McConnon 2001, Stone 1997, Franklin 2001, Huang et al. 2002), usually focusing on loss of retail employment, decreases in the number of establishments, and decline of downtown shopping areas. However, with some exceptions (e.g., Vias 2003), these articles are mostly based on case studies for specific states or on anecdotal evidence. There are no academic studies that examine the impact of Wal-Mart on county-wide family poverty rates, or contemporaneous changes in those rates over time. Likewise, we were unable to locate any large-scale econometric study of Wal-Mart's location strategy at the level of all US counties (Graff 1998 describes Wal-Mart Supercenters locations relative to locations of distribution centers and county populations).

Basker (2003) examines the effect of Wal-Mart expansions on retail employment in 1,749 counties over a 23-year period and concludes (p. 19) "that Wal-Mart entry has a small positive effect on retail employment at the county level while reducing the number of small retail establishments in the county." Basker also finds small reductions in wholesale employment and no effect in those sectors in which the chain does not sell goods or services (specifically, restaurants and motor vehicle sales and services). On balance, she concludes that a decade after a Wal-Mart store's entry into a community (p.17), "the estimated effect on total [county] employment … is statistically zero." Two shortcomings of Basker's analysis are the use of a limited set of counties (truncated at employment levels above 1,500 in 1964, which

may have eliminated some of the most interesting counties) as well as the choice only of employment as an impact measure.

Hicks and Wilburn (2001) use a recursive time-space model to evaluate the effect of Wal-Mart stores on the retail trade sector in both the county in which the store is located and in adjacent counties in southern West Virginia using spatial analysis. They control for potential endogeneity between population growth and entrance of Wal-Mart, but this raises the question of whether population growth is even a factor in Wal-Mart's location strategy (see also Franklin 2001). Hicks and Wilburn cite the work of Vance and Scott (1992), who argued that the costs of a Wal-Mart were not as high as the benefits. Hicks and Wilburn conclude (p. 312) that there "is clearly a net benefit to employment and wages in having a Wal-Mart locate in a county." Furthermore, they note (p. 313) "…the criticisms leveled against Wal-Mart are a familiar refrain… [and that] local monopolies may have a great deal to lose from entrance by firms that enjoy, and exploit, economies of scale." As already noted, these conclusions are based on results from a specific region in a single state.

Ketchum and Hughes (1997) studied Wal-Mart's effects on employment and wages in Maine and failed to find support for the claim made by Wal-Mart's opponents, that the entry of the firm harms local economic growth because of a negative effect on wages, employment levels or the number of retail establishments. In their subsequent study of 19 communities in Maine that received a Wal-Mart between 1992 and 1995, Artz and McConnon (2001 p.24) find that the introduction of a Wal-Mart store leads to "significant changes in retail market structure" both in the town hosting the store and in adjacent communities. Based on this study of rural Iowa counties, Stone (1997) concludes that no single recent phenomenon has had a larger adverse impact on rural Iowa communities than mass discount merchandisers (i.e., Wal-Mart).

As noted, all of these studies are limited in that they focus on data from only a few counties or individual states. None focuses on county-wide poverty rates.

Estimation Strategy, Hypotheses, and Data

Our estimation strategy is simple and yet provides a relatively powerful test of the independent effect of Wal-Mart on changes in poverty rates in a community. We add to an equation adapted from Levernier et al. (2000) that explains spatial variation in poverty rates a variable measuring the change in Wal-Mart stores, appropriately instrumented to avoid endogeneity problems. This sets a fairly high standard of statistical evidence for establishing any effect of Wal-Mart on poverty: we control for initial poverty rates as well as other known determinants of poverty, and examine the *ceteris paribus* treatment effect of adding Wal-Mart stores on the *change* in the poverty rate over the subsequent period. This procedure reduces the effect of spatial cost of living differences on the change in actual or real poverty experienced over the period of analysis (if one can assume that the relative differences in costs among places did not vary over time).

Furthermore, we control for the presence of Wal-Mart stores at the beginning of the period over which change in poverty is calculated, allowing us to examine the effect both of *initial* stores and of *additions* of Wal-Mart stores on the change in poverty. This is also a more comprehensive test of the chain's effect in that it does not merely compare employment and wages in specific retail sectors before and after Wal-Mart enters a community, but rather the community-wide effect of such an entry. Our choice of the period 1989-1999 (conditioned by data availability) to measure poverty coincides with the booming "New Economy" decade of the 1990s, during which average county-level family poverty rates nation-wide fell from 13.1

to 10.7 percent (US Census Bureau). Of course, one key factor that our study does not capture is that Wal-Mart lowers prices paid by consumers in the community, at least in the short- to medium-run.

US counties are the unit of analysis and the data are obtained from a variety of secondary sources. This research draws heavily from the work of Rupasingha and Goetz (2003) and Jensen et al. (forthcoming), who analyze the structural determinants of poverty in the US, including local social capital and political influence. Since the location of Wal-Mart stores is likely to be non-random, i.e., Wal-Mart location decisions are based on identifiable county characteristics, we account for potential endogeneity in the location decision using instrumental variables estimation. Kilkenny and Thisse (1999) contains a recent survey of location decisions; earlier work focused on retailers include Craig et al. (1984) and Vandell and Carter (1993). More recently, Shields and Kures (2004) develop a profit-maximizing spatially-referenced model of retail store locations. We also use spatial econometric methods to test for the effects of spatial clustering, which allows us to examine spatial spillovers across county borders that are not already captured in the pull factor.

Thus, we estimate the following model recursively:

(1) $\Delta WM_{0+t} = f_1(\Omega_0, POV_0, WM_0)$

(2) $\Delta POV_{0+t} = f_2(\Psi_0, POV_0, WM_0, \Delta\underline{WM}_{0+t})$

where WM_0 is the number of WalMart stores in 1987, ΔWM_{0+t} the net change in stores between 1987 and 1998,[4] $\Delta\underline{WM}_{0+t}$ is the change predicted (instrumented) from equation 1,

[4] The beginning year was chosen to coincide with the US Economic Census of 1987 and precede the year 1989 for the poverty measure, while 1998 was chosen to be as close as possible to and yet precede the 1999 poverty measure.

Ω_0 contains regressors affecting the Wal-Mart location decision, POV_0 is the beginning-of-period (1989) poverty rate, ΔPOV_{0+t} the change in the poverty rate over the decade, and Ψ_0 incorporates regressors affecting the change in poverty over the decade.

In terms of regressors to include in Ω_0, we hypothesize that Wal-Mart locates in counties with a high pull factor, interstate highway access, more female-headed households and female labor force participation (to have a larger pool of workers), longer commuting times to work (which increase the opportunity cost of time spent shopping), more purchasing power as reflected in earnings and educational attainment, and that it avoids communities with higher poverty rates and existing Wal-Mart stores. Thus, we test empirically whether Wal-Mart is drawn into communities with higher poverty rates. In addition, we hypothesize that communities with higher levels of social capital, greater political competition and more self-employed workers are better able to organize to prevent Wal-Mart stores from locating in their communities. Wal-Mart avoids counties with higher population density (at least until recently) in part because of higher land costs in these counties, and while the chain has traditionally located in rural communities, it also avoids less populated, more remote places. We also include state fixed effects to, among other factors, capture differences in state policy and population growth rates that may affect Wal-Mart's location strategy. Finally, this equation is formulated as a Tobit model because the dependent variable is for practical purposes censored at zero.[5]

For the specification of regressors in the change in poverty equation (Ψ_0), we draw on Rupasingha and Goetz (2003), who model poverty as a function of individual-level characteristics, economic factors, social capital variables and political factors. We add to this equation the beginning-period number of Wal-Mart stores (WM_0) as well as the change in the number of stores ($\Delta\underline{WM}_{0+t}$) over time, instrumented using equation (1). We also control for state fixed

[5] About one percent of counties (31) had a smaller number of stores in 1998 than in 1987.

effects. Because poverty tends to occur in clusters at the county-level, we test for spatial dependence bias.

Wal-Mart store location information for 1987 and 1998 is obtained from the Directory of Chain Stores and from the Wal-Mart edition of the Rand McNally Atlas. The dependent variable is extracted from the 2000 US Census Summary File 3 data sets. The county-level variables describing structural forces, political involvement and measures of social capital are compiled from a variety of secondary data sources and described in more detail in Rupasingha, Goetz and Freshwater (forthcoming) or Rupasingha and Goetz (2003).

Results

Summary statistics for the regressors are reported in the Appendix Table. Table 1 provides regression coefficients for determinants of net new Wal-Mart store locations between 1987 and 1998. The pull factor, existing Wal-Mart stores (WM_0), adults with a college degree, social capital stocks, self-employment, interstate highway access, commuting time and earnings power each have the expected signs and are statistically significant at below the 1 percent level. The effect of population density is negative, all else equal and as expected.

In terms of state fixed-effects, the following states had more new Wal-Mart stores (relative to Wyoming): Arizona, California, Florida, Indiana, Iowa, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, North Carolina, Ohio, Oregon, Pennsylvania, Utah, West Virginia and Wisconsin. Especially noteworthy is the absence of Nevada from this list, despite the fact that no state experienced more rapid population growth in relative terms over the period studied. In sharp contrast, Pennsylvania is one of the slowest-growing states in the nation,

and yet it attracted a number of stores. From this we conclude that rapid population growth may not be a prerequisite for new Wal-Mart store locations.

We next turn to our equation of primary interest, change in the poverty rate. Holding constant the initial (1989) poverty rate, the results show that counties with more Wal-Mart stores (in 1987) had a higher poverty rate in 1999 (or a smaller reduction in the rate) than did counties with fewer or no Wal-Mart stores in 1987. Equally important, counties in which new Wal-Mart stores were built between 1987 and 1998 also experienced higher poverty rates, *ceteris paribus*. The marginal effect of another Wal-Mart store on the average poverty rate was 0.204, while that of existing stores was 0.099 percentage points. The other coefficients had effects that were similar to those already reported in Rupasingha and Goetz (2003), and we do not discuss them further here.

This raises the question of why Wal-Mart affects county poverty rates. First is the obvious fact that poverty rates will rise if retail workers displaced from existing mom-and-pop type operations work for Wal-Mart at lower wages because they have no alternatives (this assertion has been contested in the literature), all else equal. Second, even though Wal-Mart Corp. presents itself as a "good local citizen" and engaged in local philanthropy through the Sam Walton Foundation in the amount of $106.9 million 2003 alone,[6] this type of philanthropy may not be as extensive or effective as that which the displaced mom-and-pop type stores would have provided.

A third and perhaps more subtle effect may be that, by destroying the local class of entrepreneurs, the Wal-Mart chain also destroys local leadership capacity. This has been pointed to by rural sociologists and others as one outcome of the increasing concentration of non-local

[6] Source: http://www.wffhome.com/Grant%20Awards.htm; accessed May 8, 2004. This amount represents about one-tenth of one percent of the estimated wealth of the Wal-Mart heirs.

bank ownership and the resulting branch plant economy that is believed to have destroyed the pool of local leadership talent. The destruction of small, locally-owned businesses may also reduce social capital levels, as has been argued, for example, by Cornell University's T. Lyson (*pers. comm.*. 2002). Social capital, or civic capacity, is also an essential ingredient for economic growth to occur, according to Harvard University's Robert Putnam. Thus, the elimination of local leaders from among a key group of entrepreneurs may be the single-most important and far-reaching impact of Wal-Mart Corp.

Conclusion

After carefully and comprehensively accounting for other local determinants of poverty, we find that the presence of Wal-Mart unequivocally raised family poverty rates in US counties during the 1990s relative to places that had no such stores. This was true not only as a consequence of existing stores in a county in 1987, but it was also an independent outcome of the location of new stores between 1987 and 1998. The question whether the cost of relatively higher poverty in a county is offset by the benefits of lower prices and wider choices available to consumers associated with a Wal-Mart store cannot be answered here.

However, if Wal-Mart does contribute to a higher poverty rate, then it is not bearing the full economic and social costs of its business practices. Instead, Wal-Mart transfers income from the working poor and from taxpayers though welfare-programs directed at the poor to stockholders and the heirs of the Wal-Mart fortune, as well as to consumers. These transfers are in addition to the public infrastructure subsidies often provided by local communities. Regardless of the distributional effects, the Wal-Mart business model appears to extract cumulative rents that exceed those earned by owners of other corporations, including Microsoft.

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Table 1: Wal-Mart™ TOBIT Store Location and SEM Poverty Equations

Variable	*Coeff*	*t-stat*		*Coeff*	*t-stat*	
Constant	-1.094	-3.90	***	13.536	14.01	***
Family poverty rate, 1989	-0.009	-2.19	**	-0.518	-34.24	***
Initial stores, 1987	-0.036	-3.46	***	0.099	2.14	**
New stores (predicted)				0.204	2.36	**
Interstate highway	0.055	2.60	***			
Pull Factor	0.288	7.24	***			
Earnings/job [capita]	0.027	3.21	***			
Prop. Tax per capita	-0.006	-1.08				
Population density x 1,000	-0.020	-3.05	***			
Avg. commuting time to work (minutes)	0.016	4.49	***			
% households with more than 3 vehicles	-0.019	-5.18	***			
Female-headed households	0.006	1.48				
Female LFPR	0.005	2.03	**	-0.067	-6.22	***
HISSOM90	0.006	2.17	**	-0.097	-10.21	***
COLL90	0.010	4.33	***	-0.027	-2.00	**
SELEMP90	-0.015	-4.94	***	-0.044	-4.85	***
Employment growth				-0.074	-0.11	
Employment rate				-0.088	-4.46	***
Industrial churning				0.032	2.35	**
Ag sector employment				0.016	1.64	
Goods employment				-0.014	-1.76	*
Transportation employment				-0.019	-0.99	
Wholesale/retail empl.				-0.014	-0.98	
Finance, Ins., Real Estate empl.				-0.047	-1.51	
Service sector employment				0.018	1.53	
Jobs losses to NAFTA				0.082	3.18	***
Pop. 0-17 years of age				0.130	6.49	***
Pop. 18-24 years of age				-0.013	-0.74	
Pop. 65 years of age and above				-0.025	-1.20	
Non-black minority				0.022	2.99	***
Stayers (predicted)				3.920	3.04	***
Foreign born popl (%)				-0.011	-0.65	
Ethnic index				3.306	8.45	***
Income inequality				1.496	4.19	***
Federal grants/capita				0.0002	2.28	**
Rauch measure				-0.0004	-0.07	
Political competition	-0.0001	-0.03		0.019	3.03	***
Social capital index	-0.032	-2.40	**	-0.187	-4.13	***
NONMET4	-0.170	-4.20	***	0.426	2.32	**
NONMET5	-0.099	-2.15	**	0.701	3.33	***
NONMET6	-0.177	-5.62	***	0.135	1.01	
NONMET7	-0.156	-4.30	***	0.514	3.43	***
NONMET8	-0.537	-7.13	***	0.170	0.96	
NONMET9	-0.513	-8.41	***	0.580	3.15	***
lambda				0.404	55.25	***

Significance levels: *=10%, **=5% and ***=1% or lower. *Note:* SEM refers to the spatial error model.

Variable	Definition	Mean	Std.Dev.
CHG8798	Chg in Wal-Mart stores, 1987-98	0.5539	1.2711
FAMPOV89	Family poverty rate, 1989	13.07	6.92
INEQ89	Income Inequality, 1989	1.458	0.135
PULLFAC	Pull factor, 1990	0.877	0.303
WAL87	Wal-Mart® stores, 1987	0.40	0.89
FLF90	Female labor force part., 1990	51.88	7.10
HISSOM90	High school plus grads, 1990 (%)	56.18	7.49
COLL90	College grads, 1990 (%)	13.37	6.38
POLCOM92	Political competition, 1992	8.86	6.69
SKI90PCM	Social capital index, 1990	0.01	1.35
SELEMP90	Self-employment rate, 1990	17.32	5.24
HWYDUM	Highway interstate access ramp	0.427	0.495
PCEARN87	Earnings per job, 1987	10.921	1.613
PCPTAX87	Property taxes per capita, 1987	4.183	3.190
POPDEN87	Population density, 1987	0.266	1.982
CHGEMP90	Growth in private jobs, 1988-1990	0.035	0.054
EMP90	Employment rate, 1990	93.325	3.028
ISC8890	Industrial churn, 1988-1990	0.341	2.610
AG90	Ag F For employment, 1990 (%)	10.3	9.2
GOODS90	Manufacturing employ (%)	27.3	10.2
TRANS90	Trans, public utilities employ (%)	6.5	2.1
WHRET90	Wholesale/retail employment (%)	19.7	3.4
FIRE90	Fin, ins, real estate empl (%)	4.4	1.8
SERVIC90	Service sector empl (%)	28.8	5.7
JBLOSS	Job losses to NAFTA	0.347	1.321
A017A90	Pop 0-17 years, percent, 1990	26.9	3.4
A1824A90	Pop 18-24 years, percent	9.3	3.4
A65OV90	Pop 65 yrs and older, percent	15.0	4.3
NONBLK90	Non-black minority share, 1990	3.8	7.3
PRDSTY90	Non-moving hh shares, 1985-90*	0.749	0.050
FBPOP90	Foreign-born population, percent	2.16	3.41
ETHNIC90	Ethnic inequality index	0.174	0.167
FEDGNT90	Federal grants per capita ($), 1990	472.4	504.3
RAUCH90	Consumption spending (Rauch)	88.5	7.0
NONMET4	Beale code county = 4	0.043	0.203
NONMET5	etc.	0.035	0.185
NONMET6		0.200	0.400
NONMET7		0.213	0.410
NONMET8		0.081	0.273
NONMET9		0.164	0.371

Number of cases=3,004 US counties

*denotes a predicted value from an auxiliary equation