

**The Impact of an Urban Wal-Mart Store on Area Businesses:
An interim-evaluation of one Chicago neighborhood's experience**

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Abstract

Having achieved nearly complete coverage of non-urban markets, mega-retailer Wal-Mart has turned its attention to urban expansion. Evaluations of Wal-Mart's impact on urban retail businesses and on local employment are necessary to inform policy makers, scholars, and community activists looking to improve economic opportunities for inner-city residents. With one store already within the city limits of Los Angeles, Wal-Mart opened its second urban location on Chicago's West Side in September 2006. We use longitudinal data collected from surveys of local business, additional data purchased from Dun and Bradstreet, and zip code level sales tax data to measure the effects of this urban Wal-Mart during its first year of operation. While our research will continue and track effects during Wal-Mart's second year of operation our preliminary analyses show a small yet statistically significant relationship between a store's distance from Wal-Mart and its probability of going out-of-business. Stores in competing SIC codes are also more likely to go out of business. Our data also suggest that Wal-Mart displaces sales from other stores in its zip code. In our continuing research we plan to use additional data sources and another year of survey data to clarify these preliminary results.

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Introduction

Since opening its first store in Bentonville, Arkansas in 1962, Wal-Mart Stores Inc. has expanded to more than 3,400 Wal-Mart stores and 550 Sam's Clubs domestically and has become the largest retailer and private employer in the U.S. (Basker, 2007). Wal-Mart expanded in concentric circles from its Bentonville hub through rural, small town, and then suburban and small city areas of the south-central, southeast, northeast and finally western regions of the U.S. Wal-Mart has achieved nearly complete coverage of these non-urban markets. Consequently, large inner city areas represent Wal-Mart's last frontier for virgin expansion in the U.S., and the company has embarked on an aggressive effort in this direction.

However, Wal-Mart's big city urban expansion plans have roused strong local political opposition. As of October 2007, there were only two big-city Wal-Mart's among the three largest cities, one in Los Angeles and one in Chicago (Wal-Mart Store Locator, 2008). New York City has not yet allowed any Wal-Mart stores within its city limits (Jones 2007). These economic policy debates have centered on Wal-Mart's impact on local jobs and wages, as well as consumer prices and community retail development needs.

Evaluations of the community development impact of the next phase of the company's continued expansion are necessary to inform efforts by decision makers and community activists to respond to Wal-Mart's employment and investment policies. So far as we know, this is the first empirical study of the local economic impact of a Wal-Mart in a large city. As such its conclusions should be highly relevant for scholars, public officials and community activists seeking to understand consumer choices and improve economic opportunity for inner city residents.

Existing Studies of Wal-Mart's Economic Development Impact

Kenneth Stone published the earliest and most direct studies of Wal-Mart's impact on local economic development (1998, 1995A).¹ Using local retail sales tax data, Stone evaluated the impact of Wal-Mart's growth in small towns in Iowa between 1983 and 1993. Breaking the data down by two-digit SIC code, Stone computed "pull factors" (PF) equal to "per capita sales for a community" divided by "per capita sales for the state" in current dollars for different communities and industries. He measured percentage changes in these pull factors over time relative to a base year – one year before the Wal-Mart opened.

Stone's results show clear evidence of a very large localized and specialized Wal-Mart impact causing: a) PF declines in all non-General Merchandise sectors except for Home Furnishings and Eat and Drink in Wal-Mart towns, b) generally larger PF declines in all retail categories with the exception of "Food" (not sold by Wal-Mart during this period) in non-Wal-Mart towns, c) Across all categories, a five year 6.0% increase in the PF for

¹ Stone's well-known simple and direct analysis is not included in Basker's (2007) otherwise comprehensive review of the literature on the "causes and consequences of Wal-Mart's growth".

total sales in Wal-Mart towns versus a -10.4% decline in Non-Wal-Mart towns, d) Larger market share losses for non-Wal-Mart towns that were within 20 miles of Wal-Mart towns than for non-Wal-Mart towns that were farther away, e) An estimated 23% decline in the number of retail stores in Iowa, based on PF losses by store category and average sales per store by retail category in 1993², and f) In addition to this large substitution effect, an overall decline in the value of retail sales, over the 1983 to 1993 period in Iowa.

Stone has generalized his work to rural communities (1997) and shown similar results for Wal-Mart Supercenters in Mississippi (Stone, Artz and Myles 2002). Other regional studies of Wal-Mart's impact (all looking at rural areas) have come to similar conclusions (see citations in Neumark, Zhang and Ciccarella , 2007).

One critique made of Stone's work, and other similar regional studies, is that the "before and after" methodology employed does not take possible endogeneity of the location and timing of Wal-Mart store openings into account (Neumark, Zhang and Ciccarella, 2007, Basker, 2007). However, this criticism ignores the specialized "general merchandise" and "department store" impact captured in Stone's study. Stone's results show that Wal-Mart stores in rural areas gain market share at the expense of both other in-town stores and nearby (up to 20 miles away in rural Iowa) retail stores. This results in large market share losses for other stores and a large reduction in the number of retail outlets overall. If the large PF increases found in "Wal-Mart towns" and the large declines in "non-Wal-Mart towns" were the result of a very successful Wal-Mart site selection process that targeted fast growing retail markets, there is little reason to believe high relative growth rates would be confined to the general merchandise and department store categories.

In contrast, recent econometric studies using national level data over a 20 to 30 year time period have had mixed results. Some studies corroborate Stone's analysis by showing retail employment and payroll losses in counties where a Wal-Mart opened relative to counties with no Wal-Mart (Neumark, Zhang and Ciccarella, 2007 and Dube and Wertheim, 2005), but others show retail and wholesale employment gains in these counties (Basker, 2005)³. All of these studies use time-series and spatial regression with an "instrumental variable" that attempts to control for the impact of the possible endogenous site selection effect discussed above.

Two studies done by Neumark, Zhang and Ciccarella (2007) and Dube and Wertheim (2005) exploit the pattern of Wal-Mart's spatial expansion to construct their instrumental variable. Neumark, Zhang and Ciccarella (2007) estimate that each new Wal-Mart store reduces county-level retail employment by about 150 workers so that each Wal-Mart worker replaces about 1.4 non-Wal-Mart retail workers. In addition, they estimate that a new Wal-Mart reduces county-level retail earnings by 1.3%. Dube and Wertheim (2005) find that in urban counties with a Wal-Mart, the wage bill for workers in the general merchandise and grocery sectors declines by 1.3%, whereas the wage bill in rural (non-MSA) counties with a Wal-Mart does not change.

² Calculated from Table 4, p. 68 (Stone, 1995).

³ Sobel and Dean's (2007) recent study finds that, after controlling for other variables, US states with more Wal-Marts did not have a smaller or less profitable small business sector.

In another study, Basker (2005) finds that the number of retail jobs in a county with a Wal-Mart store increases by 50 after five years; however, this is partially offset by a 30 worker wholesale job decline in these counties over the same period. Basker (2005) uses planned Wal-Mart opening dates as an instrumental variable for the timing of Wal-Mart openings in her estimations and drops small and historically declining counties from her sample to control site location selection bias. She does not find a statistically significant effect in counties that are adjacent to Wal-Mart counties.

In a more recent survey article, Basker (2007) highlights Wal-Mart's efficiency gains, noting that the McKinsey Global Institute estimated in 2001 that Wal-Mart's real value added per worker was more than 40% higher than that of other General Merchandise retailers. This is consistent with Neumark, Zhang and Ciccarella's (2007) finding that every Wal-Mart worker replaces at least 1.4 non-Wal-Mart retail workers. Basker's (2005) econometric results showing employment gains, however, appear inconsistent with the McKinsey study. This finding may be due to Basker's elimination of small and declining counties from her sample and her choice of instrumental variable⁴.

Dube and Wertheim's (2005) results are also consistent with Stone's (1988, 1995) findings that the job loss and total wage bill decline as a result of Wal-Mart's efficiency gains, but low hourly wages (as opposed to total wage bill) are more likely to occur within an urban county. This is because in more sparsely developed business centers located within rural counties, Wal-Mart's increased General Merchandise and Grocery Store employment (when Super Wal-Marts selling groceries are included) may increase *within county* retail employment at the expense of job losses from other store closures, many of which may occur in adjacent counties.

In this context, it should be pointed out that Wal-Mart only sells retail commodities, thus evaluations of the welfare impact of Wal-Mart's overall wage and price effects cannot be based on simple comparisons of wage and price reductions. Direct comparisons of wage and price reduction estimates such as those made by Basker (2007) can be misleading if they do not take other rising costs such as health care, education, housing, and costs of other consumer goods such as cars and gas, into account in assessing actual "real" wage increase or decrease.

The Chicago Wal-Mart Study

In the spring of 2004, Wal-Mart submitted zoning applications to locate stores in two different Chicago neighborhoods. After a number of highly contentious Zoning Board and City Council meetings, Wal-Mart was given approval for a store on Chicago's West

⁴ It is unclear why "planned" opening dates should be any less correlated with retail market (and employment) growth than "actual" opening dates. When asked how a more efficient company could *increase* retail employment at a recent presentation of her Wal-Mart research (4/11/2008 at UIC), Basker acknowledged that there could well have been more than off-setting retail job loss in adjacent counties which her data (in Basker, 2005) was not good enough to pick up.

Side.⁵ This controversial decision was followed by an effort to enact a “big box living wage” ordinance in Chicago that would require Wal-Mart and other large retailers to pay a “living wage” and provide health benefits (Baiman, 2006). The Big Box Living Wage Ordinance was passed by City Council but provoked a heated debate and led to the first Mayoral veto in 17 years. The new Wal-Mart opened at the end of September 2006. It is unclear at this time whether any future Wal-Marts will be opening in Chicago.

The goal of our study is to evaluate the local employment, commercial property value, wage, and sales impact of a Wal-Mart store in an inner-city area. In an urban context, unlike a rural or suburban setting, a Wal-Mart store has limited ability to attract customers from outside the political jurisdiction where it is located because there are many other alternative retailers located in the same jurisdiction. In this context, much of the retail spending going to a Wal-Mart store must replace spending that would have otherwise gone to stores in the city.

A Wal-Mart store has a higher sales-to-employee ratio than the smaller stores whose customers it attracts. This means that it will employ fewer workers to sell merchandise that would otherwise be sold by less efficient stores. The result is that, if all else is equal, a Wal-Mart should *reduce* retail employment.

Methodology

In order to study the effect of Wal-Mart on economic activity in the West Side neighborhood where it is located, we gathered baseline (“pre-Wal-Mart”) information and are now attempting to measure post-Wal-Mart changes in activity over time. We attribute changes in economic activity to Wal-Mart’s presence by comparing (1) pre-Wal-Mart activity and trends to post-Wal-Mart activity and trends, (2) changes in activity near Wal-Mart to changes further away and (3) changes in product lines that directly compete with Wal-Mart to those that do not. We use a variety of data to make these comparisons.

Survey Data

We obtained our main source of data about business activity in the neighborhood of the new Wal-Mart store by conducting a series of phone surveys of local businesses⁶. Using geographically coded MSN Yellow Pages listings for retail stores, we assembled a list of

⁵ The exact location of the store is 4650 W. North Ave, Chicago IL 60639 .

⁶ We originally considered conducting a quasi-experimental study, to compare the West Side Wal-Mart neighborhood to a similar Chicago neighborhood without a Wal-Mart. After an intensive effort to find a “control” region within the City of Chicago, we concluded that no other area of the city could serve as an appropriate control, because no other area had experienced such a large recent decline in retail and overall employment in recent years. We therefore elected to survey a larger “target” area as than we had originally anticipated. This methodological change was based on an a judgment that spatial regression techniques that attempt to capture patterns of employment, property value, wage, and price, change as distance from the Wal-Mart increases, would better control for Wal-Mart’s effects than a survey of a completely different area in the city.

all businesses in the major retail categories that compete with Wal-Mart. Our target area covered businesses within a three-mile radius of Wal-Mart, roughly bounded by Irving Park Avenue to the north, Western Avenue on the east, Roosevelt Avenue on the south, and Harlem Avenue on the west. From March through late August 2006, we implemented our telephone survey and were able to obtain baseline (pre-Wal-Mart opening) data on the number of hours worked by owners and employees, number of employees, starting and average wages, whether benefits are offered, and some prices.

In early summer 2006, we began supplementing our phone surveys with on-site visits to stores in the West Side neighborhood that had not responded by telephone. We particularly concentrated on stores in the “Washington Square Mall” located only one block away from the new Wal-Mart. At the very least, these in-person visits allowed us to collect price data even if businesses did not respond to our other questions. In an effort to get a wider array of stores and more pricing information we also expanded our original sample of general merchandise store, discount store, apparel stores, drug stores, and hardware stores, to include baby and infant stores, electronic stores, toy stores, shoe stores, and office supply stores. By the end of our first survey period, we obtained 191 unique completed surveys.

Beginning in March 2007, we re-surveyed those stores that completed surveys in 2006. Again these were mostly telephone surveys, involving multiple calls to the same store until someone answered or explicitly asked not to be contacted again, followed by a few site visits. This second wave of surveying continued through early November 2007, when surveying was discontinued to avoid the potentially distortionary effects of holiday seasonal employment. Our third wave of data collection began in March 2008.

Other Sources of Information about Wal-Mart’s Impact

1. Sales tax data by zip code

We obtained zip code-level data on taxable sales from the Illinois Department of Revenue (IDOR) by quarter from the first calendar quarter of 2000 through the third quarter of 2007. The dataset included the zip code in which Wal-Mart is located, 60639, and nine surrounding zip codes. We analyze these data to determine whether Wal-Mart has increased taxable sales in its own zip code or has suppressed taxable sales in nearby zip codes.

2. Dun & Bradstreet data

We purchased data from Dun & Bradstreet that includes variables for basic company information (location, type of business, ownership structure, etc.), sales volume, employment, and year of business origin for all retail businesses within a roughly three mile radius of the Wal-Mart store. We currently have these data from December 2005 and December 2007.

3. Employment data from Illinois Department of Employment Services (IDES). Through its operation of the state’s unemployment compensation system, the IDES collects

detailed data about employment, total earnings and other aspects of firm operation at the establishment level. The IDES publishes some aggregations of data about total employment by zip code and industry for March of each year. We are constructing a data set of employment by firms in the Wal-Mart neighborhood based on this publicly released data and have formally requested additional aggregations of the data that would provide more geographic and chronological specificity from IDES. In future research we will report our analyses of these data.

4. We also attempted a qualitative study of Wal-Mart's small "Jobs and Opportunity Zones" program which was designed to aid area businesses. Our research and findings about this program are discussed in the Appendix 1.

Preliminary Findings

A. Survey Data

Response Rate and 2007 sample

We had a total of 503 retail businesses in our original "universe." In our first round of calling in 2006 (baseline data collection), we completed surveys of 191 unique businesses for a response rate of about 38 percent. Descriptive information about some our findings from the first survey are contained in Table 1.

On average the firms we surveyed in 2006 had about 10 employees and paid a wage of \$8.10 per hour. Fifty-six of the firms reported offering health care coverage to their employees. More than half were owned by Chicagoans and slightly less than half had dispersed ownership. Many of the businesses had owners that worked directly in the store for many hours (an average of almost 49) each week. Many of the businesses had women or minority owners.

As part of our survey, we asked each responding business about the price at which it sold 58 precisely identified goods⁷. Many of the business sold only a small fraction of the goods we asked about—on average businesses told us about the prices of two goods. For each of the goods we calculated the mean price given by responding businesses. We then constructed a price index for each business for each good by dividing the price the business reported for a specific good by the mean price reported for that good. We then averaged the indices for each business to get a price index for each business. In 2006 the average price index for all businesses in the survey was 1.17. We also asked in which product lines each business operated. All businesses in our survey had product lines that overlapped with Wal-Mart's product lines. Many businesses carried multiple product lines – among the most popular were apparel (48 percent) and drugs (30 percent). We also geo-coded the location of all the stores in our sample and measured the distance from each business to Wal-Mart. Businesses ranged from as little as one-tenth of a mile from Wal-Mart to as far as 9.4 miles from Wal-Mart with the average business about two and one-half miles from Wal-Mart.

⁷ Examples include a white adult-size tee shirt, kleenex 175 count tissues, basketball, etc.

In our 2007 survey, we were able to complete repeat surveys for 107 of the original 191 businesses, for a 2007 repeat-survey response rate of about 56 percent. As shown in Table 2, about one-third (32 percent) of the businesses we originally surveyed refused to participate a second time. In addition we conclude that 23 businesses went out-of-business sometime between our 2006 survey and our 2007 survey attempt. These included nine businesses that had disconnected phone numbers, six businesses that had become different stores since 2006, and eight businesses that completed surveys in 2006 but that we were unable to contact despite many repeated attempts in 2007.

Table 3 contains some summary statistics about businesses that responded to both the 2006 and 2007 surveys. On average, these businesses had about 14 employees and had one-tenth more employees in 2007 than they had in 2006. The firms paid an average wage of \$8.48 per hour, which was about five percent higher than the average wage they reported in the 2006 survey. Thirty-five of the 73 firms that responded to the 2007 survey reported that they offered their employees health insurance. The price index of the firms in the 2007 survey was nearly twice as high as the price index of those firms in the 2006 survey.

Figure 1 plots the location of the 191 businesses that responded to our 2006 survey relative to Wal-Mart and identifies those that went out-of-businesses between 2006 and 2007. Table 4 presents similar evidence in tabular form. Although there is some variance in the rate at which firms went out-of-business across quadrants—from a high of 17.1 percent in the southeast quadrant to a low of 9.7 percent in the northwest—the differences are not statistically significant.

Table 5 reports on a number of regression specifications that test the hypothesis that proximity to Wal-Mart influences the probability a competing business will fail. Column one reports the results of a simple ordinary least squares regression of distance to Wal-Mart (in miles) on a dummy variable that equals one if the respondent business closed between our 2006 and 2007 surveys. The negative and significant coefficient indicates that each one mile increase in distance to Wal-Mart reduced the probability of closing by about three percent. Columns (2) through (5) report on slightly more elaborate versions of the test. All of these regressions use a probit rather than linear functional form to constrain the predicted probability to be between zero and one. Column (2) replicates the column (1) result for the probit functional form. Column (3) adds a control variable for the level of employment in 2006. The coefficient on this variable is surprisingly positive and significant indicating that larger businesses are more likely to close than small businesses. However, the distance coefficient becomes insignificant when we control for the level of employment in 2006. Column (4) includes the price index in 2006 which is insignificant and also causes distance to be insignificant. Column (5) includes both price and employment as well as distance to Wal-Mart. Distance and price then become insignificant but employment has a more intuitive negative (and significant) sign.

Table 6 reports on two additional regressions with dependent variables that measure the change in employment and wages in stores that responded to both our 2006 and 2007

surveys. Distance to Wal-Mart was not significantly correlated with either of these variables in our data.

Summary:

In our data we find weak and non-robust evidence that proximity to Wal-Mart may have an influence on the probability that businesses closed during the first year of Wal-Mart's operation. With this limited and preliminary evidence we are hesitant to draw any strong conclusions about Wal-Mart's short-term effect on local economic activity. We hope to have more definitive findings after we complete a third round of data collection measuring conditions two years after Wal-Mart's opening.

IDOR Sales Tax Data

We obtained quarterly data about taxable sales for each of the ten zip codes mapped in figure 2 from calendar quarter 1 of 2000 through calendar quarter 3 of 2007. As noted on the map, the Wal-Mart store lies in zip code 60639 just across the border from zip code 60651. Figure 3 shows taxable sales by zip code by quarter and year. The graphs show that Wal-Mart's zip code (60639) had more taxable sales than eight of the nine surrounding zip codes and was growing faster than most of them. In 2005, that zip code had taxable sales of about \$743 million. We do not have data on the annual sales of the Chicago Wal-Mart, but we do know that, according to one source (Wikinvest 2008), in 2005 US sales by Wal-Mart averaged \$438 per square foot. Since Chicago's Wal-Mart is 142,000 square feet (Jones 2008), we would expect its sales to be about to be about \$61 million dollars, or about eight percent of the sales in the zip code.

Table 7 reports the results of some simple regressions that attempt to measure the impact of Wal-Mart's opening on total sales in zip code 60639. In these regressions the dependent variable is the natural log of city sales tax revenue (one percent of taxable sales). In model one and two the sample is restricted to the period prior to Wal-Mart's opening in the third quarter of 2006. Independent variables in model 1 include dummy variables for each quarter and a zip code specific intercept and a variable that denotes the year. The coefficients on the quarter dummies show that sales are highest in the second and fourth quarters and somewhat lower in the third and (omitted) first quarter. The coefficient on year implies that, all else equal sales grew at about 1.9% per year. The model explains 97 percent of the variation in sales across zip codes over time. Model 2 generalizes the specification by including variables that interact between zip code and year so that each zip code is allowed to have its own rate of growth over time. The excluded zip code is 60639 where Wal-Mart is located so that the coefficient on year can be interpreted as the yearly growth in sales in that zip code—this is 7.7 percent.

Model three uses data from the entire period (first quarter 2000 through third quarter 2007) and includes a variable that equals 1 in the Wal-Mart zip code in the period after it opened (third quarter of 2006 and first three quarters of 2007) and zero otherwise. This "Wal-Mart dummy" should reflect any jump in sales in this zip code after Wal-Mart opened. Based on our earlier calculations, we might expect the coefficient on the Wal-Mart dummy to be between 8 percent (i.e. 0.08) (if Wal-Mart did not displace any other

sales in the zip code) and zero (if all of Wal-Mart's sales came from its home zip code). A 95 percent confidence interval on the estimated coefficient; however, ranges from -0.00316% to .00416%, meaning we cannot reject the hypothesis that Wal-Mart had no effect on total sales in its zip code. This result might be explained by the Chicago Wal-Mart having lower than expected sales or by Wal-Mart sales displacing other sales within the zip code.

Table 8 reports on more general regressions that allow each zip code to have its own Wal-Mart dummy and thus does not impose the assumption that Wal-Mart had no impact on sales in surrounding zip codes. The regression reported in column 1 uses all of the data. In this regression only zip code 60302 which is adjacent to and southwest of Wal-Mart's zip code has a significant negative Wal-Mart dummy. Three zip codes all relatively distant from Wal-Mart have counter-intuitive positive and significant coefficients.

We reran the same regression excluding data from 2000, 2001 and 2002 to abstract from the recession that hit the nation (and the area) beginning in early 2001. These results are reported in column 2. When we do this the adjusted r-square rises slightly and the adjusted coefficients on five zip codes' Wal-Mart dummies are negative and significant while none are positive and significant. The negative coefficient on the Wal-Mart dummy for the home zip code is a bit puzzling (since we would expect sales to rise in this zip code) but the negative coefficients on the Wal-Mart dummy for zip codes 60651 and 60302 suggest that some of Wal-Mart's sales come at the expense of adjacent zip codes.

The regressions in columns 3 and 4 further trim the sample by excluding observations from 2003 and 2004, respectively. When this is done the coefficient on the Wal-Mart dummy in the home zip code falls to zero while the negative coefficient on zip code 60651 remains statistically significant.

Summary: Our analyses of data on taxable sales in Wal-Mart's home and adjacent zip codes are consistent with the hypothesis that Wal-Mart's sales displace a significant amount of sales from its home zip code. There is some evidence that Wal-Mart's sales also reduce sales in some adjacent zip codes, but this effect seems to be small and inconsistent.

Dun and Bradstreet Data

As discussed above, we purchased data from Dun and Bradstreet to supplement our survey data. Dun and Bradstreet (D&B) data provides basic information about each establishment's location, line of business, number of employees and sales and is reputed to cover the universe of businesses in a given geographical area. In our conversations with vendors, we were told that D&B updates the files on a monthly basis but, as we discuss below, we have reason to believe that these updates may not always take place or may be quite cursory in some cases. We extracted D&B data for December 2005 (about 9 months before the Wal-Mart store opened) and December 2007 (about 15 months after the store opened). We extracted data on all retail businesses (1 digit SIC code 5) within a

three mile radius of zip codes 60639 and 60651 (the Wal-Mart sits on the border of these two zip codes).

According to the D&B data we received, Wal-Mart operates in the SIC code for department stores (5311) and has 400 employees. (The Wal-Mart establishment was excluded from other calculations using the D&B data.) According to the D&B data, there were twelve stores within five miles employing 1336 people in the 5311 SIC code in December of 2005, which indicates that Wal-Mart's presence was a very significant factor in this industry and neighborhood.

Every firm in the D&B data has a primary four-digit SIC code which describes the main products sold in the establishment. We examined these codes and designated each establishment as selling a product that either competed or did not compete with Wal-Mart⁸. Of course, there were many establishments that were not in Wal-Mart's four-digit SIC code but competed in one or more of Wal-Mart's product lines. Based on the D&B data there were 175 establishments employing 959 people that competed with Wal-Mart within one mile of the store's location in December 2005. There were an additional 478 establishments employing 2715 people within two miles of Wal-Mart. Thus, Wal-Mart was clearly an important presence in this neighborhood and market but perhaps not so large that it threatened to completely transform the market place.

We divided the businesses in the D&B data into three groups: those that appeared in the 2005 data but not in the 2007 data, those that appeared in the 2007 data but not in the 2005 data, those that appeared in both the 2005 and 2007 data. We extracted a random sample of 20 businesses that appeared in the 2005 data but not the 2007 data and attempted to contact them using the name and address information provided by the 2005 D&B data. We found that at least five of these businesses were still operating in February 2008 despite the fact that they did not appear in our December 2007 extraction of D&B data. We also extracted a random sample of 20 businesses that appeared in both the 2005 and 2007 D&B data and attempted to contact them using the name and address information provided by the 2007 data. In February of 2008 we found that only 11 of the 20 businesses in this sample were open and operating under the name given in the D&B data. Three of the businesses were operating in a similar line of business but under a different name than that given in the D&B data. Despite repeated phone calls we could find no evidence that the other six businesses were operating at all.

We also attempted to compare sales in 2005 to sales in 2007 for businesses that appeared in both data sets but found that, for the vast majority of establishments, there was no change in sales. Since it is very unlikely that annual sales in 2005 would be exactly the same as annual sales in 2007, we conclude that either D&B did not ask about sales for

⁸ Examples of competing SIC codes include Department stores (5311), Men's and Boys' Clothing and Accessory Stores (5611), Furniture Stores (5712). Examples of non-competing SIC codes include Lumber and Other Building Materials Dealers (5211), Retail Bakeries (5461), Motor Vehicle Dealers (New and Used) (5511), Musical Instrument Stores (5736). We designated Eating and Drinking Places (5812) as non-competing even though the Wal-Mart store does house a fast food restaurant on the theory that this establishment was likely to draw little business from nearby restaurants.

these establishments or that D&B conducted a only a cursory investigation (e.g. they said, “Are sales still X?”). Sales amounts differed for only 214 of the 2,070 establishments found in both the 2005 and 2007 data.

Based on these analyses we concluded that the D&B data may provide less than perfect indicators of Wal-Mart’s impact on economic activity in that neighborhood. However, while the D&B data surely measure economic activity with error we have no evidence that they provide a biased estimate of Wal-Mart’s effect. We therefore provide a summary of our findings using this data here and complete analyses of the data in Appendix 2.

Using the D&B data, we find additional evidence that proximity to Wal-Mart may have increased the probability that a businesses closed during the first year of Wal-Mart’s operation. This evidence is consistent with and, in fact, stronger than the results from our own survey. We also find some evidence that being in an SIC code that directly competes with Wal-Mart increased the probability that area businesses failed.

Summary and Conclusion

Thus far, our study of Chicago’s West Side Wal-Mart has provided preliminary evidence that, in an urban setting, proximity to Wal-Mart is associated with a higher probability of going out of business for local retail establishments. In addition, we have some evidence that the West Side Wal-Mart has replaced sales from its own and neighboring zip codes. All of these findings, however, show only a small effect.

Our first two years of survey data produced statistically weak and inconsistent results linking distance to Wal-Mart with likelihood of going out of business during Wal-Mart’s first year of operation. However, our second round of surveys began only six months after Wal-Mart’s opening so that we capture only short-run effects. Our third round of surveys began in March 2008 and should produce more definitive evidence about Wal-Mart’s long-run effects. In addition to the survey, we plan to complete anywhere from 20-40 more in-depth semi-structured qualitative interviews with the owners or managers of stores in our sample. This qualitative data will provide us with additional insight into Wal-Mart’s impact and local stores’ coping strategies.

Data from Dun and Bradstreet corroborates our survey results and provides even stronger evidence of a link between proximity to Wal-Mart and the probability of going out-of-business. The Dun and Bradstreet data also suggests that being in an SIC code that directly competes with Wal-Mart increases a business’s probability of going out-of-business.

Sales tax data from the Illinois Department of Revenue suggest that Wal-Mart’s sales displace sales from businesses within the same zip code. However, our findings with this data showed small and inconsistent effects, so we cannot at this time say definitively that Wal-Mart caused a reduction in sales in adjacent zip codes.

We have not yet fully explored Wal-Mart's impact on local employment. Is the Wal-Mart adding to the overall number of jobs in the area, simply replacing other forms of local employment, or actually contributing to an overall decline in the number of jobs? Neumark, Zhang, and Ciccarella (2007) found that every Wal-Mart worker replaces at least 1.4 non-Wal-Mart workers. In our continuing research we will use data from the Illinois Department of Employment Security (IDES) to perform similar calculations in order to determine whether these results also apply to an urban setting.

Our report on the first year impacts of an urban Wal-Mart are necessarily tentative, and highlight the need for additional research to determine Wal-Mart's impact on nearby businesses in Chicago. However, our work demonstrates that, even in its first year of operation, Wal-Mart is indeed changing the landscape of Chicago's West Side business community.

Appendix 1

Jobs and Opportunity Zones

On April 2006, Wal-Mart CEO, Lee Scott, announced that the new Wal-Mart store in the West Side of Chicago would be the first of ten sites to adopt an initiative called “Jobs and Opportunity Zones”. According to the original article in Wal-Mart’s website (Wal-Mart Stores, 2006) this initiative was designed to help the economy in poor neighborhoods thrive by accomplishing several things. First, through the “Small Business Spotlight”, five small local businesses would be chosen each quarter to be featured in advertisements in both local newspapers and Wal-Mart’s in-store radio network. Business owners would receive a “Wal-Mart Trend Report” and would be able to attend seminars held by Wal-Mart’s Business Development Team on how to thrive with a Wal-Mart nearby (ReclaimingDemocracy.org, 2008). Finally, a grant of \$300,000 would be donated to different local chambers of commerce and Wal-Mart would work with them to create effective programs for the funds.⁹

After Mr. Scott’s first announcement, Wal-Mart released very little information about the Jobs and Opportunity Zones Initiative. We made several attempts to contact Daphne Davis-Moore, Wal-Mart’s Community Affairs Manager, and Camille Lilly, President of the Austin Chamber of Commerce through telephone calls, emails, and formal letters to find more information. However, we were unable to obtain even basic information beyond the list of businesses chosen for the “Small Business Spotlight”.

According to a Chicago Tribune article, the Illinois Hispanic Chamber of Commerce (IHCC) received \$75,000 out of the grant Wal-Mart gave (Jones, 2007). Omar Duque, president/CEO of the IHCC, commented during a phone interview that the projects they were working on in relation to Wal-Mart focused on taking advantage of the higher traffic of customers going through the area due to Wal-Mart’s presence. He was unable to describe a specific program or project implemented with the Wal-Mart grant since he had not been directly involved. We are currently in the process of trying to contact someone at IHCC who can provide more information.

Representatives from two of the five original businesses chosen to be part of the “Small Business Spotlight” program also were contacted. In phone interviews both Curlie Anderson from Curlie’s Bakery and Norman Delrahim from B & S Hardware, Anderson and Delrahim confirmed that Wal-Mart published ads for their businesses in local newspapers, but neither was able to confirm that there were radio ads in Wal-Mart’s network. Neither attended a seminar on how to thrive with a Wal-Mart nearby, and Delrahim added that Wal-Mart was no longer planning to hold seminars. Curlie Anderson

⁹ The original figure given in the article that first announced the initiative on Wal-Mart’s website (Wal-Mart Stores, April 2006) was \$500,000, but nine months later the figure had dropped to \$300,000 (McCain, 2007) and Wal-Mart’s original press release was no longer available on its website. The press release can still be found in the Reclaiming Democracy website at http://reclaimdemocracy.org/walmart/2006/opportunity_zones.php.

reported feeling disappointed at the results and said, “This initiative was pretty much a failure.” Anderson believed however, that Wal-Mart was not to blame for this failure since they did their part. Rather, Anderson blamed the local chambers of commerce for taking Wal-Mart’s money but not using it to help the small businesses. The local chambers of commerce offered Anderson and Delrahim an opportunity to use Wal-Mart funds to hire high school students, but both business owners turned down the offer since they needed more skilled workers (Jones, 2007).

JMX Media Group is one of the five businesses that were chosen for the second quarter of 2007 for the ‘Small Business Spotlight’ program (Jones, 2007). In a telephone interview, the owner of this business, Sid Daniels, stated that he saw ads for his business in the newspaper and heard them on the radio. He believed the seminars were held, but he was unable to attend. Like the other business owners, he did not work with any of the local chambers of commerce.

Several attempts have been made to contact the other three businesses from original five chosen for the “Small Business Spotlight”. The telephone number available for Dandridge Hardware Center has been disconnected. The number for Dreambags works but there has been no response from them since the first attempt to contact them on September 2007. Finally, Active Auto Parts owner Chris Prayer has not been available to answer our questions and has repeatedly asked us to call back.

Appendix 2

Analyses of D&B data

This appendix reports on our analyses of the D&B data. As we acknowledge in the text this data appears to suffer from (sometimes severe) measurement error but we know of no reason that it should bias our results.

In our analyses we assume that businesses that appeared in the 2007 data but not the 2005 data were new businesses started after December of 2005. Table A2.1 shows a cross-tabulation of business status (out-of-business, new business, existing business) by two-digit SIC code. There were 3378 (1308+2070) establishments in the 2005 data. Overall, in this neighborhood, 1308 firms went out-of-business while only 697 new businesses were started and 2,070 businesses were continuing. Thus, business existence is clearly very transitory in this neighborhood—about one out of three businesses in the 2005 survey was not in the 2007 survey. While there is some variance across SIC codes it is clear that all business lines are quite unstable—at least 24 percent of each column have gone out-of-business.

Table A2.2 shows basic descriptive statistics about the firms in our D&B data. We have some data on sales and employment for the vast majority of establishments in the 2005 data. In 2005 the average firm had almost eight employees and sales of more than \$430,000, but the standard deviation on both numbers was very large. Sales and employment were similar in 2007. The average business in the 2005 survey reported that it was 15 years old, which seems hard to reconcile with the very rapid rate of business turnover found in the data. As shown in table A2.1 about 17 percent of the business were new in 2007 and about 32 percent of the 2005 businesses were out-of-business by 2007. Sales amounts differed for only 214 of the 2,070 establishments found in both the 2005 and 2007 data. For establishments where the sales figures differed between the two years, we calculated the percentage change in employment and sales. In both cases we see a substantial decline—sales fell by almost 16 percent and employment declined almost eight percent.

Table A2.3 shows business status by compete/non-compete status. One might imagine that establishments that sold a competitive product to Wal-Mart would be more likely to go out-of-business than those that did not. The raw data, however, shows no evidence that this is true—38 percent (538/(538+862)) of the non-competing establishments in the 2005 data were out-of-business by 2007. An almost identical percentage (39 percent) of the competing establishments were out-of-business. Similarly, in both non-competitive and competitive SIC codes the number of new businesses was equal to about 20 percent of businesses in the 2005 sample. Thus, the raw data contain little evidence that the Wal-Mart store either hastened business failure or slowed business formation in competitive SIC codes.

In parallel with our survey data we examined the geographic distribution of businesses relative to the new Wal-Mart store (Table A2.4). Nearly 70 percent of new businesses

formed north of Wal-Mart. This was approximately proportional to the share of continuing and out-of-business establishments in the D&B data.

In table A2.5A we report results of regression estimates analogous to those reported in Table 5 but using D&B rather than survey data. As in our survey data, the OLS regression results in column (1) show that the probability an establishment went out-of-business significantly diminishes as distance to Wal-Mart increases. This qualitative result is maintained when we use a probit regression specification and add a dummy independent variable that equals 1 if the establishment is in a SIC code that competes with Wal-Mart and zero otherwise. When we add a variable that measures employment in 2005 as well (column 4) we get three significant coefficients all with intuitive signs. The probability of an establishment going out-of-business rises with proximity to Wal-Mart, being in a competitive SIC code and having fewer employees in 2005. In column 5 we find that establishments with higher sales volumes in 2005 and longer histories are also less likely to go out-of-business, although in this specification neither distance to Wal-Mart nor being in a competitive SIC codes is a statistical significant determinant of failure.

In table A2.5B we expand this regression by adding dummy variables for a number of two-digit SIC codes. Distance to Wal-Mart maintains a negative sign but is (barely) insignificant at a 10 percent confidence level¹⁰. Establishments in several SIC codes (apparel, furniture and miscellaneous) have a particularly high probability of failure.

We would like to know not only whether Wal-Mart contributed to the failure of some businesses but also whether it deterred new businesses from forming. We cannot run a regression analogous to those in Tables A2.5A and A2.5B for new businesses since we only know about establishments that came into existence—not those that might have formed but did not. An alternative approach is shown in Table A2.6 where we display the share of new and existing establishments by distance from Wal-Mart. The two distributions are very similar. In both cases ten percent of businesses are within one mile, half of establishments are with-in about 2.3 miles and 90 percent of establishments are within 3.7 miles of Wal-Mart. This raw data provides little evidence that Wal-Mart's existence has, thus far, discourage new business formation.

Tables A2.7A, A2.7B, A2.8A and A2.8B report results analogous to those in Table 6 using the D&B data. For reasons noted above, we use a sample restricted to establishments that reported different sales in the 2005 and 2007 to estimate the determinants of changes in employment and sales. In these regressions, we find few significant variables and little evidence that Wal-Mart's presence had any effect on employment growth or decline among establishments that continued in business. We find some counter-intuitive evidence that establishments in SIC codes that compete with Wal-Mart had more growth in sales than those that did not compete with Wal-Mart. However, our sample is very limited so we attach little importance to this result.

¹⁰ It is statistically significant at a 10.5 percent confidence level.

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Figures and Tables

Figures

Figure 1

Plot of survey firms by distance and direction to Wal-Mart and out-of-business status

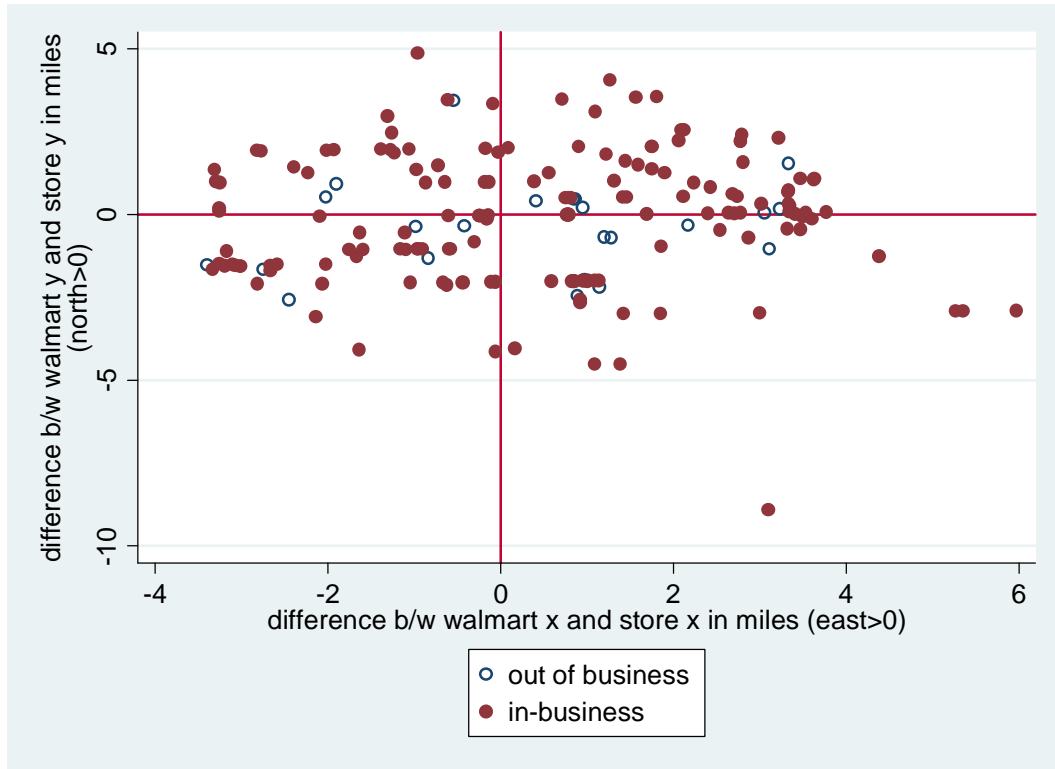


Figure 2

Map of zip codes in the Wal-Mart area

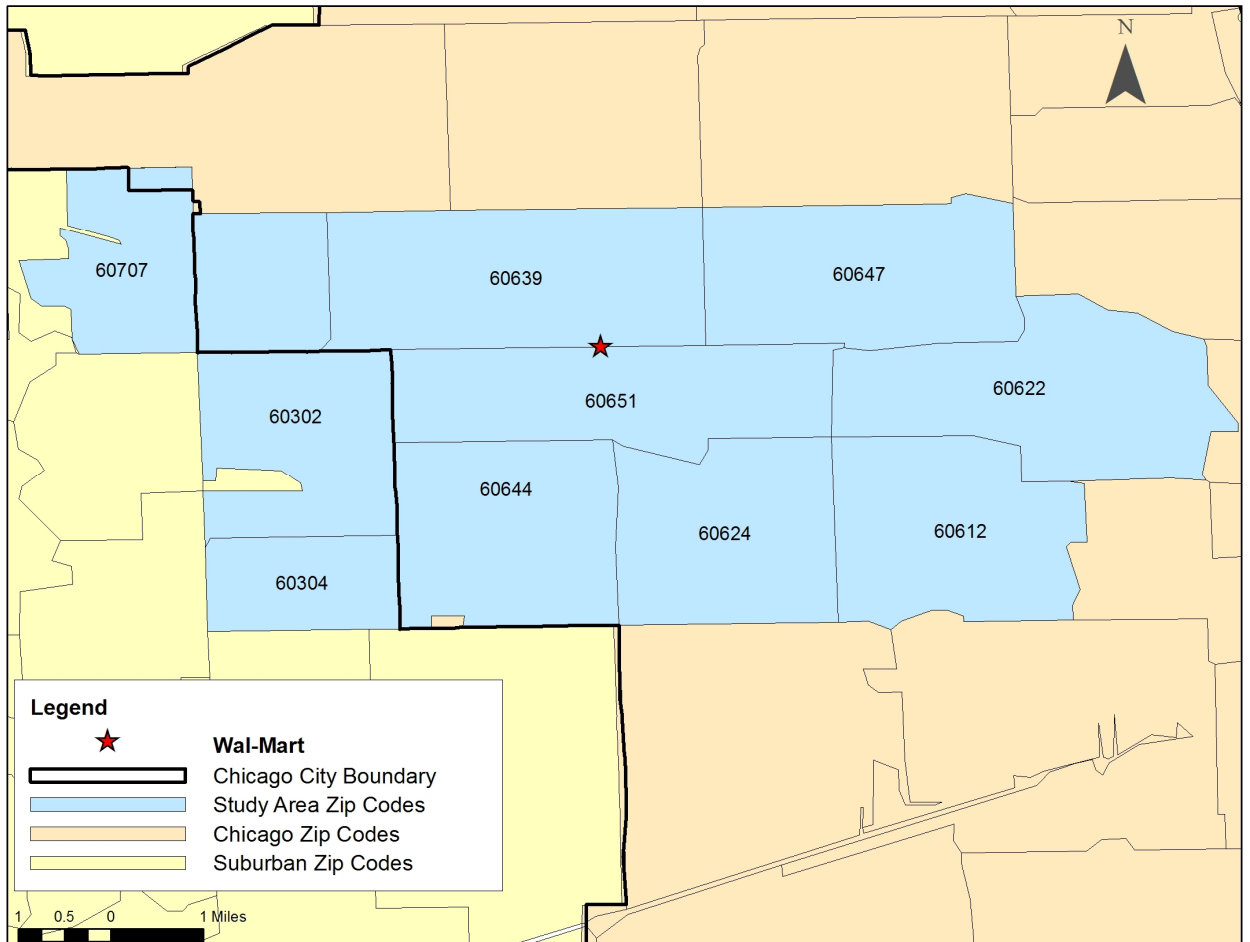
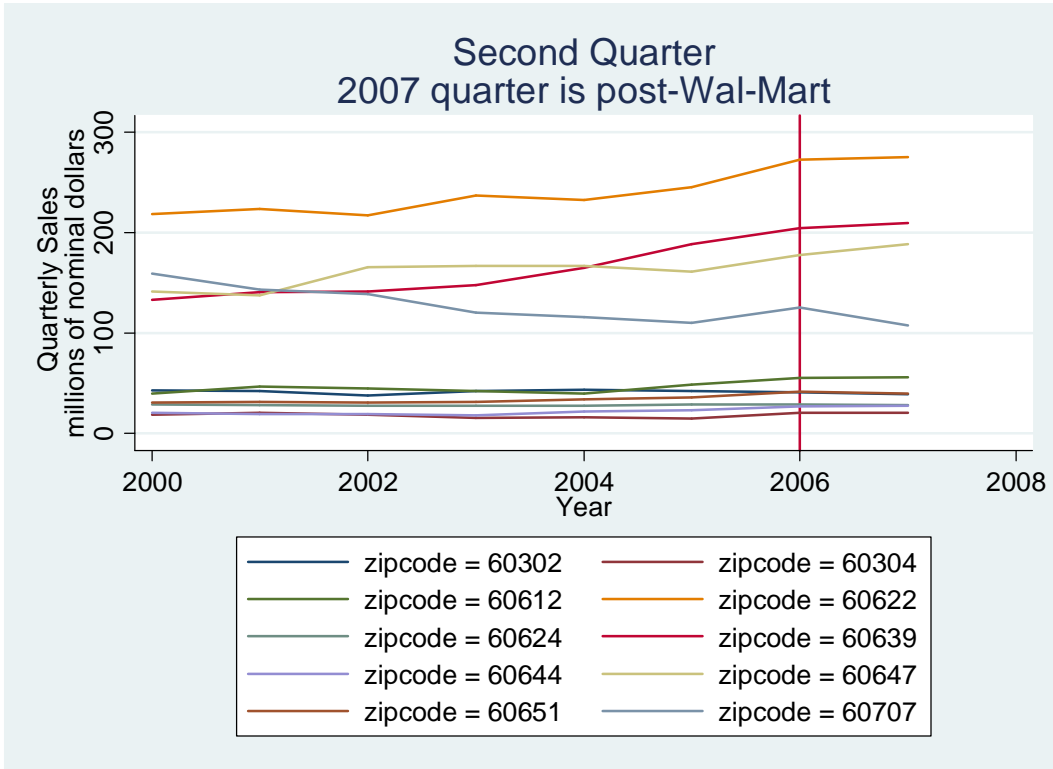
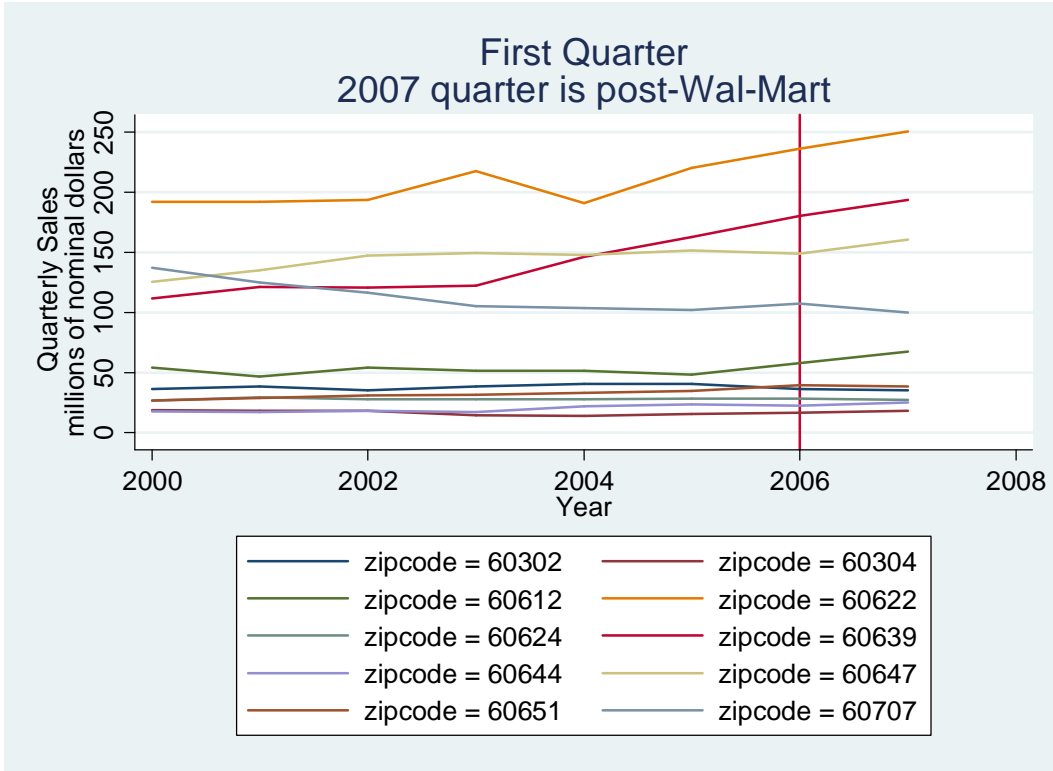
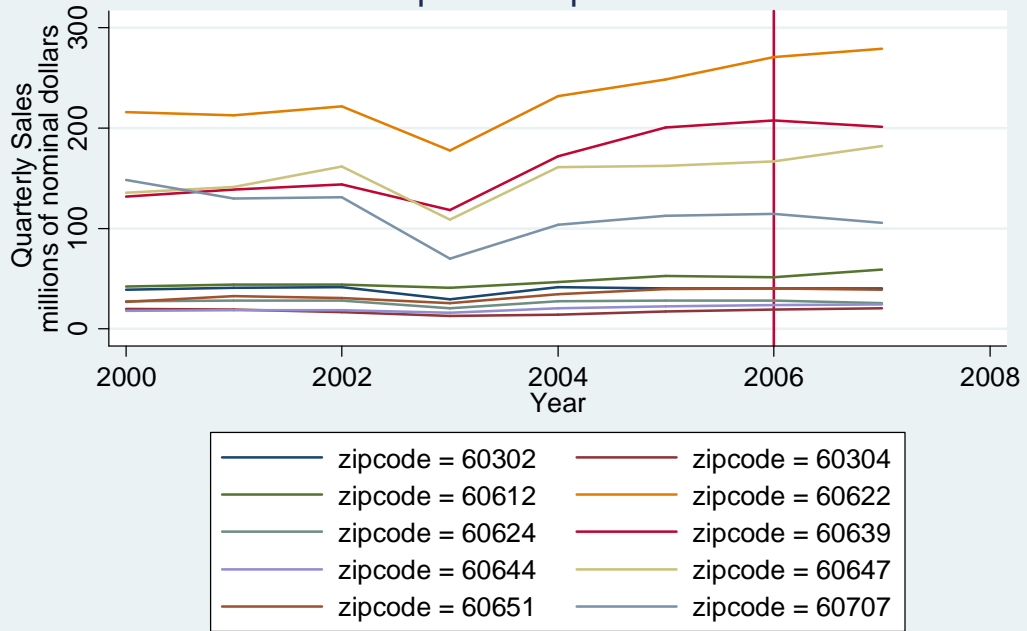


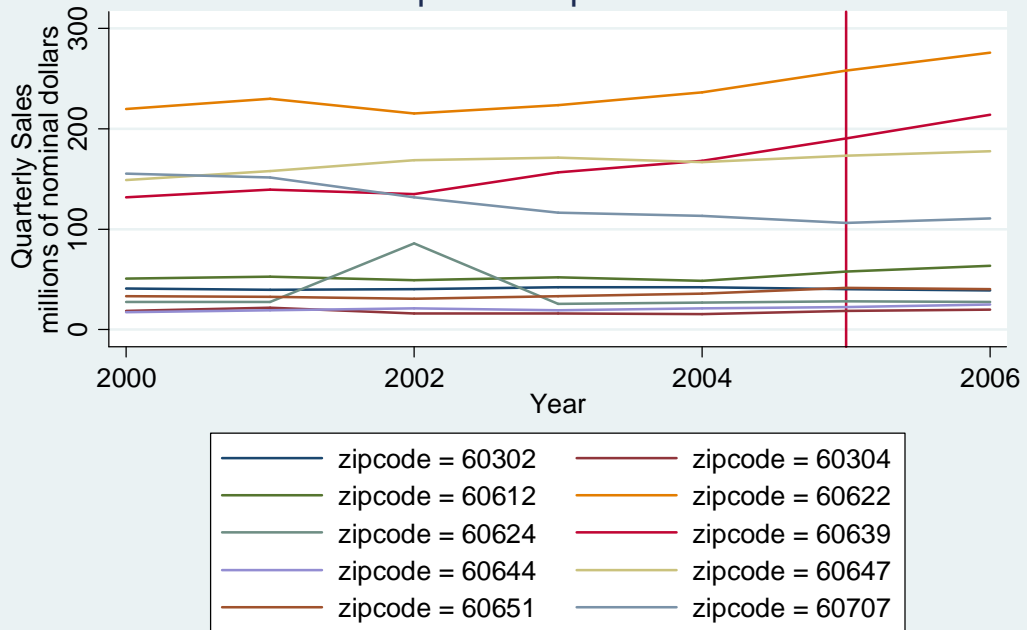
Figure 3



Third Quarter 2007 quarter is post-Wal-Mart



Fourth Quarter 2006 quarter is post-Wal-Mart



Tables

Table 1

	Descriptive statistics based on results of the 2006 survey				
Label	Number of firms with valid response	Mean	Std. Dev.	Min	Max
Full time equivalent employment	122	10.0	14.45	1	112.5
average wage of retail sales clerks (dollars per hour)	81	8.10	1.99	5	16
benefits: health care coverage (yes=1)	56	1	0	1	1
primarily owned by Chicago residents or corporations (yes=1, no=0)	182	0.53	0.50	0	1
ownership shares are widely dispersed (yes=1, no=0)	185	0.44	0.50	0	1
how many owners work in store	113	1.32	0.62	0	4
how many hours owners work last week	103	48.80	26.22	0	180
how many owners are women	109	0.48	0.62	0	2
how many owners are minorities	109	0.58	0.63	0	2
starting wage hourly employee (dollars per hour)	113	8.60	5.33	5.5	50
Price index (average of ratio of observed to mean price)	108	1.17	0.81	0.18	5.40
Store sells apparel (yes=1, no=0)	191	0.48	0.50	0	1
Store sells home furnishings (yes=1, no=0)	191	0.11	0.31	0	1
Store sells hardware (yes=1, no=0)	191	0.15	0.35	0	1
Store sells drugs (yes=1, no=0)	191	0.30	0.46	0	1
Store sells shoes (yes=1, no=0)	191	0.18	0.38	0	1
Distance to Wal-Mart (miles)	191	2.56	1.29	0.1	9.43

Table 2

	Frequency Table on Response to 2007 Re-Survey attempt		
outcome of 2007 survey attempt	Number of firms	Percent	Cum.
Survey completed	107	56.02	56.02
Refused	61	31.94	87.96
phone number disconnected	9	4.71	92.67
no response	8	4.19	96.86
new/changed business	6	3.14	100
Total	191	100	

Table 3

	Descriptive statistics based on results of the 2007 survey and change from 2006 to 2007				
	Obs	Mean	Std. Dev.	Min	Max
Full time equivalent employment	73	14.16	30.30	1	190.5
average wage of retail sales clerks (dollars per hour)	53	8.48	1.98	6	15
benefits: health care coverage (yes=1)	35	0.97	0.17	0	1
Price index (average of ratio of observed to mean price)	93	1.12	0.89	0.10	5.75
Percentage change in price index 2006 to 2007	63	1.00	0.55	0.37	4.04
Percentage change in wage 2006 to 2007	29	0.05	0.21	-0.33	0.63
Percentage change in employment 2006 to 2007	60	0.10	0.73	-0.57	4.00

Table 4

	Status of business by quadrant			
	In-business 2007	Out-of-business 2007	Total	% Out-of-business 2007
Wal-Mart Area Quadrant				
northwest	28	3	31	9.7%
northeast	55	7	62	11.3%
southeast	34	7	41	17.1%
southwest	51	6	57	10.5%
Total	168	23	191	12.0%

Table 5

	Probability firm went out of business between 2006 and 2007 survey as a function of distance to Wal-Mart and other variables				
	(1)	(2)	(3)	(4)	(5)
Estimation Method	OLS	Probit	Probit	Probit	Probit
Distance to Wal-Mart (miles)	-0.0295*	-0.168*	-0.046	-0.165	-0.033
	(1.83)	(1.80)	(0.48)	(1.36)	(0.30)
Full time equivalent employment in baseline (2006) survey			0.0151*		-0.219**
			(1.66)		(2.12)
Price index in baseline (2006) survey				0.0706	0.559
				(0.31)	(1.62)
Constant	0.196***	-0.768***	-1.451***	-1.044***	-1.263*
	(3.65)	(3.08)	(4.84)	(2.69)	(1.87)
Number of observations	191	191	122	108	73
R-squared	0.014				
Pseudo R-squared		0.02	0.042	0.018	0.15
Absolute t statistics in parentheses					
* p<.1, ** p<.05, *** p<.01					

Table 6

	Percent change in employment and wages between 2006 and 2007 survey as a function of distance to Wal-Mart	
	(1)	(2)
	Full time equivalent workers	Wages
Estimation Method	OLS	OLS
Distance to Wal-Mart (miles)	-0.0451	0.0323
	(0.94)	(1.59)
Constant	0.22	-0.0304
	(1.17)	(0.58)
Observations	60	29
R-squared	0.007	0.04
Absolute t statistics in parentheses		
* p<.1, ** p<.05, *** p<.01		

Table 7

Wal-Mart impact on taxable sales in home zip code			
	Model 1_1	Model 1_2	Model 1_3
	coef/se	coef/se	coef/se
wal_mart_dummy			4.996E-06 (1.859E-05)
quarter 2	0.068*** (0.018)	0.068*** (0.013)	0.067*** (0.013)
quarter 3	0.015 (0.022)	0.015 (0.018)	0.018 (0.017)
quarter 4	0.101*** (0.025)	0.101*** (0.022)	0.101*** (0.019)
zip code==60302	-1.330** (0.032)	143.855*** (17.541)	152.109** (16.715)
zip code==60304	-2.163** (0.040)	196.836*** (29.905)	155.602*** (25.116)
zip code==60612	-1.129** (0.035)	105.630*** (26.549)	79.486*** (24.207)
zip code==60622	0.394** (0.032)	88.997*** (19.642)	77.200*** (17.340)
zip code==60624	-1.654** (0.052)	166.311*** (26.223)	169.231*** (26.020)
zip code==60644	-2.009** (0.034)	53.789*** (20.536)	43.822* (18.101)
zip code==60647	0.016 (0.032)	94.467*** (17.256)	87.817*** (16.566)
zip code==60651	-1.515** (0.034)	46.823* (19.272)	51.168*** (17.043)
zip code==60707	-0.221*** (0.046)	259.563** (24.210)	245.230** (19.374)
Year	0.019*** (0.004)	0.077** (0.008)	0.076** (0.007)
(zip code==60302)*year		-0.072*** (0.009)	-0.077** (0.008)
(zip code==60304)*year		-0.099*** (0.015)	-0.079*** (0.013)
(zip code==60612)*year		-0.053*** (0.013)	-0.040*** (0.012)
(zip code==60622)*year		-0.044*** (0.010)	-0.038*** (0.009)
(zip code==60624)*year		-0.084*** (0.013)	-0.085*** (0.013)
(zip code==60644)*year		-0.028*** (0.010)	-0.023* (0.009)
(zip code==60647)*year		-0.047*** (0.009)	-0.044*** (0.008)
(zip code==60651)*year		-0.024* (0.010)	-0.026*** (0.009)
(zip code==60707)*year		-0.130** (0.012)	-0.123** (0.010)
_cons	-23.367*** (7.544)	-139.956** (15.046)	-138.954** (14.717)
Number of observations	270	270	310
Adjusted R2	0.977	0.984	0.985
note: 0.0 - **; 0.01 - ***; 0.1 - *;			
Note: Models 1 and 2 use pre-Wal-Mart data			
Model 3 uses data from all years			
Model 1 assumes growth rate constant across zip codes			
Models 2 and 3 allow growth rates to vary by zip code			

Table 8

Wal-Mart impact on taxable sales all zip codes				
	Model 2_post1999	Model 2_post2002	Model 2_post2003	Model 2_post2004
	coef/se	coef/se	coef/se	coef/se
wal_mart_dummy	0.000 (0.000)	-0.000052* (0.000)	-0.000 (0.000)	-0.000 (0.000)
wal_mart_dummy60302	-0.000028* (0.000)	-0.0000444* (0.000)	-0.000 (0.000)	-0.000 (0.000)
wal_mart_dummy60304	0.000112*** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
wal_mart_dummy60612	0.0000727* (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
wal_mart_dummy60622	0.0000310* (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
wal_mart_dummy60624	-0.000 (0.000)	-0.000058*** (0.000)	-0.000038*** (0.000)	-0.00004*** (0.000)
wal_mart_dummy60644	0.000 (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000 (0.000)
wal_mart_dummy60647	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
wal_mart_dummy60651	-0.0000144 (0.000)	-0.00007*** (0.000)	-0.000052*** (0.000)	-0.000047*** (0.000)
wal_mart_dummy60707	0.000 (0.000)	-0.00006203* (0.000)	-0.000050*** (0.000)	-0.00007*** (0.000)
quarter 2	0.067*** (0.012)	0.065*** (0.014)	0.069*** (0.014)	0.074*** (0.015)
quarter 3	0.018 (0.016)	0.002 (0.018)	0.056*** (0.011)	0.062*** (0.014)
quarter 4	0.098*** (0.019)	0.107*** (0.014)	0.102*** (0.015)	0.116*** (0.019)
zip code==60302	142.298*** (17.362)	220.152*** (60.568)	238.063*** (40.560)	131.841 (84.010)
zip code==60304	194.338*** (29.727)	87.957* (53.363)	-40.033 (52.811)	-138.200 (109.389)
zip code==60612	104.707*** (26.602)	128.854* (58.159)	19.079 (84.518)	-5.828 (115.957)
zip code==60622	87.900*** (19.437)	115.026* (52.333)	31.811 (50.807)	-23.613 (76.526)
zip code==60624	164.602*** (26.143)	157.912*** (55.606)	137.455*** (43.841)	60.851 (77.977)
zip code==60644	52.146* (20.395)	39.543 (45.718)	49.512 (52.048)	-39.117 (95.006)
zip code==60647	92.971*** (17.130)	174.841*** (65.446)	146.447*** (43.959)	33.362 (78.329)
zip code==60651	46.072* (19.187)	54.380 (46.610)	17.521 (37.943)	-28.690 (78.777)
zip code==60707	257.673** (24.076)	170.952* (75.191)	127.678*** (47.644)	-9.571 (87.681)
Year	0.076** (0.007)	0.130*** (0.019)	0.095*** (0.017)	0.059* (0.034)
(zip code==60302)*year	-0.072*** (0.009)	-0.111*** (0.030)	-0.119*** (0.020)	-0.067 (0.042)
(zip code==60304)*year	-0.098*** (0.015)	-0.045* (0.027)	0.019 (0.026)	0.068 (0.055)
(zip code==60612)*year	-0.053*** (0.013)	-0.065* (0.029)	-0.010 (0.042)	0.002 (0.058)
(zip code==60622)*year	-0.044*** (0.010)	-0.057* (0.026)	-0.016 (0.025)	0.012 (0.038)
(zip code==60624)*year	-0.083*** (0.013)	-0.080*** (0.028)	-0.069*** (0.022)	-0.031 (0.039)
(zip code==60644)*year	-0.027*** (0.010)	-0.021 (0.023)	-0.026 (0.026)	0.018 (0.047)
(zip code==60647)*year	-0.046*** (0.009)	-0.087*** (0.033)	-0.073*** (0.022)	-0.017 (0.039)
(zip code==60651)*year	-0.024* (0.010)	-0.028 (0.023)	-0.010 (0.019)	0.014 (0.039)
(zip code==60707)*year	-0.129** (0.012)	-0.086* (0.038)	-0.064*** (0.024)	0.005 (0.044)
_cons	-138.780** (14.908)	-245.504*** (37.491)	-175.607*** (34.417)	-104.183 (67.243)
Number of observations	310	190	150	110
Adjusted R2	0.985	0.992	0.996	0.997
note: 0.0 - **; 0.01 - ***; 0.1 - *;				
Note: All models allow growth rate to vary by zip code				
Model 1 uses data from all years, Model 2 uses post 2002 data				
Model 3 use post 2003 data, model 4 use post 2004 data				

Appendix Tables

Table A2.1 Business status by SIC code for Wal-Mart area firms

		Business status by SIC code for Wal-Mart area firms									
Business status		Building materials, hardware, garden supply, & mobile home (SIC 52)	General merchandise stores (SIC 53)	Food stores (SIC 54)	Automotive dealers and gasoline service stations (SIC 55)	Apparel and accessory stores (SIC 56)	Furniture, home furnishings and equipment stores (SIC 57)	Eating and drinking places (SIC 58)	Miscellaneous retail (SIC 59)	Total	
In 2005 survey only (out-of-business)	frequency	32	37	196	89	154	133	363	304	1,308	
	row percentage	2.45	2.83	14.98	6.8	11.77	10.17	27.75	23.24	100	
	column percentage	24.24	27.41	33.11	29.37	33.62	37.46	32.15	31.97	32.1	
In 2007 survey only (new business)	frequency	21	31	108	39	94	57	194	153	697	
	row percentage	3.01	4.45	15.49	5.6	13.49	8.18	27.83	21.95	100	
	column percentage	15.91	22.96	18.24	12.87	20.52	16.06	17.18	16.09	17.1	
In both 2005 and 2007 survey	frequency	79	67	288	175	210	165	572	494	2,070	
	row percentage	3.82	3.24	13.91	8.45	10.14	7.97	27.63	23.86	100	
	column percentage	59.85	49.63	48.65	57.76	45.85	46.48	50.66	51.95	50.8	
Total	frequency	132	135	592	303	458	355	1,129	951	4,075	
	row percentage	3.24	3.31	14.53	7.44	11.24	8.71	27.71	23.34	100	
	column percentage	100	100	100	100	100	100	100	100	100	

Table A2.2

Basic Descriptive Statistics about Firms in the Wal-Mart area from the Dun & Bradstreet data					
Variable	Obs	Mean	Std. Dev.	Min	Max
Sales volume 2005 (nominal \$s)	2634	434,134	1,961,795	6,000	49,100,000
Employment here 2005	2944	7.91	23.15	1	476
Sales volume 2007 (nominal \$s)	2389	441,079	924,549	10,000	9,100,000
Employment here 2007	2428	8.27	24.31	1	600
Year Business Started	1853	1990.0	13.14	1895	2005
New business in 2007 data	4075	0.17	0.38	0	1
Out-of-business in 2007 data	4075	0.32	0.47	0	1
Distance from Wal-Mart (miles)	4075	2.43	1.18	0.07	9.65
Percentage change in employment*	211	-7.8%	65.2%	-355.5%	160.9%
Percentage change in sales*	214	-15.8%	89.7%	-377.2%	238.6%

* Restricted to firms with differing sales in 2005 and 2007 surveys. Please see text for discussion.

Table A2.3

Business status by compete status for Wal-Mart area firms*				
Business status		Non-competitive SIC code	Competitive SIC code	Total
In 2005 survey only (out-of-business)	frequency	538	770	1308
	row percentage	41.13	58.87	100
	column percentage	31.82	32.3	32.1
In 2007 survey only (new business)	frequency	291	406	697
	row percentage	41.75	58.25	100
	column percentage	17.21	17.03	17.1
In both 2005 and 2007 survey	frequency	862	1208	2070
	row percentage	41.64	58.36	100
	column percentage	50.98	50.67	50.8
Total	frequency	1691	2384	4075
	row percentage	41.5	58.5	100
	column percentage	100	100	100
* Non-competitive SIC codes were codes that sold products where Wal-Mart did not sell an alternative.				

Table A2.4

Business status by relative location for Wal-Mart area firms*					
Location relative to Wal-Mart		In 2005 survey only (out-of-business)	In 2007 survey only (new business)	In both 2005 and 2007 survey	Total
Northwest	frequency	414	228	731	1373
	row percentage	30.15	16.61	53.24	100
	column percentage	31.65	32.17	35.31	33.69
Northeast	frequency	373	244	654	1271
	row percentage	29.35	19.2	51.46	100
	column percentage	28.52	35.01	31.59	31.19
Southeast	frequency	199	88	235	522
	row percentage	38.12	16.86	45.02	100
	column percentage	15.21	12.63	11.35	12.81
Southwest	frequency	322	137	450	909
	row percentage	35.42	15.07	49.5	100
	column percentage	24.62	19.66	21.74	22.31
Total	frequency	1308	697	2070	4075
	row percentage	32.1	17.1	50.8	100
	column percentage	100	100	100	100

Table A2.5A

Regressions to predict out-of-business status for Wal-Mart area firms					
	OLS	Probit	Probit	Probit	Probit
	1	2	3	4	5
Distance to Wal-Mart (miles)	- 0.0139** (1.98)	- 0.0366** (1.97)	- 0.0367** (1.97)	-0.0413** (1.98)	-0.0363 (1.29)
In competitive SIC code			0.0147 (0.33)	0.173*** (3.39)	0.0636 (0.97)
Number of employees 2005				- 0.0130*** (3.34)	- 0.0135*** (2.72)
Sales volume 2005 (\$s)					-6.90e-08** (2.05)
Year business started					0.0105*** (3.88)
Constant	0.421*** (21.94)	0.198*** (3.94)	0.206*** (3.68)	-0.284*** (4.30)	-21.28*** (3.94)
Observations	3378	3378	3378	2944	1802
R-squared	0.001				
Pseudo R-squared		0.001	0.001	0.021	0.026
Absolute t statistics in parentheses					
* p<.1, ** p<.05, *** p<.01					

Table A2.5B

Regression to predict out-of-business status for Wal-Mart area firms (includes SIC dummies, building materials omitted category)	
	Probit
	(1)
Distance to Wal-Mart (miles)	-0.0466 (1.62)
In competitive SIC code	-0.146 (1.35)
Number of employees 2005	-0.0112** (2.28)
Sales volume 2005 (\$s)	-7.50e- 08** (2.18)
Year business started	0.0100*** (3.74)
General merchandise stores (SIC 53)	0.338 (1.31)
Food stores (SIC 54)	0.246 (1.29)
Automotive dealers and gasoline service stations (SIC 55)	0.151 (0.71)
Apparel and accessory stores (SIC 56)	0.467** (2.34)
Furniture, home furnishings and equipment stores (SIC 57)	0.452** (2.24)
Eating and drinking places (SIC 58)	0.0601 (0.30)
Miscellaneous retail (SIC 59)	0.337* (1.84)
Constant	-20.43*** (3.82)
Observations	1789
R-squared	
Pseudo R-squared	0.032
Absolute t statistics in parentheses	
* p<.1, ** p<.05, *** p<.01	

Table A2.6

Distance (in miles) to Wal-Mart of existing and new businesses in 2007 Dun & Bradstreet survey		
Closest	Existing	New
1%	0.29	0.24
5%	0.71	0.76
10%	0.99	0.98
25%	1.61	1.57
50%	2.32	2.26
75%	31.2	3.12
90%	3.73	3.67
95%	4.62	4.62
99%	6.19	6.37

Table A2.7A

OLS Regressions to predict change in employment for Wal-Mart area firms					
	1	2	3	4	5
Distance to Wal-Mart (miles)	0.00758	0.00643	0.0282	0.0289	0.0336
	(0.18)	(0.15)	(0.67)	(0.69)	(0.71)
In competitive SIC code		0.0932	-0.0397	-0.0343	0.0479
		(0.98)	(0.48)	(0.41)	(0.43)
Number of employees 2005			-	-	-
			0.0232***	0.0219***	0.0236***
			(6.45)	(5.31)	(4.91)
Sales volume 2005 (\$s)				-3.16e-08	-2.83e-08
				(0.91)	(0.82)
Year business started					-0.00274
					(0.68)
Constant	-0.0957	-0.146	0.038	0.0419	5.441
	(0.88)	(1.26)	(0.35)	(0.39)	(0.67)
Observations	211	211	211	211	141
R-squared	0	0.005	0.185	0.191	0.249
# sample restricted to firms with differing non-zero sales in 2005 and 2007 surveys					
Absolute t statistics in parentheses					
* p<.1, ** p<.05, *** p<.01					

Table A2.7B

Regression to predict percentage change in employment for Wal-Mart area firms (includes SIC dummies, building materials omitted category)	
	(1)
Distance to Wal-Mart (miles)	0.0406
	(0.75)
In competitive SIC code	-0.0942
	(0.32)
Number of employees 2005	-0.0232***
	(4.37)
Sales volume 2005 (\$s)	-2.31E-08
	(0.66)
Year business started	-0.00155
	(0.38)
General merchandise stores (SIC 53)	-0.443
	(0.78)
Food stores (SIC 54)	-0.0188
	(0.06)
Automotive dealers and gasoline service stations (SIC 55)	-0.542**
	(1.99)
Apparel and accessory stores (SIC 56)	-0.26
	(1.25)
Furniture, home furnishings and equipment stores (SIC 57)	-0.282
	(1.33)
Eating and drinking places (SIC 58)	-0.453
	(1.43)
Miscellaneous retail (SIC 59)	-0.328
	(1.56)
Constant	3.46
	(0.43)
Observations	129
R-squared	0.295
# sample restricted to firms with differing non-zero sales in 2005 and 2007 surveys	
Absolute t statistics in parentheses	
* p<.1, ** p<.05, *** p<.01	

Table A2.8A

OLS Regressions to predict change in sales for Wal-Mart area firms#					
	(1)	(2)	(3)	(4)	(5)
Distance to Wal-Mart (miles)	- 0.0309 (0.58)	- 0.0332 (0.64)	-0.018 (0.34)	-0.0144 (0.28)	0.000987 (0.02)
In competitive SIC code		0.300** (2.4)	0.206* (1.69)	0.236** (2.04)	0.336** (2.1)
Number of employees 2005			- 0.0170*** (3.96)	-0.00994** (2.19)	-0.00991* (1.77)
Sales volume 2005 (\$s)				- 0.000000174*** (5.2)	- 0.000000173*** (5.16)
Year business started					0.000306 (0.06)
Constant	- 0.0832 (0.61)	-0.247* (1.67)	-0.109 (0.77)	-0.0876 (0.67)	-0.788 (0.08)
Observations	214	214	212	212	142
R-squared	0.002	0.029	0.08	0.177	0.219
# sample restricted to firms with differing non-zero sales in 2005 and 2007 surveys					
Absolute t statistics in parentheses					
* p<.1, ** p<.05, *** p<.01					

Table A2.8B

Regression to predict percentage change in sales for Wal-Mart area firms (includes SIC dummies, building materials omitted category)#	
	(1)
	-0.00498
Distance to Wal-Mart (miles)	(0.08)
	-0.11
In competitive SIC code	(0.27)
	-0.00921
Number of employees 2005	(1.24)
	-0.000000192***
Sales volume 2005 (\$s)	(4.31)
	0.000357
Year business started	(0.07)
	-0.538
General merchandise stores (SIC 53)	(0.73)
	-0.165
Food stores (SIC 54)	(0.36)
	-0.29
Automotive dealers and gasoline service stations (SIC 55)	(0.54)
	-0.262
Apparel and accessory stores (SIC 56)	(0.6)
	-0.308
Furniture, home furnishings and equipment stores (SIC 57)	(0.77)
	-0.938*
Eating and drinking places (SIC 58)	(1.91)
	-0.378
Miscellaneous retail (SIC 59)	(0.95)
	-0.114
Constant	(0.01)
Observations	130
R-squared	0.263
# sample restricted to firms with differing non-zero sales in 2005 and 2007 surveys	
Absolute t statistics in parentheses	
* p<.1, ** p<.05, *** p<.01	